PHILOSOPHIES OF COLOUR: GENDER AND ACCULTURATION

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PHILOSOPHIES OF COLOUR: GENDER AND ACCULTURATION

By

Helen V Andrew thesis submitted to the University of Plymouth

In partial fulfillment of the degree of

DOCTOR OF PHILOSOPHY

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My hypothesis is that 'Colour' as idea acts as a dynamic in the production of meaning and as such is part of what Le Doeuff (1991: 46-49) argues are deeply held epistemes that structure and govern our ways of thinking. I have dealt with the difficulties attendant on the analysis of a phenomenon as insubstantial as colour (as idea and as precept) by assuming Goethe's (1810: 305-323) concept of the enrolement of colour to objects without also attaching Goethe's theoretical hypothesis of moral associations to colour. Thus I combine four different methodologies to broadly related areas and cloak each in colour: the long cultural historical view, the statistical, a case study and an applied art historical comparison. In the first part I have constructed an alternative vision of the development of colour theory from Plato to now, its philosophical, psychological and mythological construction and the consequent framing of women as colour. I discuss how a constructed hierarchy of chromatic value has informed perceptions of gender, arguing that authoritative epistemologies such as colour theory have established fallacious belief systems of chromatic value that reinforce cultural perceptions of gender. In the second I have conducted a three-year perceptual psychology experiment designed to reveal the extent of stereotyped chromatic perceptions of gender in visual arts students at two institutions of Higher Education. The data and results are statistically analysed and the evidence of acculturated chromatic perception is discussed in relation to universal culturally patterned belief systems of chroma and gender. Thirdly I have taken 'yellow' as an epistemological and historical study that proposes and explores an underlying determined semiotic chroma that ensures normalising belief systems survive material and social change. I deconstruct some of the theological mythologising structures and meanings of 'Yellow' and discuss the implications for art history of racism and the recuperation of feminised colour as an adjunct of the phallus. Finally I discuss two women artists, Sonia Delaunay and Bridget Riley and the implications of the word 'colourist' for them as women in art practice. I argue that the general unconscious assumption is that colour originates in emotion instinct and ethnicity and equates women with colour at the level of the imaginary insisting that success for women artists is incumbent upon their colour being confined in a phallic symbolic framework of masculinity. I evidence how acculturated perceptions of 'woman' as colour naturalises and ensures the continuation and institutionalisation of cultural and social systems.
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INTRODUCTION

Philosophy, alchemy, medicine, chemistry and optical theory all developed under the western generic term of 'natural philosophy', a term now used to describe retrospectively the ancient study of subjects such as philosophy, chemistry, mathematics, medicine and astronomy and not as a contemporary understanding and description of the term philosophy. Philosophy as she now is has become separated from other academic disciplines and stands on her own as a subject for study and knowledge. Insofar as philosophy is understood to mean an epistemology or a theory of knowledge, there can be in the modern sense a philosophy of every form of major intellectual activity. Within this understanding of the term a 'philosophy of colour' can become part of that organisation of thought. As Le Doeuff argues,

Being a feminist is also a way of integrating the fact of being a philosopher. Because for two centuries a feminist has been a woman who does not leave others to think for her, whether it be a question simply of thinking or, more particularly, thinking about the feminine condition or what it should be. (Le Doeuff 1991: 29)

A feminist critique or philosophy of colour requires an understanding of the phallic inscription and institutional sexism that underpins the methods by which a system of thought or more precisely in this instance, western thought is established.
Colour is the most or least graspable of subjects since its very existence depends upon our subjectivity that is informed by physiological and psychological perception, revised by our exposure to all the processes of our highly developed systems of language, communication and education. I have adopted the term 'acculturation' for this complex process.

In Colour and Culture: practice and meaning from Antiquity to Abstraction Gage (1995: 7-11) expressed his anxiety regarding the exploration of colour meaning where he spoke of the difficulty of challenging the ownership of the meaning of colour by all who can see and interpret the world, and the individuals need to express their knowledge of colour as a subjective truth. In Colour and Meaning Art, Science and Symbolism Gage (1999: 7-10) has again addressed the potentially controversial area of colour studies, specifically the area of 'philosophy of colour' that has attracted such eminent theoretical thinkers as Wittgenstein (1978) and Kant (1790). Gage has illustrated the unease felt by modern philosophers of colour by quoting Stephen Melville who he claims has posed the philosophical problems of colour in the following way.

Colour can also seem bottomlessly resistant to nomination, attaching itself absolutely to its own specificity and the surfaces on which it has or finds its visibility, even as it also appears subject to endless alteration arising through its juxtaposition to other colours. Subjective and objective, physically fixed and culturally constructed, absolutely proper and endlessly displaced, colour can appear as an unthinkable scandal. (Gage 1999:7)

The colour we live in is completely integrated into our consciousness in a way that does not require our complete attention to it unless we are prompted to pay attention by a question that for instance requires that we make a choice regarding our favourite colour. The word favourite implies choice and that implies a value
system upon which the choice may be made, one colour being better than another. The question of the fact of colour as our everyday visual experience and the choice of colour as a measure of value is the dichotomy that I am concerned with in the body of this thesis. The colour that is our favourite and the colour that we are subsumed to embody the paradox that colour represents for a philosophical enquiry. Longair says regarding the business of writing on ‘colour’ and the conflict between physics, aesthetics and judgement,

I breathed a sigh of relief when I learned that my assignment was to provide the physicists view of light and colour because to me every other aspect of light and colour is quite horribly complicated. (Longair, 1995: 65)

Because of the tension between perceptive and physical reality colour requires methodologies that are of necessity heterogeneous in order to organise a feminist critique that can embrace our whole spectrum of chromatic understanding and knowledge. Integrating feminism into orthodox dialectical structures without reducing them to nothing because of their contamination through exposure to the pejorative associations of the feminine requires great dexterity. The employment of a kind of ‘double voicedness’ is what is called for, a voice that has two sounds as Suleiman (1990: 162-163) describes in her discussion of women and the avant-garde, where she argues that women develop a special voice that at one and the same time apes the orthodox and also reflects their needs, problems and their singularity as women. As le Doeuff says,

Because first of all feminism is the simple knowledge that when one is a woman, the fact always matters in social situations and in relationships, including those where you might expect it least, where you would not think it was relevant. (Le Doeuff 1991: 28)

And so it is with colour. Colour is a very tricky concept (as already outlined) requiring a flexible and heterogeneous approach, colour is also feminised and indeed
it is culturally perceive as woman as I will show in the development of my thesis argument. Dispatching the feminist message or dialectic may require (because of phallic constraints) a system of communication that uses what Shapiro (1991: 114) describes in another context as ‘an elaborate postal system’. In ‘Alcyone Nietzsche on Gifts, Noise, and Women, Shapiro tells how the news of Keyx death was sent to Alcyone. Juno, not wishing to be the bearer of bad news despatches Iris (also handmaiden to Hera and representative of the rainbow, dressed in many colours and a sometime messenger of bad tidings) who speaks to Sleep whom as Morpheus presents himself as Keyx to Alcyone, thus the bad news is carried and delivered. Shapiro (1991: 114) describes this system as ‘iristics’ or the feminine alternative to hermeneutics, the means I believe by which the feminine can deliver its possibly uncomfortable message using a complexity of interpretations and strategic digressions.

In the tradition of the best of feminism that grew from the thousand and one theoretical discourses intersected in the women’s movement I will use what Le Doeuff (1991: 221) describes as ‘a more adventurous idea of rigour’ one full of ‘juice’ that allows me to venture into places that I might not otherwise visit and whose outcome is not guaranteed in advance.

Theorising colour from a feminist point of view requires challenging basic assumptions about colour and colour theory that make chromatic value the basis of our knowledge and understanding of the phenomenon. Using a methodological approach that allows a constructive flexibility, colour can be revealed as a dynamic in
the construction of meaning and in particular in the production of gender perception and the establishment and normalisation of cultural beliefs.

In searching for commentaries on colour I have discovered very few that refer to colour and gender in a specific way although the gendering of specific colours such as blue is addressed briefly and in passing by colour theorists such as Gage (1999: 192-193). I have chosen to make many references to Lichtenstein’s (1993) text ‘The Eloquence of Colour Rhetoric and Painting in the French Classical age’ as she does engage with the feminisation of colour. The main thrust of her argument on colour is that it represents the rhetorical in painting taking as her model the Aristotelian analogy of scenery and props as rhetoric to the plot of a play, the plot being able to stand alone and rhetoric merely there to aid our understanding of the main argument, a colourful cosmetic embellishment. Rhetoric in this way is subordinated to the eloquence of the main plot as colour is suborned to drawing or the idea of a painting. Lichtenstein acknowledges and describes the likening of colour to cosmetics and trollops that may lure and deceive in painting but she does not extend this feminisation of colour beyond the canvas to the world of women and the consequences of their achromatisation as I do. In ‘Chromophobia’, Batchelor (2000: 21-49) associates colour and the feminine connecting their subordinate and debased position to the denial and fear of corruption that surrounds its presence in art, but he does not extrapolate beyond the visual arts and art criticism as I do. It is most often the case that texts dealing with colour are written by men, either from a scientific or an art historical point of view, it seems that most people including feminists avoid like the plague any attempt to apply the pejorative feminisation of colour to an analysis of the power implications in the cultural perception of women.
The historian John Gage (1978, 1993, 1995 and 1999) has written texts informed by a breadth of classical and historical information but questions of the gendering of colour do not inform his work. David Batchelor (2000) has written a text that truly engages with the complexity of ‘Chromophobia’ (fear of contamination through colour) and its association with the feminine. His text is brave in this respect but his work has been criticised for not being academic enough. As I have shown in this thesis, orthodox academic devices alone are not enough to reveal the complexity of colour perception and a more strategic use of an elaborate postal system as attempted by Batchelor is required to deliver the message. Other texts on colour engage with physics and physiology and perception of colour as phenomenon they increase our understanding of the invisibility of what we call colour, but do not push at cultural boundaries. Due to the unexpected evidence of chromatic patterning produced by my Colour Acculturation Experiment of chapter two it became imperative to look for texts specific to the phenomenon of cultural patterning in particular. The most fruitful for my feminist critique proved to be the work of Talcott Parsons (1951: 1-30). Parsons was the most influential American functional sociologist of the 1950s and 1960s, he was also paradoxically one of the most criticised and rejected social theorists of his day, challenging as he did the importance of orthodox economic and political input to sociological analysis. He was accused of being too abstract and apolitical in that his theorisations attempted to deconstruct the functional nature of society without recourse to political or economic theory. Parsons regarded these as only elements in social structure and action, along with the other motivations and normative forces that make up the dynamics of social action. It was Parsonian theories of action and cultural patterns that offered the most appropriate theoretical
framework for the elaboration of a gendered understanding of the development and fixing of belief attached to colour perception and its acculturation. Although unanticipated by Parsons, the effects of patterning in the flow charts of the Colour Acculturation Experiment of chapter two demonstrate the strength of normalisation in subjects of chromatic value in relation to specific signifiers, most importantly for my thesis the value attached to colour and gender.

Parsonian theory is concerned to analyse opaque social and cultural controls that survive despite changes in economic, religious and political structures and that are amoral, concerned only with maintaining core values by normalising them. Parsons (1951) does not engage specifically with gender, but his theorisations are generalised theories of social order and I therefore extrapolate those theories of value and normalisation to include questions of race and gender.

In the same way, my use of Freud’s (1927 and 1939) social psychological analysis is useful for gaining insight to the importance of roles and social control for my socio/cultural analysis in relation to gender and race.

In chapter one I deconstruct the development of chromatic perceptions of gender and the development of colour value through the construction of colour theories. I argue that the genesis of both lays in philosophical expositions of ancient Greek cosmologies and the interaction of concurrent developments in medicine, chemistry and alchemy. I frame my argument around a deconstruction of Plato’s ([c427-347 BC], 1966 and 1967) Timaeus and his cosmological exposition of light and incidental colour. I argue that the philosophical theorisations of colour as an insubstantial product of light were seminal to the embedding and institutionalisation of the
acculturated notion of ‘woman’ as ‘colour’. I show the relationship between the philosophical theorisation and the mythological feminisation of colour.

My epistemological analysis of these ideations of colour and subsequent colour theory include an analysis of the role of alchemy in establishing a hierarchy of value for theorisations of colour. I show where Platonic and alchemical philosophies intersect in terms of chromatic hierarchy, establishing the dependence of active feminised colour on masculine poles of black and white or non-colour in phallic colour hierarchies. I map the historical development of colour theory with special reference to Newton and Goethe, both alchemical practitioners and I link artisanal art practice and the shift to the academisation of art and colour theory. I argue that such chromatic perceptions of gender have led to patterns of belief that are instrumental in perpetuating institutionalised sexism.

Chapter two uses an orthodox prescribed methodology for conducting perceptual psychology experiments. My use of an empirical methodology arose from the desire to look at contemporary perception of colour with regard to gender under controlled conditions and repeatable by others. The practical application of my hypothesis also conforms to current feminist thinking with regard to the need to show the relation of the theoretical to the real. The experiment was also designed to test colour perception of specific signs including gender using Newton’s spectrum and established psychological research findings regarding cross-cultural colour terms. The experiment also produced real evidence of patterning relative to the thesis, which is an almost universally patterned perception of feminine as pink or colour and masculine as black, blue or grey.
Chapter three is a hybrid, attaching or cloaking perceptions of yellow to four areas and using historical, philosophic, sociological and semiotic methodologies. This adaptive treatment enables me to deconstruct and demonstrate how colour perception once established will persist with regard to the particular values given to it. Yellow is discussed in terms of its cultural usefulness in designating the goodness and badness of things, states of being and people. The manoeuvrability of yellow between high and low value is shown as a determining factor in perceptions of race and gender.

I analyse the process of objectification of colour through the use of an adaptation of Kristeva’s (1986: 89-136) ‘chora’ to my own theorisation of chroma, a speculative methodology designed to explore the possible dichotomy between subjective colour/chroma and the establishment of law on biological matter.

I deconstruct the meaning of yellow as sign in the field of painting looking specifically at medieval religious and modern orthodox secular aspects of the canon. By using Battersby’s (1994) arguments regarding genius and the recuperation of feminine emotion or madness to its remit, I analyse the adaptive use in phallic thought of feminine colour/yellow to masculine creativity and the unavoidable attendant good-bad acculturation of yellow that is engraved on the surface of art.

The historical methodology utilises a trawl of documented legislative evidence and a deconstruction of the meanings of yellow in particular with reference to Jews, and the attendant results of such an attachment. I present a chronology of historical data that maps the cultural leaping of chromatic perceptions of yellow and demonstrates the
intransigence of cultural patterning. By aligning anti Semitism with misogyny I can reveal the feminisation of the subjects of racism, and expose the life and death danger of embedded acculturation for all those that are othered in every context.

Chapter four concerns two women artists, Sonia Delaunay (1885-1979) and Bridget Riley (1931-) and the implication of the attachment of the word ‘colourist’ to them and their work. Through the use of feminist methodologies I show how the term colourist when applied to women artists is underwritten by assumptions of the use of colour as instinctive and emotional and in the case of Delaunay ethnic without recourse to theory or even knowledge of it. The chapter unpicks the close associations of colour, woman and the body and I discuss how the integration of colour, woman, the somatic and the sensual require an ongoing reconstruction of colour in order that a practicing woman artist may be acknowledged and her use of colour be both critically ignored or denied. I argue that the reconstruction of colour from the somatic to the intellectual or spiritual along with a critical ignorance or denial of colour in art is a prerequisite for its inclusion to phallic institutions of art and art practice.

In the following opening chapter alchemy is used to link the progress of the development of colour theory from the philosophical and arcane through the industrial artisanal to the art of the fine artist. I reveal the invisible denigrated feminine body within the practice of Philosophy, art, alchemy and the development of colour theory using the thread of alchemy to mark the persistence of that ideation and exclusion through time and space.
The sculptural representation of Philosophy is usually female as is Justice; I therefore claim it as a further attribute of the feminine.

1. Melville, S ‘Colour has not yet been named: objectivity in deconstruction’ in Brunette and Wills (eds) op. cit. 193


3. Colour analysts and theorists such as Mollon, J. (1992, 1995) and Longair, M (1992, 1995) have written Respectively on the psychology and perception of colour and colour and light physics. A good text to further explore perception and physics of colour through these writers is Bourriau and Lamb (1995) Colour and Science, Cambridge, Cambridge University Press. ISBN 0521 49645

4. A large web site devoted to Talcott Parsons can be located through the Google search engine. This has biographical detail, sociological criticism, texts by him and texts critical of his work, a very comprehensive site. Also look at www.hewett.norfolk.sch.uk/curric/soc/EDUCATIO/parsons.h.htm

5. Parsonian theory is now enjoying a revival of interest in sociological thinking because of its very lack of attachment to specific economic or political theory
William Hogarth's frontispiece to a pamphlet 1763, attacking the work of Francis Hutchinson and Newton. The hag is symbolic of the magic or alchemy that Newton in particular subscribed to.
Chapter 1.

The Genesis of Colour Theory: let there be Light, then let there be Colour.

Introduction

The development of ‘Colour Theory’ owed its specific theoretical trajectory to idealist theories of philosophy, the practice of alchemy, and the use of colour as a codifier of health within medical practice. This chapter is concerned with the deconstruction of deeply held epistemes that strongly associate women and colour or as Gage (1999: 36) puts it, of the recurrent assumption that ‘colour is itself a peculiarly female province’. It is also concerned with the reconstruction of the invisible feminine body within the practice of alchemy and colour theory and the nature of their symbiotic relationship based on the importance of feminised chromatic value to the two disciplines. I refer to the feminist theorists le Doeuff (1990) and Haraway (1998), because they are concerned with the business of writing from a feminist viewpoint and also with challenging the status quo of philosophy and the idea of theoretical objectivity.

I have referred to the colour theorist Gage (1978, 1993, 1995 and 1999) because of his extensive knowledge of the historical map of colour and its use as sign and artistic metaphor from antiquity to the present day. I have also referred to Gage (1993) in conjunction with Eco (1985) in reference to the philosophical and semiotic question of the importance of the acculturation of colour. Both theorists have engaged in the debate surrounding the importance of the effects of culture on colour perception citing language as a primary factor in the construction of colour meaning. I have used the work of Plato to illuminate the long history of thought and ideation involved in theorisations of colour which along with the influence of Ancient Greek myth and the
imaginary have been vital in supporting the normative forces active in the acculturation of colour perception in art and society.

'SITUATED KNOWLEDGE' (Haraway, 1998: 575-99)

Colour is almost everybody's business but it has rarely been treated in a unified way: thus my book opens and closes with instances of how a failure to look at colour has led to absurdities of theory if not of practice. Gage (1995: 46)

The development of alchemy, medicine, chemistry and optical theory were imbued as developing disciplines, within the ideologies and cultures of their philosophical fathers. As Hansen (1996: 89) argues regarding the questionable status of scientific objectivity 'Every description of nature is in some way socially constructed', which makes the task of investigating, colour an imaginative and methodological challenge. The idea of knowledge as 'situated' developed by Donna Haraway may lead to a better understanding of her argument that situated knowledges are embedded in a body, a society and a culture and 'The seeing is always seeing from somewhere.' (Haraway 1998: 575-99) Such groundbreaking notions by feminist theorists such as Haraway, Hansen and Lykke have challenged the objectivity of science and established a feminist methodology that can also be used as a critique to test the objectivity of philosophy and colour theory. As Eddington states of Einstein's quantum theory,

'In Einstein's theory of relativity the observer is a man who sets out in search of truth with a measuring rod. In Quantum theory he sets out with a sieve, (Eddington 1934: 97)

By contrast, I suggest that in feminist theories that critique assumptions of gender and objectivity, the observer is a woman who sets out with a borrowed measuring rod and
sieve and in critiques of colour theory a home made bubble blower whereby the observer can blow bubbles of a new chromatic structural meaning.

I will argue that within this epistemology ‘colour’ (that is and was an insubstantial phenomenon) was philosophically feminised and given a hierarchy of value that was acculturated rather than scientific, which in turn produced meanings expedient to the development of the theoretical models of alchemy and subsequently of colour theory, that when applied to art became in a sense another form of perceived truth.

The feminisation of colour, in particular colour as sign, exemplified by the rainbow and mythologised by the ancient Greeks as Iris, laid the foundation for the perception of colour as a feminine product of light and water, whilst black and white or night and day were perceived and philosophically inscribed in ancient Greek philosophical systems as a completely separate pseudo-scientific and masculinised philosophical construct. This separation of the idea of colour as a feminine product, and black and white or no colour as masculine and productive of colour was I suggest, instrumental in the institutionalisation of the idea of colour as a dynamic signifier of the feminine that is pejorative to perceptions of both the feminine and women. The designation of ‘colour’ as feminine and ‘no-colour’ or black and white as masculine is clearly located within Greek mythology and ancient Greek philosophy, as I will demonstrate in my discussion of Plato’s ([c 427-347 BC] Cornford 1966) Cosmology. Such specific chromatic perceptions of gender are also clearly demonstrated in the analysed results of my ‘colour acculturation’ experiment 2001 in chapter 2. The attribution of the product of colour as a sign of the feminine and the consequent reductive assumptions
of the feminine as inferior to the masculine (no colour) is framed within two terms of reference.

First, in ancient Greek mythology, colour is symbolised as the goddesses Hera and Iris, her handmaiden, and second in Plato's *Cosmology* (Cornford 1966: 22) colour is described as arising from 'confusion'. The creation of woman is theorized as an evolutionary development through a degenerative process. I will discuss how these two perceptions are linked through philosophical argument.

The goddess Hera, mistress of Iris, is symbolized by the multi-coloured hues of her companion peacock's feathers and as Gage states both the coloured rainbow and the peacock were recuperated into alchemical symbolism directly from their feminine deified symbolic source. Boyer (1959: 25) offers some evidence that the ancient Greeks accorded the rainbow feminine gender. Hera is, according to Boyer, described as a virgin in golden robes, with wings of varied hue, riding the rainbow, colours streaming down her legs from her womb and vagina. This juxtaposition of a female virgin and one of the most universal of meteorological phenomena neatly links this very visible manifestation of 'nature' to a female genealogy that from ancient times was clothed in bright colours. Iris was seen as a harbinger of bad tidings, her sex and colours and swiftness concealing her true being that was a harbinger of disasters to come. The dressing and inscription of nature, femaleness and danger in bright colours and stormy weather and woe, certainly can be read as powerful signifiers of a gendering that is still with us, therefore it is possible to read in this imaginary the female gendering of nature and its association with feminised colour.

Michele le Doeuff urges us when confronted by imaginaries to
Decode them before we relate their meaning to the thought made implicit in the image in order afterwards to introduce into discourse the question which the image both resolves and helps to evade,

And further to understand that,

Images are the means by which every philosopher can engage in straightforward dogmatism. (Le Doeuff 1989: 2)

The image of Iris the virgin in conjunction with the rainbow and colour has helped to lay the Western foundation for a two and a half thousand-year continuum of the perception of feminine gender in this paradigm. As le Doeuff says, the philosophical imaginary, a common tool for the expansion of philosophical argument has laid the foundation for the implantation and normalization of the idea.

The image of the womb of Iris as a source of colour is symptomatic of the womb as an important iconic site of mystical reproduction, a place where conflicting colours were heated, mixed and unified. The womb, like the alchemical crucible, became central to alchemical practice where it is represented by the ‘Krater’ or ‘Vas’, a mystical mixing bowl, a receptacle of procreation. (Roob 1997)\(^2\) As with ancient Greek beliefs regarding the process of procreation, the womb was simply a receptacle for male sperm to reproduce itself, the sperm giving the necessary warmth to the coldness of the woman’s flesh, and where, as Plato explains in the *Timaeus*, the male seed

Sowing the ploughland of the womb with the seeds as yet unformed and too small to be seen, which take shape and grow big within until they are born into the light of day as complete living creatures. (c Plato 427-327 BC] Radice 1971: 123)

In alchemy in the same way, the *vas* is symbolic of the flesh of the female womb; a receptacle where the warm coloured ingredients introduced by the male alchemist to the
cold was provided the necessary conditions for the procreation of the philosophers stone or golden lodestone, signposted by colour metamorphoses.

The association of the image of colour and woman in mythology is not so overt in ancient Greek philosophical texts, or indeed in more modern texts of colour theory. The exceptions to this rule being Gage (1999) and Batchelor (2000), who engage with the connection between colour and the feminine and in the case of Batchelor as outlined deconstruct the pejorative implications of the connection with particular reference to art and art criticism. Neither Gage nor Bachelor deconstruct the effect of feminised colour on perceptions of women and women in art practice in particular. The ideological framework that supports the second besting of women and women in art practice uses as one of its major supports the belief that women are colour and that colour is a degenerate product of light and dark the two signifiers of phallic power and creativity. This denial requires that the issue that women are associated with colour and colour with degradation should be evaded at all costs.

In general, colour is designated feminine by its location within a framework of ‘Nature’ referenced as ‘She’. The attribution of the feminine as a pejorative quality expressed as colour is achieved, by placing it within philosophical explanations of the ‘material’, which displaces and conceals. Michele le Doeuff has commented on the often surprisingly well-concealed and elusive nature of oppression ‘Oppression also exists where you would not expect to find it,’ and further ‘sexism, racism, and anti-Semitism can be silent.’(1991: 55) Colour is probably one of the least expected sources of oppression.
In Plato’s *Timaeus*, colour is not given an objectified materiality; it is described by Timaeus in terms of product, or that which is come from the merging of particles or rays of light external and internal to the human body. As product, colour falls outside the philosophical concept of ideal form, emerging as it does from ‘confusion’. It is similar to water or air, insubstantial and vagrant, never an objectified self or separate object, since it changes its nature continuously. Emphasising the impossibility of an accurate mathematical calculation with regard to the blending differentiation of colours, Plato’s *Timaeus* argues that

The matter is one which no one could be even moderately sure of giving either a proof or a plausible estimate. To try to apply an experimental test would be to show ignorance of the difference between human nature and divine; for god has the knowledge and the power that makes him able to blend many constituents into one and to resolve the resulting unity again into its constituents, but no man can or will ever be able to do either. ([Plato c 427-347 BC.] Radice 1977: 123)

Framed in this generalised way, colour is never autonomous, colour as ‘product’ and insubstantial mixture is beyond ‘ideal form’ that is permanent and unchanging and by its nature immutable, and therefore a lawful point of reference. In Platonic terms the physical world has only a secondary reality, and knowledge of it is bound to be imprecise. Platonic references to the impossibility of any definite calculation for colour gives it in particular an even lower place within a physical world as he defined it, a world which is already in general secondary to the spiritual ideal one.

The power behind the enforcement of these ideas is clear from the treatment meted out to the Pre-Socratic philosopher Anaxagoras who was jailed for impiety for claiming in pious, hostile Athens that the Sun was a huge white stone and not divine. He also declared the rainbow to be ‘a reflection of the Sun, from a spherical cloud as from a mirror.’ ([c 500 B.C.] Boyer 1959: 36)
Later, building on the work of Anaxagoras and Plato, Aristotle went on to develop his theories of refraction in his *Meteorologica* (4th book), written circa 400 BC, one of the earliest chemical textbooks. From this he went on to develop his theory of Optics. In this treatise he first laid out a systematic theory of the rainbow, even developing a mathematical system for measuring the phenomenon. Aristotle was also familiar with the fact that light refracted through a prism produces a spectrum. However Aristotle’s emphasis on the role of the ‘cloud’ as reflector is said by Boyer (1959) to have hampered the study of the rainbow for centuries to come. The same could be said for his moral, sexual and social theories, as he also regarded slaves as non-humans, and women as less than slaves.\(^4\) From his theories of the rainbow Aristotle developed his arguments expressed in the *Poetics* regarding the usefulness of colour as a material phenomenon. Aristotle framed colour within an instrumental explanation; useful only as an aid to understanding, just as a stage set assists the understanding of the plot of a play.

The plot therefore is the principle, or one might say the principle of life. While the mimesis of character comes second in importance, a relation similar to one we find in painting, where the most beautiful colours, if smeared on at random, would give less pleasure than an uncoloured outline that was a picture of something. ([Aristotle c 384/5-322 BC] Ackrill 1996: 545)

The usefulness of colour, Aristotle reasoned, was merely as a cosmetic applied to aid our understanding of the thesis or plot of a drama, a colorful enhancement of the main structure, as of the decoration on a pillar, removing the colour would not threaten the stability of the structure. Aristotle’s theorisations of colour validated Platonic colour theory and consolidated the secondary value of colour, and its relegation to a subordinate position within a hierarchy of theoretical development. The theoretical debasement of colour was an accompaniment to the already existing debasement of women and their value accepted in the social hierarchies of that time. This ancient system of ideation is the one on which Western though has been based and like a fly
trapped in amber, ideations of woman and colour have been preserved to the present day.

**Woman and Colour; a degenerative by-product**

The idea (and consequent theoretical and moral value, established in Post Socratic philosophic explanations) of the difference between that which *is*, such as soul, sun, moon and fixed planets, and that which *becomes* (like the rainbow a product of water and light) was a seminal step in philosophic theorisations of ideal form as immutable and unchanging, opposed to and separate from unstable materiality. As Plato argues in the *Timaeus*

> We must in my opinion begin by distinguishing between that which always is and never becomes, from that which is always becoming but never is. ([Plato C348-338 BC.] Cornford 1966: 22)

This careful separation of that which *is* from that which *becomes* is the ground upon which Plato builds his cosmological explanations that deal not just with physical laws, but also metaphysical and religious principles, which he argues are more exact than recalcitrant physical nature.

The impermanent body as a site of mutable and multiple meaning has been discussed by Grosz (1994:115-159) who uses the work of Deleuze and Guattari (1987: 12-13) to help illustrate her thesis of the susceptibility of the body to constant modification and inscription. Although this ground has been well covered by feminist theoreticians who have critiqued the dissident philosophy of Deleuze I will retrace the ground to explore specifically its importance for an understanding of perceptions of colour and its associations to the female body. In the opening argument of the prelude Plato (1966) elaborates the initial remarks quoted above with a clear reference to intellectual thought
as 'stable' and the material as 'unstable' the basic philosophic premise within which the
Timaeus argument is framed. The clarification of the difference between the two
concepts of the eternal and the transient develop the argument.

The one is apprehensible by intelligence with the aid of reasoning,
being eternally the same, the other is the object of opinion and
irrational sensation, coming to be and ceasing to be, but never fully

The establishment of separate realities for intelligence and reason separate from
irrationality and sensation created a critical theoretical space for the relegation of
materiality to a lesser place. Intelligence and reason became supreme and because of
their unique absoluteness not subject to a hierarchy of values. This applied only to the
material within which category colour as product of the stable and a clear manifestation
of unstable materiality were allocated a subaltern position in the overall hierarchy of
value. Ideal forms such as God, Sun, Love, and Truth were designated as fixed and
dominant terms at the peak of a value pyramid within which colour lay close to the
bottom along with women and both situated just above animals.

Within the development of Platonic cosmology, soul is established as
the universal essential substance, formed through a harmonious
blending of 'sameness, difference and existence.' ([Plato c427-347 BC]
Cornford 1966: 22-23)

This blend became soul as female, but female only in the context of a creative force,
since the creation of soul was only possible through the work of the Demiurge, the
Father, who was the maker of all things and who 'created the soul before the body and
gave it precedence both in time and value.' 15 This compound, or blend of opposites
formed the universe, and was given divine status becoming 'divine soul', since only God,
Plato argues, can do the impossible, that is, separate ‘divine soul’ from the ‘mortal soul’ of the material world.

The mortal Soul formed separately from the Divine, which is the immortal maker of all things and is separable from that which occupies the Universe.

From Divine Soul the first generation of men was born, and Plato argues that,

Of those who were born as men, all that were cowardly and spent their life in wrongdoing were according to the probable account transformed at the second birth into women

Continuing this inverted evolutionary theory in which man ascends and woman descends, Plato argues that,

From bad women were born beasts. ([Plato c 427-347 BC] Cornford 1966: 69)

So the hierarchical evolution of material beings with mortal souls is one of degeneration from perfect men, downwards through women, to beasts. The Divine Soul whose first act of mortal creation was man did not in fact create woman. Woman was theorised as a product of the degeneration of ‘Mortal Man’, a product of sensation and emotions gone wrong, crudely establishing a duality for mortals of good and bad, the bad being the parent of woman. In this way the duality of reason and sense are established with the good man as the repository of reason. Plato reinforces his argument for the duality of sense and reason by saying that,

The senses produce effects at random and without order and are secondary causation’s without intelligence, only soul is the real cause of all things and is rational and intelligent and invisible. ([Plato c 427-347 BC.] Cornford 1966: 46)

The good Man, as the product of soul, is therefore by association rational, and intelligent;
In Plato’s cosmology, specific discussion of colour by Timaeus declares it a sensation, and product of vision. Vision is described as a homogenous combination of ‘the light’ residing within the eyes and ‘the light’ from outside. Timaeus argues that this combination of light when in contact with an object produces in the mortal soul of the head, vision or sight. The two lights are compared to fire,

Such fire as has the property not of burning but of yielding a gentle light.

Plato describes the visual current (i.e. the fire) of the

‘Eyes’ as equivalent to that of the ‘day’ both being of ‘fine similar proportions’

Colour is produced when the two currents or fires coalesce. Colour is described as a product of

‘Confusion’ produced from the ‘conflict of fire from without and fire and water from within.’

Unlike vision, the result of the homogeneity or combination of currents, colour is thus described by Plato as, a product of confusion, born from conflict. ‘Colour’ is that which comes between the acceptance of black, or

that which compresses the visual ray, and white, that which penetrates the visual ray

that is the coalescing of external and internal fires of vision, described as,

Black and white affectations which are due to those particles and are similar in character though occurring in a different field, and whose qualities are, ‘White to what dilates the visual ray, black to what contracts it. ([Plato c427-347 BC] Cornford 1966: 45)
Colour comes between the acceptance of black and white, the coalescing of external and internal fires of vision and the confusion of dazzling and brightness of the clash of fire and water.

Colour is not an effect of harmony and homogeneity, but of clash, confusion and conflict. Plato continues his dissertation by stating that the effects of ‘violent confusion’ known by the general name of ‘colour’ come from a

A flame which streams off from bodies of every sort and has its particles so proportioned as to yield sensation.

This sensation is said by Plato to release or discharge

A mass of fire and water which we call a tear. This tear quenches the in-going fire from objects and in this confusion all manner of colours arise. ([Plato c427-347 BC] Cornford 1966: 67)

The eye then is the visual instrument or window that allows the passage of an external sensory homogenous knowledge of the world to the higher domain of reason that is the soul. Colour is produced from quenching, confusion, sensation and emotion, expressed as a tear, which in my opinion suggests that colour also represents the sorrow that man must suffer in the material world, the knowledge of which passes through the eye to the soul. True knowledge of the world is in the Platonic sense, without colour. A belief that persists in debates over the primacy of line over colour and that is still visible as a subject for serious debate in books on colour such as Batchelors (2000) Chromophobia and Gage’s (1999), Colour and Meaning. A colourless world sustained by homogenous black and white. Only when currents from without and within the eye conflict, and a degeneration of the homogenous and harmonious state is created, does colour arise. Colour is therefore within this argument, a product of the degeneration of the
homogeneity produced by 'Divine Soul', just as 'woman' is a product of the
degeneration of the good 'man'.

The argument may be oblique and partial, but it is clear in its relegation of both
'woman' and 'colour' to an inferior status or value in relation to soul, and the ideal
harmonious, homogeneous state. Although within Plato's philosophical cosmology
'women' and 'colour' are not directly linked, the link is apparent and pertinent through
the use of conflict and degeneration as explanations for the genesis of both and this
conflation exemplifies a structure that threads right through his thoughts on women.

Within personifications of Greek mythology the female and danger are dressed in the
bright colours of the rainbow and the peacock, signifying both beauty and perfidy.
Ancient philosophic and mythological formulations of 'woman' and 'colour' have
informed our colour perceptions; becoming naturalised epistemes that, as le Doeuff
suggests 'govern our ways of thinking'. (1991: 49) and provide the basis for an
acculturated chromatic pattern that can be evidenced today.

Acculturation.

My definition of 'Culture' for this thesis is a social linguistic system which, like the
chromatic value system it produces, has a bedrock of what I shall call 'ideations', of a
priori knowledge of generalities from which extrapolations to the particular are made.
Ideations such as male, female, hot, cold, safety, danger and nature are general terms
and signifiers from which particularisations can occur. In my colour acculturation
experiment the ideation danger, produced an 89% perception of danger as red, this
being the generalised primary choice, but, in terms of the individual subject, it is also a
particular choice. A general chromatic perception of ‘danger’ as ‘red’ does not deny the subjective knowledge that all things ‘dangerous’ are not ‘red’ and that all things ‘red’ are not ‘dangerous’. It simply provides a platform for a confident negotiation and exchange of cultural perceptions by subjects within a cultural linguistic system. Red, in light-wave spectrum theory is in the specific sense of hue, undefined, it is simply red, a linguistic signifier of a colour that is universally internally perceived, and in wave theory is defined only in terms of the energy that this red represents. Light-wave theory describes the longest light-waves as red and expresses their energy in relative terms as low or 600-700 nanometers, in temperature terms, cool. Red in this sense is relative to short-waves expressed as blue, or violet, or high energy, 400-500 nanometers, in temperature terms, hot, a paradox not easily accepted by lay belief systems that cling to the idea of red as hot. In terms of chromatic perceptions of gender, the *a priori* chromatic knowledge of the masculine and feminine, produce as demonstrated in chapter two, perceptions of masculine as black, grey or blue and feminine as primarily pink, and or colour to the exclusion of black grey or blue. Such chromatic perceptions of a generic ideation override the knowledge and empirical experience of men and women as being black, brown, red, white or coffee, because these general cultural linguistic colour definitions are particularisations made outside a generic cultural linguistic ideation of feminine and masculine regardless of skin colour. Thus, despite Plato’s insistence of colour as material, perception of it is inseparable from ideas. The notion of culture as a social linguistic system that produces generic ideation has been applied to more scientific areas of work and research. For example Alistair states,

Quantum theory tells us that nothing can be measured or observed without disturbing it, so that the role of the observer is crucial in understanding any physical process. This role is said by some to be so crucial that it is the observer’s mind that is the only reality. (Alistair 1986)
Since it can be argued that ‘colour’ resides nowhere, and that colour has life and existence only when it is named and the observer and light interact, it can also be argued that all theories, and comments, on the sensory and emotional effects of colour, are also ideations, and therefore colour itself as such is an ideation. In consequence, colour perception is subject to all of the influences of the acculturation of the subject.

In his essay *How Culture Conditions the Colours We See* Umberto Eco (1985) emphasises the importance of language, lexicon and semantics, in the production and definition of colour terms. As an example of the complexity of colour definition Eco quotes an excerpt from the *Noctes Acticæ*, Latin Encyclopaedia of the 2nd century A.D. by Aulus Gellius, who describes red/yellow in the following way. *Fulvus*, meaning red or yellow, a generic Latin colour term, also particularised as *flavus, ribidus, poeniceus, rutulus, intens, and spadix*, all of which can at one and the same time refer to a lion’s mane, sand, wolves, gold, eagles and jasper. Eco also refers to Virgil’s use of yellow ‘*flavae*’ for the blond hair of the blind Dido, for olive leaves, and the river Tiber at flood polluted by yellow mud. Eco (1985) suggests that the geographic position of Rome as the center of empire meant that it was a melting pot of cultures and languages, which led to much particularisation of the generic term ‘*fulvus*’.

This adaptive theory is undeniably true in terms of language and cultures that are subject to the influences of other countries and their linguistic perceptions but I believe that linguistic adaptation occurs in most cultures in order that need of their specific chromatic perceptions can be met. Gage (1995) is critical of Eco’s argument because he claims that Eco was imprecise in his definition of culture and also that he failed to recognize that there are no ‘intelligible codes of colour meaning within a given culture’.
Gage argues that inconsistencies of colour perception make the acculturation argument hard to pin down. However, to some extent Eco (1985: 159) does grapple with the difficulties of general colour meanings and does so by using the example of national flags to point up the universalisation of colour meanings in relation to general colour codes. Eco also deconstructs the universality of primary colour terms using the poverty of colour terms in Hanunoo culture as an example of a universally shared basic colour term foundation with reference to Conklin's (1955: 339-444) research on the subject.

However despite his criticisms of Eco, Gage has to acknowledge the convincing evidence for colour acculturation made by the fallacious use of red green complementarity and the direct connection made by advertisers of popular colour perception against the physical reality. Gage deconstructs the misuse of red/green complementarity in colour theory, recognizing the theory as flawed because the actual blue/green after-effect of the eye's exposure to red is contrary to the theoretical claim that green alone is the complimentary of red. Gage does not comment on the possibility of colour theory as an institution responsible for maintaining an erroneous theory and normalising what is in fact, not a fact, and promulgating a code of colour meaning that is itself a cultural construct. Eco's argument does demonstrate in detail the wide range of associations and particularisations of colour perception in relation to particular meanings.

The complexities of perceptual associations and definitions of colour within a given context do not allow for a fixed definition of what is and what is not correct, unless, that is, the chromatic generic is being used. In general it has been shown that colour has a limited lexicon of colour terms. From the results of their extensive cross cultural and cross language research, Berlin and Kay (1969) argue that universal colour terms range
from the basic black and white (that is two terms) to black, white, red, green, yellow, blue, brown, orange, pink, grey, and purple, eleven terms in all. (For a further discussion of Berlin-Kay colour terms, research and theory, see chapter two.) Using this generic theory of colour terms, red, yellow, or blue suffice as generalised colour terms when placed within a context that does not require a particularisation of chromatic description for instance ‘Remember who commended thy yellow stockings, and wish’d to see thee ever cross gartered’ (Shakespeare: Twelfth Night, Malvolio reading letter). In the colour acculturation experiment subjects gave their primary choice for chromatic perceptions of gender as black, blue or grey for masculine, and pink, or colour, for feminine. In chapter 3, I discuss yellow as the a priori7 or chromatic generalisation of Jews, since they have been devalued as imperfect men and in the Platonic schema they are therefore feminised, becoming both like and unlike women.

The fixing of yellow to a specific object (such as a Jew or a coward) requires linguistic manoeuvring and perceptual contextualisation to establish a colour perception that is stereotyped and racist. The affixation of the description, Jews are yellow or cowards are yellow, requires an a priori knowledge of Jews precondition to corruption and dissolution and in the case of cowards of their lily-liveredness that changes the colour yellow and not the corruptible nature of yellow per se.8 It can be said that general colour terms such as yellow, red or blue have the power to communicate without intellectual or perceptual reflection a facility that more adaptive colour terms do not have. The description, pale green pea yellow, requires a building block perceptual and contextual approach that yellow alone does not require. General colour terms have an a priori meaning, mirroring in that respect Platonic ideal form, or its expression as love or justice, but general colour terms can never truly become ideal form in the Platonic sense
since colour is argued by Plato to be a *product* within his cosmological theory. By extension and acculturation colour has been normalised as outside the ideal within Western Philosophical discourse and meaning. The integration of colour term meaning and linguistic expression gives the terms the flexibility required to meet the variability of particular colour meanings attached to them by psychological and cultural construction. The mirroring of Platonic form is only relevant when colour is defined within a hierarchy of chromatic value residing over and aiding the definition of chromatic particularisation. In this paradigm ‘colour terms’ are removed from reality into ideation, and form part of the complexities of the dynamics of meaning. ‘Red’ as idea is located within linguistic cognitive ideation and is thus a prerequisite for further particular chromatic perception and particularisation. As Eco argues,

> We are faced with a puzzle of colour definitions which is neither psychological nor aesthetic, it is a cultural one and more than that it is a cultural definition filtered through a linguistic and philosophic system. (Eco 1985: 159)

Both Gage and Eco agree in their arguments that colour perception is not definable within the body’s reception of it since the perception of red as hot is not physiologically projected, but is instead a cultural response, placing red within a system of temperature value unrelated to physics or psychology.

A verbal description of colour can be defined as a series of located significations acting within a dynamic’s of meaning within a context that may be a combination of the material and the imaginary. Within this dynamic is included the philosophic and the ideological, the psychological and normalised (or abnormalised) perceptions of reality. It is only possible to communicate within a given cultural system about those things that are designated pertinent within the dynamics of the production of meaning of that cultural environment. Chromatic perceptions then may be described as being dependent
upon those significations that Eco (1985: 195) argues, a cultural system has ‘isolated’ and ‘outlined as pertinent.’

Particularity and generality are systems which conflict in the sense that the particular may not coincide with the general but may share some of its general quality. In his essay ‘Pattern variables revisited’ Talcott Parsons discusses this dilemma of perception and subject action, or in Parsonian terms an ‘actors action’, (action meaning speech in this context) Parsons states that in basic terms

> Particularisation in this context means that from the point of view of the action system, the most significant aspect of an object is its relation of particularity to the actor (subject, my bracket) as compared with other objects which can ‘intrinsically’ be classified as similar to it, the significance of this object to the actor (subject my bracket) lies in its inclusion in the same interactive system. In the contrasting case of universalistic modalities the basis of an object’s meaning lies in its inclusion in classes, which transcend that ‘particular relational system. (Parsons 1960: 467-468)

Or put in another way, when I say that of all the blankets I have, I like best this orangey red blanket, what I imply is that I prefer the chromatic generic category red, but in the context of blankets the particularisation ‘orangey red’ is acceptable because of its chromatic inclusion in the quality or class of red. General colour terms provide subjects or actors with a firm base of chromatic classes from which to extrapolate chromatic meaning within context. This chromatic hierarchy or ‘relational system’ is a repository that can be raided by users whose inner knowledge of generalised chromatic perceptions is a basis on which to build chromatic value systems. Yellow as idea may then be extrapolated to a good yellow such as the Sun or a bad yellow such as a Jew or a coward. Such particularisations require by imbedded perceptions firm basic naturalised ideations and perceptions of an unchangeable generic yellow from which to proceed. All chromatic particularisations require a priori generic perceptual chromatic knowledge,
larded by a culturally inscribed linguistic system to produce value for each chromatic
particularisation. As Eco states with regard to the perception of the rainbow by different
cultures (in this instance the 'Hanunoo' of the Philippines) and their very restricted code
of colour terms

The pertinentisations of the spectrum depends on symbolic i.e.
cultural principles; these cultural pertinentisations are produced because of practical purposes, according to the material need of
the Hanunoo community.⁹(Eco 1985: 157-175)

Acknowledging that the physical world (in which our own bodies play a significant part
in our perception and instantiation) is 'colourless' is fundamental to my argument since
in that world colour as an entity has no meaning, until it is given one, and that meaning
is substantiated and sustained through language. The Cambridge scientist Sir Arthur
Eddington's scientific argument supports this when he states that 'there is no colour in
the physical world' and extrapolates to explain that in terms of physics that although 'It
is true that each colour is represented in the physical world by a number supposed to
represent a wave length of some kind', that does not mean that the number is the colour.
(Eddington 1934: 11) Eddington goes on to use a simplistic example to explain why the
physical explanation of colour does not mean it is number by stating that he is
represented at the telephone exchange by a number indicating a 'hole in the
switchboard' but that this does not mean that he inhabits the telephone line. This
simplistic explanation is a painless way into what is a philosophical minefield, where
Holman attempts to pick his way through the explosives in his philosophical essay *Is the
Physical World Colourless*. He states in his opening remarks that 'modern physics tells
us that everything in the physical world about us is colourless' (Holman 1979: 295-304).
Holman continues to argue that our sensory experience of colours is not instantiations of
colour but instantiations of wavelength and fine structure.
It is not the intention of this thesis to expand upon scientific arguments regarding the structure of the physical world, but it is reasonable to say that our experience of it does not simply depend solely upon instantiations of atoms and particles. It depends rather upon our certainty of physical form and structure. Holmann discusses our dependence upon this certainty as reliant upon

visual perception as the acquiring, by means of the eyes, of beliefs or would be beliefs, about the physical world. (Holman 1979: 229)

Therefore, an explanation of colour perception as dependent solely on visual instantiation is in itself inadequate since the visual merely provides evidence of some unspecified property or structure.

Eddington (1934: 256) argues that scientific understanding of the physical world requires that the observer acknowledge the importance of ‘fine structure’ and at the same time acknowledge the difficulty of getting behind it. In the same way I acknowledge that instantiation of colour in a colourless physical world is dependent on a fine structure of belief systems based on the combination and homogeneity of the visual and the imaginary and that our visually initiated instantiations are linguistically grounded in the mores and beliefs of a speaking world.

To engage with colour requires some understanding of the belief systems recuperated to the property because colour \textit{per se} is not a separate substance, (it is fine structure according to Eddington) and if we accept the acculturation of it, it is a structure whose perception combines the physical and acculturated ideas. Even the ‘objective science’ of scientific colour theory has philosophical impact upon our beliefs that in turn can affect
our behaviour. The theoretical exposition made by Goethe and others in art colour
theory of ‘colour’ as a property whose quality and value is decided by the objects it
robes, has had far-reaching and devastating life threatening effects upon in particular
the fate of women and Jews.

An illustration of chromatic perceptions that depends for coherence upon context within
language can be found in Goethe’s (1810) *Theory of Colour* part IV, *Effect of Colour
with reference to Moral Associations.* Goethe describes objects as not being disposed to
affect an emotional response because they are inanimate and only able to elicit response
when the object’s surface is ‘robed in colour.’ (Goethe 1810: 328) Most tellingly, this
theoretic is used by Goethe in relation to yellow when he implies that when robed upon
Jews it is corrupted as a result of contact with their corrupting bodies, (discussed in
detail in chapter three). In a seemingly less devastating way Goethe also applies the
argument to such mundane objects as a carpet which when robed in blue-red

\[
\text{would be intolerable because the colour has something lively without gladness}
\]

but, he continues in an implicit derogatory feminisation

\[
\text{when used for dress ribbons or other ornaments the colour displays its character in a peculiarly attractive manner.}
\]

Women or ‘The female Sex,’ it appears,

\[
\text{are attached in youth to rose-colour and sea green, in age to violet and dark green. The fair-haired prefer violet, as opposed to light yellow, the brunettes, blue as opposed to yellow-red. (Goethe 1810: 328)}
\]

Goethe’s chapter on the *Effect of Colour with reference to Moral Associations,* is not
discussed by colour theorists despite the influence of the theory apparent in the work of
colour theorists such as Kandinsky, who also add to the poor reputation of yellow by using the 'association' of colour to objects and the Goethian notion of the colour yellow's tendency to corruption. Even Gage reminds us of the poor reputation of yellow or at least its tendency to be associated with the ignominious and ignoble,

Yellow never seems to have been regarded as a noble colour in the West until the end of the Middle Ages and it is apparently still regarded as one of the least pleasurable of individual hues. (Gage 1999: 15)

These examples of 'association' theory speak volumes of prejudice and Goethe's choice of rose (pink) for young nubile females as opposed to violet for the aged not only places colour within a scale of value attributable to sexual availability and fertility but also to female age. The juxtaposition of yellow hair to violet contradicts this with cheerful abandon but at the same time reiterates and validates the established theory of harmonisations of colour or complementarity, that is the compensation of purple or violet with yellow. It is interesting to note that only a dark haired female can choose to wear blue, a juxtaposition that suggests a masculinisation of brunettes and blue, since blue is acknowledged even by Gage (1999: 187) (despite some historical ambiguities) as a colour generally ascribed to the masculine.

It is interesting to speculate, using 'association' theory upon the colourless nature of Goethian objects where only the intervention of colour has the power to reveal their emotional and moral value. Within this theoretic, uncoloured, unrobed objects, resemble an unrhetorical address, a theoretic not far from Aristotelian theories where the addition of colour reveals character, as argued in the Poetics. Within this theoretic, Goethian colour is an illuminatory effect, revealing the material world in its true nature.
Colour is thus described in a metaphysical and romantic way illustrating the gulf between the romantic Goethe and the new science of Isaac Newton. Newton's scientific colour theory removed colour from the physicality of objects and gave its viability to light, claiming that light contained all colours, which in a sense was a reflection of Platonic colour theory in this case using light and not a deity as the source of colour as product. For Goethe the 'eye' remained the residual store for the 'light it contained' to correspond with the 'light without' (Platonic theory) and thus colour for Goethe was a product of the conjunction of these two lights. Goethe defiantly refused and rejected Newtonian colour theory and the (1665) *Experimentum Cruris*,¹¹ that divorced colour from man, placing it firmly within an experimental empirical materialism.

Whatever the arguments presented around the origination of colour, the transposing of a visual experience of colour to a linguistic belief system empowers the seeing subject with a perceptual understanding of colour that Eco states,

makes the non-verbal experience recognisable, speakable, and effable.

and furthermore

When one utters a colour term one is not directly pointing to a state of the world (process of reference) but on the contrary, one is connecting or correlating that term with a cultural unit or concept. (Eco 1985: 159-160)

The establishment of chromatic value through the expression of metaphysical ideas may be the means by which action is decided in direct relation to the subjects of the ideas. If the establishment of inferior 'value' is the purpose of a discourse, the metaphysical may be a more powerful signifier than the empirical, which offers an alternative problematic. In the *Timaeus* Plato makes clear that no account of the material world can ever be an exact or self-existent statement of unchangeable truth. Truth is only to be found in

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‘ideal form’ from which all material life has been removed. The cosmology is a story or myth of a ‘divine maker’ or ‘Demiurge’ who creates the world as a work of art, a designer with a purpose. The determinist nature of the design as described by Timaeus arguably enforced existing beliefs regarding the inferior status of woman and the indeterminate and unreliable nature of colour as product.

Pythagorean philosophers precluded colour from their philosophising by rendering it to simple mathematical formulae, thus laying the foundation for later Platonic reliance on the ideal as the only reliable basis for philosophical analysis. Their disdain for colour based on the belief or idea as argued by Brusatin (1991: 24) of its epiphenomenality or its secondary condition outside primary phenomenon. The cosmological myth of Timaeus, placed as it was within a western Greek society already culturally patterned with gendered and mythologised perceptions of colour, meant that Plato could not, as Ruth Benedict points out, ‘even in his philosophic probings go behind these stereotypes’. (Benedict 1935: 2) Thus I acknowledge the intervention into analysis of the acculturation of ideas that inform our inquiries.

She equals He

A clear understanding of the difference between the ‘She’ of divine soul, and ‘woman’ as a product of a degenerative process, aids the understanding of the feminisation of colour and alchemical practice and process. There is a slippage between Platonic cosmology and alchemy and a subsequent catachresis that developed as a system of chromatic analysis that we call colour theory. Both systems are dependent upon the agency of a
The she hag of Alchemy, catachresis of divine soul. Part old and part young woman, symbol of transmutation and renewal.

Illustration 1
Demiurge or superior male and his creative use of a divine female force to promote process. Colour is seen as a *product* between the poles of light and darkness, or in alchemical theory, black and white. According to Gage (1995: 11) earliest written Greek records of colour are to be found in the poetry of Alcmaeon of Croton, 5th Century BC, dwelling on the antithesis between black and white or darkness and light. Colour is an essential element in the alchemical process of creation, but only as a means to guarantee the greatness of a perfected reality. In Platonic terms, perfection is ‘ideal form’ whilst in alchemical terms it is the ‘Philosophers Stone’ or secret of life.

Alchemy is arguably a mirror of Platonic cosmology where the alchemist is a male Demiurge presiding over a parody of the ‘She’ of divine soul represented in alchemy as the ‘She Hag’ (Illustration 1) The alchemical ‘She’ or Hag is thus a degeneration of the other divine essence but remains in essence female. Both the ‘She’ of philosophy and the ‘She’ of alchemy are allocated maternal roles, birthing, supporting, and enabling, but never theorising, as I have shown with the She Soul of philosophy always subject to the Demiurge and with the she or vas of alchemy to the alchemist. A feminised alchemical process is necessary only to the delivery of the ‘Philosopher’s Stone’. Woman theorised, as process cannot be theory since her conceptualised reality is the colour of her process and colour is already philosophically framed as that which ‘becomes’ not that which ‘is’. Woman mythologised is in the same way process, a rainbow streaming between the legs of Iris, a menstruation of beauty and bad tidings or as Mackinnon says of woman, and I add, of colour ‘Too much body, not enough presence.’ (Mackinnon 1982: 18)

That ‘Man’, the first creation of the Demiurge and divine soul, should believe in his ability to recreate his divine providence in alchemy is feasible if the naturalisation of
cultural belief in male descent from a divine source is accepted as a bedrock of Western 
philosophic (masculine) epistemology. Whilst on the other hand, woman and colour 
epistemised as products of degenerative process are naturalized perceptions aided by 
mythologies and philosophical explanations that have constructed cultural chromatic 
perceptions of gender. As Mortley (1981: 8) argues, continuous reference to the 
inferiority of the female in Plato Aristotle, and Philo was not seen just as assertion or 
didactism, but was seen as the natural order of things as constituted by God in the act of 
creation. 13

The lethal potential of this dynamic is dramatically illustrated in chapter 3 where yellow 
is part of the production of meaning pertinent to Jews as inferior and feminised. The 
same dynamic applied to pink as attached to gays-again-feminised. Pink or yellow as 
signs of difference were inscribed in recorded edicts and laws, which can be referred to 
and verified. A dynamic that has embedded perceptions of ‘Women and colour’ also 
inscribes their status as merely an act of light rendering them incapable of being 
philosophically understood as a principle or form and therefore as a result condemns 
them to being simply an effect and has no lawful history or edicts. The evidence for this 
perception and belief is to be found in the capillary networking of normalised cultural 
belief systems that have formed a pattern of meaning resistant to change for the very 
reason of their implicit naturalisation. Even without lawful edicts or verification the 
power of this dynamic makes it a short step to the process of actual persecution.
Urinary colour circle. 15th century, John of Cuba, Hortus San
Illustration 2
The Great Work

The first extant colour circle was a medical circle of the colours of 'urine', made by John of Cuba, in his *Hortus Sanitatis*, 15th century (Illustration 2). The colours run from black to white through a series of yellows and reds. Medicine and alchemy, or al khem, the art of Egypt, were sisters through the feminisation of the process of healing and both like philosophy, used the female creative principle as the heart of their doctrines. Both used colour as a measure and guide to health and physical process leading to recovery or death. The medical hierarchy of colour was a symbolic chromatic order and code which if correctly read could predict somatic outcomes. All body fluids were believed to be composed of varying properties of blood-red, phlegm-white, bile-yellow and bile-black. When these humours were in balance the body was said to be in health. Excess or deficiency of one or more caused illness or disease, (dis-ease) and had three stages, 1) fever, 2) boiling, and 3) death, each stage accompanied by changes in body colour.

The practice of alchemy from the earliest times in Hellenistic Egypt was inseparable from colour technology. Like medicine, alchemy adhered to a colour code that was rigidly observed by its practitioners and the multifarious chromatic changes that manifested during the process was the alchemist’s guide to a successful or unsuccessful outcome. Success was dependent upon the correct simultaneous transmutation of chromatic energy occurring during a rigid and predictable process. Failure was always the fault of a careless practitioner, never the practice. The practice of alchemy could be inscribed; its female principle could not. The ‘She’ of alchemy was chromatic and gynecological, an untheorised principle effect, subsumed into practice.
The gynecological aspect of alchemy was practical and knowable. The 'Vas', womb, or mixing vessel, was likened by Roob to the 'krater' also a mixing vessel in common usage in ancient Greece for mixing wine and described as,

a vessel filled with spirit for those who strive for higher consciousness to be baptised in. (Roob 1997: 682)\textsuperscript{15}

It was likened to a uterus of rebirth and was the place where the alchemical union of coloured materiality occurred prior to its rebirth as the philosophers stone or gold.

Iris the swift, along with her mistress, Hera, were recuperated from Greek mythology into alchemy, as was the staff of medicine with its coiled snake, recuperated into the great work as the symbol of Hermes and hermetic alchemy. Alchemical symbolism always represents Hera, queen of all the heavens, patron of marriage and childbirth, with her peacock, symbol of immortality. As Fauvel (1989: 1999) points out Isaac Newton in the 18\textsuperscript{th} century gives a full account of the 'peacock stage' in the alchemical process in one of his alchemical notebooks. He describes the mixing of the star regulus, that is antimony, iron, silver and common mercury, which would dissolve all metals including 'gold'. Hera's floral colours of poppy-red, dittany-yellow and the lily-white are the colours of alchemy. Between the first colours of white, silver, mercury, black, a fusion of lead, tin, copper, and iron, and yellow sulphur, red would emerge as the final outcome of a successful process of transmutation. Alchemists believed that the divine gold/red was already present in all things therefore when the chromatic process passed through all the correct colours, first black and white, then yellow, green, blue, and orange, 'red' would be the final desired outcome. Alchemical colour as in Platonic theory was a product of black and white. Between these two poles of non-colour, colour
appears like the rainbow from a cloud or Eve from Adam's rib. Colour appears and is homogenized in a mystical Transmutation.

The 'She' of philosophy and the 'she' of alchemy are essentially the same creative essence, a quality that has come to represent that aspect of creativity that is informed by the irrational and instinctive feminine, the 'Other' of western ideas of creativity. The 'She' is also, I suggest, the source of what is given to women as their special knowledge, or their instinct particularly with regard to colour. An ability that is indefinable because of these qualities and as a result essentially female. The alchemical 'She' became the [M]other of transmutable colour, colour as other to the black and white of reason and later through another process of transmutation became the [M]other of colour theory later transmuted again into respectable paradigms of artistic scholarly discourse.

Natural philosophers, alchemists, and chemists flourished without discomfort alongside each other, sometimes practising all three disciplines at once. As Sarton points out

The first treatise on chemistry was called 'alchemy indeed the two words 'chemistry' and 'alchemy' were confused for centuries: their fields of meaning overlapped in different ways according to various definitions of them. (Sarton 1954: 159)

The origin of the two words is the same except that the Arabic article has been added to 'chemistry, with the addition of 'al' the word chemistry and becomes 'the chemistry'. Sarton argues that the same confusion existed between the words 'astrology' and 'astronomy' that he states

were used promiscuously for centuries: it was only in modern times that it was generally agreed to reserve the first term for superstition, the second for exact science. (Sarton 1954: 70)
Alchemy was not really stigmatised until the late Middle Ages, and even then the findings of alchemists, from the techniques of solutions, sublimates, evaporations and distillations with reflux condensers, were available to craftsmen such as apothecaries, makers of dyes, colour and varnishes, makers of gem powder, glass faïence and glazes. Alchemists’ knowledge of the practical methodology of colour making and the fixing of colour in dyes with the use of Egyptian alum would arguably have framed them within a system already imbued with the knowledge required by practising artists. Also the alchemical promise of gold which in the Middle Ages also promised health, longevity, happiness and virtue and this meant that the alchemical hope flourished in the crafts until the 19th century. In this way, working with colour was imbued with an ancient knowledge that had the divine and the esoteric as its source, thereby by association giving the crafts of dye making and colour mixing a mystical cachet that I suggest, flowed from the dyes to the artists palette. My research suggest that it was during the period from the Middle Ages to the 19th century that the practice of alchemy slowly shifted or slid into the creative arts via the route of dye making and colour mixing and finally transformed itself in the creative arts into colour theory. As the dreams of practising alchemists were continuously disappointed they took refuge in mysticism, Rosicrucianism, and art.

The alchemical palette is categorical in its chromatic valuation. Black and white are the two poles of non-colour and have the highest value without which colour could not emerge or transmute. The essential nature of blackness and whiteness as a form is still seen as the balancing power preceding the application of colour. The secondary value of colour (all except ‘red’) is seminal to understanding the basic hierarchy of value of the alchemical palette. The male alchemist supervises the process and creates from feminised colour that is produced from the two masculine poles of black and white. The
colours between the poles are valued in their order, as they should appear, yellow, followed by green, blue and orange in increasing value to the final outcome of ‘red’ the most highly valued and in this instance meaning ‘gold’ or Latin *fulvus*. The chromatic values apply also to those colours that are inside the palette, and those that are not. Black white and red are outside, that is they precede and culminate process. The others, yellow, green, blue and orange are inside the palette and are process. According to Roob,

alchemical ‘red’ developed from the ‘Ourobus’, the self-consuming serpent of light and darkness which gave rise to the colours of the circle according to moisture. (Roob 1997: 682)

In this circle black is followed by dark blue, light blue and yellow (wetness), then comes white/yellow to yellow/red and finally to purple/red which rises above the alchemical colour circle.

The philosophical uncertainty of colours propounded by Plato’s *Timaeus* was supported by the evidence of ancient technology where the ancient world was preoccupied with the manufacture of purple dye from the murex or whelk that were as unreliable as colour itself. The use of alum as a dye-fixing agent was well established by the Egyptians as an essential element in dye manufacture. The dye fixing process involved a photochemical development, which passed through a sequence of colours from yellow to yellow-green, green to blue-green, blue and red to violet. Particular emphasis was given to these sequential colour changes. The alchemical development of colour sequence grew alongside the ancient craft of dye manufacture, where the need to achieve a specific colour sequence resulted from the empirical observations of material events and process in fabric dying.
This recuperation of industrial colour sequences to alchemical mystical process epitomises its flawed mystical rationale that drove its practitioners to misuse a practical, observed and proven application of colour sequence to an wholly unpredictable process, the desired outcome being the unobtainable ‘Philosopher’s Stone’. This practice was to continue in the development of colour theory, with the recuperation of some of the findings of optical science to a practice that bore no relation to its theoretical source. The combination of ancient mythology and philosophy, plus the ancient industrial establishment of a chromatic sequential value, laid the foundation for the shift from magic, pseudo-scientific alchemy to colour theory and the artist’s palette. As a purely speculative theory it is also possible that the establishment of chromatic value was decided by the varying degrees by which a colour proved to be permanent or fugitive: the more permanent the colour, the higher the value. Certainly the early establishment of chromatic value can be said to have laid the foundation for a hierarchy of value to emerge as a theoretical explanation of chromatic behavior, thus adding value to the work of dyers and subsequently painters.

Goethe’s (Goethe 1810: xi) simple poetic statement that ‘In every attentive look on nature we already theorise’, describes a complicated process. The ‘look’ in Goethe’s aphorism would seem to be one uncontaminated by materiality, the implication being that theorisation arises from purity of thought focused through an unsullied eye, thought and eye being fused in this visual-exemplar of ‘Man’s’ intellectual ability to theorise. To theorise colours was an exercise refused by Plato because in terms of Platonic ideal form colour had no reality. It therefore presented Plato with the logical impossibility of theorisation.
Boyер (1959) briefly mentions the correspondence of Platonic philosophy to alchemical philosophic practice and includes in this brief encounter suggestions of Plato’s own allegiance to an older alchemical philosophic cosmology. The only tangible connection between the two practices I suggest is Plato’s theoretical explanation of colour, and the alchemical theory of black and white, with colour as product. This theoretic is arguably a strand of explanation preceding both Plato and established alchemical practice. Plato’s *Timaeus* turns the theoretical ‘look’ inward, away from material reality. Colour thus excluded was confined to a perpetual external materiality, until it was rediscovered and reinvented mathematically in the 18th century by Isaac Newton with his *Crusis Mathematica*. What had once been a comfortable discontinuity became an uncomfortable split between the abstract and the material, which manifested itself in the split between Newtonian and Goethian cosmologies of colour, a split that pushed colour further along its pseudo-scientific, magico path to the establishment of an artistic colour theory that was as I have argued embedded within the body and feminised by mythological and philosophical associations. Colour theory became in effect a catachresis of theory led by the desire to improve the status of artistic endeavor and the latent ambiguities embedded in it.

Irigaray argues in *Flesh Colours* that cultures that have forced the repression of female genealogies and, I would add, denigrated the feminine, have also produced the kind of cultural and psychological conditions for the manic acceptance of theories that contain their own duplicity and ‘forms’ that are balanced in an artificial game of contradictions. (Irigaray 1986: 154-164)
The ability of people to accommodate and live within theories, philosophies, and ideologies that are irreconcilably ambiguous and contradictory, that actively perpetuates schizoid 'forms' leads Lichtenstein to state,

Confusion is always born of mixture. Plato demonstrates at length in the Timaeus that all colours stem from mixture, except the pure and colourless colours of black and white

Lichtenstein continues,

It requires an immense theoretical effort to apply it the logical and ontological criteria of resemblance and truth. (Lichtenstein 1993: 219)

These last two attributes are of course unattributable also to the feminine. The none-ness of colour and the one-ness of colour, its inability to be counted other than in wave lengths and then not with the greatest accuracy, means that colour always escapes complete explanation; therefore it lies outside the perimeters of philosophical truth. In language only are we able to name that which is visible to each subject, as if naming gives it a realized and constant truth. Subjective chromatic perceptions always occur in isolation, shared only in the word. The 'chroma' of 'colour' is a prisoner of language.

Colour Enlightened.

The hierarchical and static value of colour thus remains a constant within the practice of alchemy up to and beyond the work of Newton and Goethe when it further transmuted to colour theory. Outside the esoteric practice of alchemy, theorisation was established as a practical means of examining and hypothesising philosophic truth and chemical treatise, a teleological project seeking the laws of natural process. It can be argued that Western theoretical philosophy and chemistry began with pre Socratic philosophers
such as Democritus, and Thales, whose search for a single unifying principle led from the former to atomism, and the latter to water. Aristotle pursued these theorisations when he rejected the idea of vacuum, postulating instead a teleological projection of material continuity. Alchemy had no place within these academic and theoretical developments since it did not produce theory for development toward a better understanding of process, its purpose remained acquisitive, relying upon repetition and rigid colour formulations for the transmutation of base metals to gold. The distinction between alchemy and philosophic science can be clearly made in the conceptualisation of colour. On the one hand colour is hierarchical and on the other it is increasingly considered a chromatic phenomenon and an unexplainable secondary effect of observation and optical perception. This divergence, which is well illustrated in the work of Newton and Goethe, led to the split between the scientific and the alchemical magico-naturalistic treatise on colour, which has informed colour theory in the humanities from Paracelsus to Itten.

The magico cabalistic obscurity of alchemy and its writings that used a large number of technical terms and symbols has led Sarton to say that

The great majority of alchemists or spagyrists were occultists of all colours and degrees, whose boastfulness was generally in inverse proportion to their technical qualifications. Their books were written in a language deliberately obscure and misleading.

Sarton continues to discuss the reason for this saying that it was done to 'prevent the truth from reaching unworthy minds and furthermore that

their descriptions and explanations were confused because of the utter confusion of their own thoughts; they included no truth, or whatever truth they might occasionally include was hopelessly mixed with falseness. (Sarton 1954: 157-173)
This use of obscurantism led to the gradual marginalisation of alchemy from the academic natural philosophies. Its opacity, once seen as a positive attribute, led to its rejection by an increasingly rationalistic academia, where magic was no longer admired by a scholarly class devoting itself to the development of an academic and modern pattern of enquiry. The gynocentric essence of alchemy could only find sympathetic listeners and adherents amongst an artisanal artistic class, and those scientists such as Newton (in his early days) who still adhered to a hermetic creed.

There is one significant development in optical theory that occurs in another tradition. It may have resulted from the expulsion of the Athenian Academy from Greece by Justinian 1st (the Roman invader) 483-565 A.D, and its removal to Syria and possibly led to the shift from Western to Eastern natural philosophical development or more certainly to their integration. This removal led to the only significant developments of optical theory occurring in Arabia in the works of Alhazan as we shall see, a development that was the only notable achievement in the field of optics until Kepler in 1571-1630, with his work on planetary movement and optics, and Newtonian optics in 1672. Prior to its expulsion, the Athenian Academia was fulfilling its Socratic ‘gad fly’ purpose by disrupting the imposition of new laws by Justinian 1st. Justinian law was based upon a premise of universality of behaviour, behaviour that crossed cultures and geographic boundaries, thus establishing for the first time a legal system based in the secular. This legal system was in direct opposition to ancient Greek belief in the cultural production of secular law in combination with natural law. Plato argued this interactive duality in the Republic, as that which can be deduced from the general to the particular and vice versa. The rigidity of Justinian Roman Law did not fit this paradigm. The coincidence of the shift to Syria of the Athenian Academy and the emergence of the
Byzantine Empire, 476-1453 A.D, saw the re-emergence of scientific and philosophic enquiry within the Arab world where it had originated in the ancient Egyptian Empires, a world which was at that time still polytheistic and largely uninfluenced by the rigid dogmatism of monotheism. Consequently it was flexible and open in its attitudes to science, medicine, philosophy and alchemy.

It is more than possible that it was this period of religious and intellectual tolerance that enabled Hypatia of Alexandria to make public her philosophical theorisations based on Neo-Platonism and Pythagorean mathematics. At the same time she was passing on her knowledge of hermetic and Orphic texts gained from her father Theon, an alchemist, to her disciple Synesius, who was later recognised as an adept of alchemy, having gained his knowledge from his association with Hypatia. In this liberal Arabian atmosphere some aspects of alchemical enquiry such as astrology, chemical reactive science and dye manufacture, were recuperated into conservative scientific enquiry, such as astronomy, number, medicine and chemistry.

Hypatia’s public display of knowledge and theorisation led to her death at the hands of early Christian monks determined to crush such liberalisation in the name of Christianity. The Christian monks publicly scraped the flesh from Hypatia’s bones with oyster shells, removing her life and her substance, making sure that no other female would raise her head above the philosophical parapet. Hypatia remains only as a fragment in the history of feminist theorists. Dzielska (1995) engages with the myth of the disappearance of scientific and philosophical theorisation from Alexandria following the death of Hypatia in A.D. 445, exploding the myth that Hypatia was responsible for its demise. Hypatia’s death preceded the Muslim Empire by three hundred years, but
the force of religious change was already underway. The conversion from polytheism, paganism, Judaism, and Christianity to the Muslim faith was a process in motion. Hypatia’s death and the increasing marginalisation of alchemy were part of this process. The stagnation of Western scientific enquiry was also a symptom of the effects of religious bigotry that was to follow through the Dark and Middle Ages in Europe.

The only significant research on optics carried out between the work of the ancient Greeks and that of Newton and Kepler was done by the Muslim philosopher and scientist, Abu al Hassan ibn al-Haytham, or as he was later renamed in Europe with the discovery of his manuscripts, ‘Alhazan’. His seven books on optics (circa 1000 A.D) were not published in Europe until 1572. The logical arguments offered by Alhazan were the most important contribution to the scientific revolution in 17th century Europe, removing light from within the Aristotelian eye and placing it outside in the Sun and Fire. This repositioning of light allowed research to manipulate light through lenses and apparatus, a precursor of Newton’s modernist scientific practice. Alhazan argued that sight was not the result of some Inner Light reaching out, or of two lights, inner and outer, merging, but solely the result of light entering the eye from an external reality. The body within this paradigm became a receptacle for sensational reaction and not strictly a participant in process. This theorisation was not to be challenged until Goethe’s theory of colours with his revival of the concept of internal and external light when he said that

The eye may be said to owe its existence to light, which call forth, as it were, a sense that is akin to itself; the eye in short, is formed with reference to light, to be fit for the action of light; the light it contains corresponding with the light without. (Goethe 1810: liii)

A boldly spoken revival of Platonic optical theory.
Alhazan was the first to document the idea of colour ‘complementarity’. He described the effect of colour within the eye as an after effect of fixed optical attention to one colour. In his work on Islamic science Seyyed states that Alhazan speaks of the effects of

the closed eye which when opened and suffused with red produced in the dark of the head, ‘green. (Seyyed 1976: 12)

The hermetic sealing of this early error in observation (where the after effect of a blue green is correct) throws serious doubt upon the veracity of colour art theory. The anomaly of colour complementarity contained within Alhazan’s red/green complementarit and his lack of observational truth is a striking example of how an idea, supported by ‘science’ can be assumed to be true. Colour theory still teaches that green is the complementary of red. Gage describes the effect of eye colour suffusion, in the development of his argument regarding the effects of culture, upon colour perception. He states

If you look intently for a moment at the red disc illustrated, and then, while relaxing your eye muscles, at the white disk adjacent (in each case fixing on the centre of the field of vision, most of you will see a colour that you will probably be inclined to call ‘blue-green. (Gage 1999: 64)

He continues by pointing out that in the late 18th century Robert Waring Darwin in his work on after images described the compliment to red as blue-green, as did Newton a century earlier in his experiments with the colours of thin plates, (Newton’s Rings). However, as Gage (1999) points out, after 1800 with the establishment of the three primaries, red, blue, and yellow and the addition of the idea discussed by Goethe amongst others of the suffused eye needing to, restore its balance, a need for the idea of complimentary colours created a space for the reintroduction of the red/green anomaly. Complementarity requires a perfect balance of opposites, an old alchemical belief, and
not the confused colour perception that a properly observed red/blue-green complementarity would produce. Gage continues his argument of the acculturation of the concept of complimentaries by stating that

Green is still commonly identified as the complimentary of red, even in perceptually oriented handbooks of colour such as Joseph Alber's Interaction of Colour (1963) and this persistent idea suggests a powerful cultural conditioning of the sort Umberto Eco was concerned to expose. (Gage 1999: 64)

It can be argued that the blue of the blue green colour suffusion after effect was not acknowledged by Alhazan because of Muslim abhorrence of the colour blue, stemming as it did from the ancient Egyptian and Arabic belief in blue as a signifier of death. Ancient Egyptian language had no word for blue for this reason. (Gage 1999: 63-65) By 1000 A.D. blue along with yellow had also been pejoratively normalised for Muslims by its use as signs of difference and inferiority in the discriminatory clothing dictated as blue for Christians and yellow for Jews by the Muslim Empire. 24

Chromatic value was already argued in Arabic theoretical texts on optics such as Alhazan's, where the colour yellow was symbolic of decay and corruption, a symbolic of acculturated patterning that was to pass down to theories of colour expressed by Goethe and later Kandinsky. Alhazan wrote of his experiments with colour mixtures on spinning discs and noted that the 'stronger' colour tends to overcome the 'weaker'. The denial of blue, in red/green complementarity has remained within inscribed colour theory and forms part of an artist's unquestioned knowledge of colour theory. This erroneous belief still persists in institutionalised and normalised colour theories used in art education.
However the optical theories of Alhazan moved the study of colour further from the somatic theories of alchemy and the difference is exemplified by these first written texts concerning themselves with light and optics. It is said by Seyyed (1976: 32) that Alhazan wrote of his experiments with colour mixtures on spinning disks noting that 'the ‘stronger’ colour tends to overcome the ‘weaker’ establishing the notion of stronger and weaker colours. Without being able to read the original text in Arabic, it is difficult to know what the semantic nuances might be in the Western understanding of notions such as strong and weak, however in an axiomatic analysis, value, expressed as ‘more or less’, has influenced perceptions of colour values. Alhazan also established what would later be described as experimental procedures that could be repeated by other practitioners, thus allowing the testing of his hypothesis. The theories did not depend upon closure and encouraged an open-ended attitude to research inherited by science and rejected by religion and to some extent philosophy. By comparison alchemy retained a fixed system of chromatic hierarchy, feminised by both its adherences to Platonic theoretical relegation of colour as ‘other’ and the feminisation of its practice where all transmutation occurred within the womb/athanor, impregnated by the male practitioner.25 The achievements of Alhazan were not bettered for 500 years; his influence on scientific development and the entry of science into modernism is huge and largely unacknowledged. John Gribbon (1995) pays due respect to his work but his importance in the development of modern optics and optical colour theory is not acknowledged in most texts on the subject.

With the establishment of the Muslim faith (circa 700 A.D.) Muslims became heirs to Alexandrine and Greek alchemy. It was believed that the union of Hermes Trismegistus, and Thoth the Egyptian produced alchemy, opening a golden chain of philosophy from
Adam to now and establishing a pattern of belief that has deeply affected perceptions of women and colour. The long march of philosophic, scientific and alchemical enquiry into optics and colour did not touch many women practitioners on the way. From Plato to Alhazan, only Hypatia attempted to influence matters as far as we know, and paid the price with her life in trying to add the gynocentric to a culture controlled by the phallic.

Reading through *Feminism and Science* edited by Nancy Tuana (1989) it is disturbing and depressing to encounter the acknowledgement by writers such as Sandra Harding, Luce Irigaray, and Ruth Ginzberg, that women as a culture are still having to preoccupy their thoughts with the problems of entry and isonomy. The fact in the year 2000 of Women’s active participation in work of all kinds is no longer the point, as Harding states,

> The issue here is not the existence of individual women physicists, sociologists, chemists, astronomers, engineers, biologists, economists, psychologists, historians, anthropologists, artists etc. There have been many of these throughout the history of science, instead the issue is that knowledge is supposed to be based on experience; but male dominance has simultaneously insured that women’s experience will be different from men’s. (Harding 1989: 23)

The exclusion of women from the development of philosophic and scientific theoretical development has laid down a belief system for women of the inappropriateness of themselves as theoreticians and I would argue is an informing acculturation in the denial by practicing women artists such as Sonia Delaunay and Bridget Riley (subjects of this thesis) of their knowledge of art theory, particularly colour theory. It is the historical allocation of cultural roles (and in this I include the gendering of colour) that acts as a dynamic in the production of meaning ensuring female conformity to a location outside the phallic norm or law.
In his chapter *Systems of value-orientation*, Parsons (1951) engages with the important question of systems that are able to transmute and carry established patterns of belief. He grasps the problem of culture as a system of dynamic ideological reproduction. In this he was part of a general sociological debate on this important area of research. To do this he identifies culture as an action system, in the following way,

Culture has been distinguished from other elements of action by the fact that it is intrinsically transmissible from one action system to another, from personality to personality, by learning, and from social system to social system, by diffusion. This is because culture is constituted by ways of orienting and acting. (Parsons 1951: 159)

Parsons continues, ‘these ways being embodied in meaningful symbols’ such as I suggest, chromatic perception, where perceptions of colour are transmitted through cultural systems not only carried by theory but also through powerful belief systems. Parsons goes on to link language, culture, and human action as the main dynamics in a chain of transmissibility of ways of being and knowledge, from person to person and social system to social system. The phenomenon of cultural patterning or repletion of action and belief being the defining force in the establishment of longitudinal stability of basic tenets and belief systems. The overwhelming nature of the problem is taken head on by Irigaray (1989) in her essay, *Is the subject of science sexed*, where she confronts the seeming impossibility of confronting Science/Scientists in speech/language. Irigaray speaks with some discomfort of the separation of the world of the feminine and the masculine saying that,

If at each instant, each of these worlds is organised in a way that is total, closed, how can you reopen these worlds to have them meet. The feeling of an absoluteness of the power of exclusion acts as a prohibition not only on change but on the language and actions necessary for change. (Irigaray 1989: 58-67)
Her discussion continues on the presence of a 'truth' that woman must submit to or transgress without knowledge, a truth that is a formidable hurdle to cross.

The stasis around the lack of inclusivity for women applies to the chromatic perception of the feminine and becomes easier to comprehend when the historical territory is mapped and understood. My research has shown that the underlying chromatic perceptions of gender have not changed since Plato, as evidenced in the results of the colour acculturation experiment discussed in chapter 2. As Ginsberg states,

Women, because of their experiences in the world, are different from men. The Corporeal ground of their intelligence is not their bodies per se, as Adrienne Rich believes, but the body of culture they inhabit. (Ginsberg 1989: 224)

I repeat the words of Michele le Doeuff (1990: 55) ‘Oppression also exists where you would not expect to find it.’ The colour 'pink' does not seem to offer a threat to my well being, but my compliance in adopting it or allowing it to act as a symbol of my femininity does.

**Colour Theory and the Artists Palette**

Formal texts devoted to the chronicling of chromatic values designed to instruct and prescribe formulations for an artist's use of colour did not appear until the Middle Ages. Until more formal theorisation began, colour was as Gage (1995: 64) suggests, concerned with the 'Refreshing of souls and the engagement of hearts,' in the decoration of temples and palaces etc. In the Middle Ages, Leonardo da Vinci's observations on colour, based mainly on comparisons made in nature or 'the natural world', can be claimed as the first formal texts that form a canon of colour theory. Leonardo’s texts were devoted to
his observations on the way that colour interacted with light and darkness, the play of colour in the effects of distance and composition, and were specific to artists, offering them an instruction manual, as opposed to dyers and colour mixers.

Leonardo’s thoughts on colour mark a point of departure for colour theory from the alchemist’s ‘Vas’ that can be seen as the alchemists palette, to the establishment of the artist’s palette. It is interesting to speculate upon Leonardo da Vinci’s interest in alchemy, as Gage (1995) has done when he discusses Leonardo’s notes on metallurgy dated circa 1508. One specific note is a recipe for a varnish as follows,

‘The mould (sagoma) may be of Venus (Copper), or Jupiter (tin) and Saturn (lead), and frequently thrown back into its mother’s lap.’(Gage 1995: 64)

Leonardo’s use of the hermetic style and language however is not enough to establish his alchemical credentials; it indicates on the other hand a deep pervasion of the hermetic style to the artist’s practice. The recipe is also an indication of a revival of interest in alchemy during this period, and a general use of its formulations in many areas of work and enquiry.

Leonardo’s colour theories were observations of light in nature and were not strictly speaking theorised. They were rather visual metaphors for the unreal world of nature, which could be represented by artists as the ‘truth’ or the ‘real’ in painted form. Lichtenstein discusses the paradigm of artists as divine creators of the real where she says that

the view that painting constitutes an origin relies on a point that is at once very simple and very obscure: the idea that the reality which serves as the painter’s original is itself a picture, and that the image is thus the primal reality, anterior to the diversity of things; it is the form that speech first took before emerging in the noise of words.
She concludes, ‘Painting is thus a divine language’. (Liechtenstein 1993: 58-67)

The painter in this philosophy, or cosmology, becomes I suggest, the Demiurge of creation, using colours in a set structure to create a ‘truth’ greater than the material world. He mixes his colours on a palette where a creative chromatic transmutation occurs, and then the colours are moved by the divine artist’s hand to a white non-colour canvas that transforms the unreal, with the help of the artist/Demiurge into a reality beyond any conception of the material world. In this paradigm, alchemy and painting are both travesties of Plato’s exposition of the divine cosmology, where the ‘She’ of creation guided by the Demiurge or man is an invisible but absolute essence of divine creativity. In the Renaissance, the need for artists to overtly embrace the hermetic style was removed from the artist’s practice, whilst at the same time the formulations of a colour hierarchy continued the alchemical practice of a rigid chromatic structure as guide to successful outcomes and the possible achievement of the ‘philosophers stone’, or, in the case of art, the perfect canvas.

I would like to further my argument of the travesty of Platonic cosmology by alchemy by suggesting that the use by Leonardo of light and darkness as poles of chromatic appearance mirrors and reflects Platonic and alchemical use of these two poles, as producers of colour. The elision of philosophy and alchemy into a thesis of chromatic technocracy for painters could be seen I suggest as a natural progression in what was a renaissance of thought, open to all influences.

During the Renaissance it became increasingly difficult for artists to recuperate the theoretical profundities of optical theory to their own developing colour theory since optical theory had tied itself firmly to a specialist scientific school, gradually divorcing
itself from the humanities. The hermetic systems of alchemy, which parodied the philosophy of accredited people such as Plato and Aristotle, whose theorizations could be interpreted and recuperated by an emerging artist class. A good example of the kind of recuperation by alchemy of respectable philosophical theory is given by Sarton (1954) who describes how book 1V of Aristotle’s *Meteorologica* criticised the atomism of Democritus, the theory of the four elements and the theory of vacuum, postulating instead the theory of a material continuity as the basic structure of life. Alchemists adapted the four-element theory and added the Aristotelian continuity theory arguing that gold is in everything, contained by all matter and therefore part of a continuum and that matter consisted of three rather than four elements, mercury, sulphur and salt. Sarton (1954) states that by the late 16th and early 17th century, alchemists compared the three hypostatical principles to the Holy Trinity, and the Philosophers Stone with Christ the Saviour, and the transmutation of metals with the Eucharist or the Resurrection.

Alchemists enriched their literature with ideas pilfered from almost everywhere and the influence of alchemy and religion on colour theory is indisputable, a good example being the removal of the colour yellow from the trinity of black red and white when it was finally settled as the Father the Son and the Holy Ghost. The use of the alchemical chromatic trinity indicates an interesting dynamic of exchange between Christian and alchemical symbolic systems.

Recuperation onto the artists palette of hermetic colour theories, preserving the divine providence of dark and light to produce colour, created fertile ground for artistic arguments on the supremacy of the drawn over colour. Lichtenstein (1993) and Brusatin (1991) have discussed the prevailing dominant belief in the supremacy of ‘designee’ over
‘coloris’ and it is a theme that I explore in my section on Bridget Riley, in chapter 4.

Brusatin argues that Leonardo’s theory that dark shadows serve to highlight bright colours, and that light reveals the dark contours and frames colour between the two ancient originators of form, is discussed by him when he argues that the theory

‘not only introduced a theory of relativity into the perception of colours but perhaps provides the basis for a subjective theory of chromatic perception.’ (Brusatin 1991: 67)

I would agree that this may be true, but I believe that relativity and subjectivity were present in chromatic perceptions long before Leonardo da Vinci’s writings on colour.

Between Alhazan and Leonardo da Vinci the emergence of colour as sign in pictorial expression was established as part of the artist’s palette. The use of yellow to depict Jews in Giotto’s painting ‘The Kiss of Judas’ circa 1200, (discussed fully in chapter 3) was concurrent with the establishment of Christianity and Islam as dominant faiths. Colour as a signifier of race and gender was no longer a chimera of ideation, but a practical action normalised, acculturated and validated on the artist’s theorised palette and divine canvas. Such powerful, perceptual, symbolic, chromatic meaning was carried onto canvas after Giotto, and became a normalised part of the symbolic language of painting.

The normalisation of alchemical chromatic symbolism is discussed by Gage, (1993) where he states that the art of alchemy was familiar to Jan Van Eyck (1390-1441) and recalls the words of ‘Bartolomeo Fazio’ who said of Van Eyck that he was familiar with ‘geometry’ (the Pythagorean art) and was thought by Fazio to have discovered many things about the properties of colours recorded by the ancients, and learned by Van Eyck from reading the works of Pliny26. The unstable chromatic world at the time of Van Eyck was at least given two fixed and unchanging points of light and dark from
Van Eyck, Marriage of Giovani Arnolfini and Giovanna Cenani, nearest the light and she nearest the fecundity of the bed
Illustration 3
which colour could emerge, validating again the supremacy of black and white over
colour. Arguably for an artist to disassociate from the alchemical stages of colour could
have been to disconnect the art of colour from its mystical origins, leading to a loss of
control for artists over the chromatic domain of their work, and subsequently to failure.
Jan Van Eyck is also credited with the refinement of fine oil colours, referred to by him
in terms of value, not hue. Leonardo da Vinci repeated this form of reference in his
writings on colour, as it was used earlier by Alhazan in 1038 in his work on disc mixture,
where he emphasises value to the exclusion of colour (which he did not name in his
procedures). The uniting of value and colour was I believe seminal and integral to the
normalising of philosophic and corporeal chromatic associations.

The most convincing proof of Van Eyck’s use of alchemical symbolism is his well­
known portrait of Giovani Arnolfini and Giovanna Cenani. The painting may be read
as a marriage of opposing elements, light and dark. The main colours occur on the two
figures, between the light of the window and the darkness of the bed. (Illustration 3) The
figures abut an invisible dividing pole topped by the mirror above, and grounded by the
small dog below, the dog representing Hermes the conductor of souls, intermediary
between the two poles of dark and light. Behind the figures, the mirror symbolises the
parallel of all opposites, or ‘as above, so below’ an alchemical treatise of the natural
necessity of opposing opposites to achieving an harmonic balance, a treatise recuperated
into chromatic value and expressed in complementarity. The male is nearest the light
and joined to the female by the hand, this gesture being as much of a legal agreement as
a written document, the hand of the man laid over the hand of the woman signifying a
contract. See chapter 3 for a further discussion of the symbolic gesture. The woman who
from the shape of her dress appears to be pregnant is an alchemic chromatic symbol of
renewal or creation, the woman's belly and womb symbolizing the vas of alchemy. The painting is a portrayal of the marriage of fire, light, and water but as Gage comments

The painter and his subjects must have been disappointed that such an over determined union was not, in the event, to be reproductive of children, but the merchant Arnolfini (for whom incidentally alchemy was prohibited) had ways at least of multiplying gold. (Gage 1993: 143)

Around the frame runs a quote from Ovid 'When moisture and heat unite all things spring. For Van Eyck as for Paracelsus 1493-154127 a hundred years later, there was a reconciliation of alchemy and Christianity where God was the alchemist and Christ the 'Philosopher's Stone'. The mirror in the Arnolfini painting represents both the cycle of Christ's passion, and the mutations of alchemy from the material to the divine. This schemata was not unusual in medieval imagery and was not considered outside the remit of those specialising in the hermetic arts.

It would be simplistic to argue that Newton and Goethe represent opposing poles of colour theorisation, since perceptions of Newton, as scientist and Goethe as poet philosopher, are almost a priori. The establishment of a science based colour theory as we know it and the entry into modern scientific thought arguably was established with the publication of Newton's Experimentum Crucis (1672).28 (Illustration 4) Newton's success however was not instantaneous.29 His astrological work was critisised by Leibniz who argued that for Newton to talk of 'attraction' was to reintroduce into physics the occult qualities of the Renaissance magi. This criticism was not without cause since Newton's work on optics and colour was biased in respect of his need to introduce the concept of Harmony30 to his spectrum results, thereby expressing them as seven colours including the colour 'Indigo', irrespective of his own scientific observations. The
Newton’s Optiks: The changing Spectrum of Science.

Illustration 4
alchemical imperative of the use of seven reflects the seven planets, seven musical harmonies, and seven vital organs.

It is interesting to speculate at this point upon the secular introduction of indigo to Newton's spectrum, since it coincided with the introduction of indigo, the dye to British manufactory in the 16th century by an expanding East India Company. Indigo was still rejected in much of Europe and was referred to by the Germans as the 'devil's dye'. What better way to validate the use of indigo as a respectable product for dyeing in Britain, than to include it in the Experimentum Crucis, published twenty years after it was written. It is well known that Newton was very successful financially in the thirty years following his departure from Cambridge. Perhaps his later financial success was fueled by investment in the East India Company and British dye manufactory using Indigo. Alison White, curator of the Colour Museum in Bradford, has kindly discussed this speculation with me and sees no reason to suppose that there may not be some foundation for it. Introducing indigo to the spectrum could then be read as a masterful piece of public relations advertising of a new colour imported to an expanding industrial and imperialist Britain.

The polarisation between Goethe and Newton can be further argued by emphasising the emotive and corporeal chromatic theories of Goethe. As previously discussed the removal of colour from the 'body' began in recorded history with the work of Alhazan. His experiments with coloured discs was continued by Helmholtz and Maxwell in the 19th century who found that a suitable mixture of three monochromatic lights in the blue, green and red parts of the spectrum could duplicate the colour sensations produced by light of any arbitrary spectral composition. Colour television puts this
finding to practical use. The shift from the corporeal to a more abstracted colour/light theory was a process in motion stretching from Alhazan to Einstein and particle theory. However the problematic of cultural perception in theoretical analysis is present in both Newton and Goethe; the one uniting formulation that can be applied to both is alchemy, and with it the concept of the essential ‘She’ and the defining chromatic hierarchical system of value, which informs their colour analysis.

Goethe’s knowledge of alchemy is well researched by Gray (1952) in his book Goethe the Alchemist. Gray argues that Goethe’s enthusiasm for his alchemical beliefs led him to write them into his literary and scientific works. Unlike William Blake, Hegel and Schopenhauer, the great influence of Jacob Boehme is not obvious in Goethe’s literary works. He mentions him only once in passing. Rather it was Boehme’s complete adoption of alchemy’s symbolic meaning and conversion to a philosophy that is what can be read in the works of Goethe. The two principal works defining Goethe’s alchemy are given by Gray as the fairy tale ‘The Green Snake and the Beautiful White Lily’ and The Theory of Colours. The fairy tale is an exposition of the journey taken in the Great Work, towards the union of opposites, transmutation through a colour coded and symbolic landscape. The ‘Green Snake’ is symbolic of energy itself, absolute and complete energy (and is incidentally the colour of the dress of Giovanna Cenani in the Arnolfini painting). Green, is the colour of Nature, or the ‘she’ of creation, whilst the phallic snake form encompasses the essence of ‘she’ with its dominant maleness. The snake biting its own tail becomes a wheel, a mystic force, half dark, half light, essential, ambivalent, pertaining to both aspects of the mystic cycle of life. The ‘White Lily’ is symbolic of purity and the female principle. When the green snake and the white lily are united then a new and nobler form is complete. This poetic text is a perfect analogy of Goethe’s belief in the ability of man to achieve a greater form through an understanding
of the forces of nature and spirituality. The tale also has a 'Hag' or 'She' of alchemy, whose task it is to take a precious gift across the Green Snake Bridge to the White Lily, uniting the two. She is symbolic of the transmutation that occurs between the two poles of creation. In carrying out her task she is transformed once more into youth and beauty, proof of immortal transmutation.

More importantly for this thesis, Gray (1952) argues that the Theory of Colours is a complete alchemical tract. The Theory of Colours he argues was framed around the seminal belief that colour is a product of dark and light. Goethe's (1810: 37) theory was built upon the hypothesis of the contrast between 'light and darkness' and the understanding that 'colours are acts of light' based upon oppositions and compensations to them. The profound mystical effect of opposition and compensation are expressed by Goethe in the Theory of Colours in the following way,

> When the distinction of yellow and blue is duly comprehended, and especially the augmentation to red, by means of which the opposite qualities tend towards each other and become united in a third; then certainly, an especially mysterious interpretation will suggest itself, since a spiritual meaning may be connected with these facts; and when we find the two separate principles producing green on the one hand and red in their intenser state, we can hardly refrain from thinking in the first case on the earthly, in the last on the heavenly generation of Elohim. (Goethe 1810: 352)

The animosity felt by Goethe for Newton was expressed when he attacked Newton's colour theory in his own theory of colours. He based his attack on the concept of 'Das Trube' meaning the opaque or semi opaque medium. All individual bodies he argued are opaque, no matter how transparent. 'Das Trube' is the giver of form, symbolic of individual separateness and finiteness, in stark contrast to the universality of the infinity of light. To be 'Trube' was to be 'dark' in the sense of its opacity, and also to be finite.
and material. Between light and dark in the finite opaque are colours and form. In Goethe's own words

We see on the one side light, brightness; on the other darkness, obscurity: we bring the semi-transparent medium between the two, and from these contrasts and this medium the colours develop themselves. (Goethe 1810: 72)

The opaque object when robed in light is modified by its opacity and is therefore coloured and defined.

The prism of Newton's *Experimentum Crucis* was for Goethe the crux of the failure of his colour theory. Instead of light passing through the prism (as described by Newton) and leaving as refracted rays of light of different colours, or as expressed in Newtonian theory where light is shown to contain all colours, the prism for Goethe becomes 'the primordial phenomena' acting in Goethian terms in its opacity, its 'Trube' to create colours. Colours, which were not present in light until the opaque prism darkened its passage, thereby producing colour. Goethe once more reinstated nature and the body when he described natural light as mediated by the opaque medium and the eyes as instruments of perception, within the whole structure of object-subject interaction.

This Goethian view of light and colour kept the material firmly in place. The body, its emotions and consequent moral implications of colour, when robed on good or bad objects, took to itself their morality and became established knowledge for artistic colour theory. The Newtonian scientific model of colour and light theory had removed colour from the body, giving it to light and colour physics. The theory placed these theorisations within a desired modernist frame of repeatable experimentation, objective observation, mathematics and the laboratory. Goethian theory on the other hand left colour robed on the body and material objects, empowering it with the means to
produce emotional and moral associations establishing the power of an opaque medium to produce emotional and moral meanings for colour from the object enrobed.

The influence of Goethian colour theory can be seen in the work of Rudolph Steiner\textsuperscript{36}, Luscher\textsuperscript{37} and Jung. The \textit{Luscher Colour Test} is I suggest, distasteful and obscene, since its premise of colour as a signifier of personality, or personality disorder, is as dangerous in its application to unhappy and distressed people as is the use of E.S.T. For Jung, colour, alchemy and the mandala, became mysterious chromatic geometric instruments of meditation into which a myriad different meanings could be read or red. Riley (1995) claims that it was Jung's practice from 1916–1919 to paint a mandala a day, the colours he chose offering him a reading of his mental state. This practice and theoretic was built upon a foundation of alchemical, hermetic, Platonic and Aristotelian colour theory. The belief as stated by Lichtenstein that

\begin{quote}
The passion felt by the painter and expressed in his coloris and the passion felt by the viewer are the same and transmittable through colour, (Lichtenstein 1993: 139-168)
\end{quote}

is a result of an historical and philosophical association of colour with the body, emotion and morality.

Newton's associations with alchemy are recorded over a thirty-year period and are unchallenged in scientific or historical circles. There is however a difference that illustrates the schism between modern science and art that despite the efforts of many colour theorists has failed to close the gap between what I argue is still seen as the magico colour theories of art and modern scientific colour theories. Whereas Goethe is described by Gray (1952) as a poet, writer and polymath concerned with expressing the idea of 'beauty' as the symbolic experience of the inner laws of Nature, Newton is
Goethe's colour circles, 1799. Top circle Goethe assigns the spiritual capacities to the six colours and below the four humors of man are assigned to the four colours.
Illustration 5
described by Maynard Keynes as the last of the Renaissance Magicians and his alchemy as 'an aberration – geniuses are very peculiar.' As Gage comments

Newton is no longer the rationalist idol he was in Goethe's day: we have long had Ronald Gray's Goethe the alchemist, and we now have Newton the alchemist, although Newton's practice of alchemy has hardly been brought to bear on the history of Optiks. (Gage 1999: 46)

The *Farbenlehre*, or *Theory of Colour* of Goethe, was alchemy; the Spectrum of Newton was also alchemy, the twisting of Newton's spectrum into a circle created the alchemical serpent (Green Snake) eating its own tail, a sacred manifestation of the holiness of green nature. Goethe also produced colour circles (Illustration 5) based on his theory of colours and showing ethical and emotional Colour value. Newton and Goethe are still seen as giants of colour theory but their obsession with the dark arts is not so loudly applauded. This obsession led them both to place within their theories the 'She' of alchemy, that degenerate travesty of the 'She' of 'Divine Soul', the mystical and mythological symbol of colour. Throughout the teleology of colour theory, 'La Couleur' has been an essential female essence, necessary but prohibited from being that which 'is'. The foundation of Western perceptions of colour was established on the chromatic assumption of colour as 'She'. This theoretic is unlike other theoretical concepts, such as 'particle wave theory' or more correctly 'probability theory' that have transmuted from early 'Optiks'. These allow the feminine or gynocentric principle to appear only fleetingly, for example, as the imaginary female cat and her daughter kittens, in Schrödinger's cat in the box puzzle. Choosing a female cat as opposed to a tom as the imaginary passive victim of possible death, suggests, I believe, an unconscious use of the 'She' of creation, always subject to the Demiurge, in this case the observer who has the power of life and death over the female cat and her female kittens.
Art colour theory has embraced a stasis that is unchanged in the second millennium, passing on from personality to personality and social system to social system a gendered cultural chromatic patterning that conditions our ways of seeing and thinking.

Conclusion.

Following the work of Newton and Goethe, colour theory developed in general terms as optical light theory and pigmented art colour theory. This divergence is not impeccable. There are many overlaps, which become obvious when the colour theories of Delacroix (1798-1863), Chevreul (1786-1889), and Rood (1831-1902) are studied. Delacroix took the work of Chevreul (1839) which he considered masterful, to formulate his own colour theories. Chevreul’s work on colour had been carried out at the Gobelin factory and it was grounded in the need to produce effective colour combinations through dyeing for commercial purposes and involved the search for permanence rather than the fugitive as discussed earlier. The results of this work produced Chevreul’s theory of ‘simultaneity’, that is, broadly speaking, the effect of one colour upon another when directly opposed to it. The placing of green next to blue was argued by Chevreul to be unflattering to either colour, a sentiment also expressed by Goethe in the Theory of Colours where he states,

The juxtaposition of yellow and green has always something ordinary, but in a cheerful sense; blue and green on the other hand, is ordinary in a repulsive sense. Our good forefathers called these last fool’s colours. (Goethe 1810: 325)

The subjectivity of these sentiments was deemed acceptable because they were framed within a new enlightenment science of objectivity grafted on to art colour theory.
Delacroix welcomed what he described as ‘a new age in which discipline and science would enter the world of colour in art.’ (Rood 1879: 20) Rood’s theories of colour harmony were based upon the belief that colours were harmonious when they were based on a] closely related hues, b] direct complementarity and c] triads. All of these theories were influenced by the subjective idea of chromatic value. Colour theory continued the concept of value throughout its development, imbuing it with the quality of a natural law, in an attempt to bring to colour theory the kind of validation that gravity had brought to Newtonian science.

The acculturation of perceptions of chromatic complementarity is argued by myself in this thesis and validated by the arguments of John Gage. The development of the concept of colour primaries as we know them was based on the work of Thomas Young’s (1773-1829) wave length theory which was supportive of Newton and which was further developed in the 19th century by Helmholtz (1821-1894) and Maxwell (1831-1879) who described the three different optical cone receptors of colour as receptive of red, blue, and green. This finding led to the fundamental belief in art that there are three primary colour values, even though this theoretic came from light/colour physics which in fact has four colour primaries red, blue, green and yellow. The pigmented version chose to have only three, red, blue and yellow. The elision of Maxwell’s optical cone and light disk theory into primary pigment theory with the replacement of green with yellow once again illustrates the facility that art colour theory has for misrepresentation. The promotion of three-pigmented colour primaries was possible only because of the development of synthetic colour materials for painting. The brilliance of modern primaries was not possible before this technical development and

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the primary status formerly given to alchemical black, white and red shifted with the industrial production of colour to red, blue and yellow. This recuperation and misunderstanding of industrial and physical colour theory by artists led an old and sick Ogden Rood, (1831-1902) father of modern chromatics, to comment regarding the French Impressionists,

I always knew that a painter could see anything he wanted to in nature, but I never knew that he could see anything he chose in a book. (Rood, 1879: 28)

With the introduction of colour theory by the Bauhaus as a formal part of the course curriculum for art students, the concepts of colour primaries, complementarity and chromatic value were safe. Migration into art educational systems on a global scale, of colour theories by Itten, Albers, and Kandinsky developed from the work of other colour theorists, including the work of Leadbeater and Annie Besant who used colour charts to illuminate emotional and spiritual development in their Theosophical work *Thought Forms*, ensured the future of colour theories locked into chromatic value systems.

An existing, established chromatic value system for gender is validated by an institutionalised system of colour theory that perpetually promotes the idea of chromatic value *per se*. This belief system entrenches chromatic cultural patterns of belief, instrumental in perpetuating institutionalised sexism. The difficulty of identifying the obliqueness of chromatic value given to women i.e. women are colour, is noted by Gage, as his own studies have made it impossible to ignore the gendering of colour and its implications for women any longer. Gage throws down the gauntlet to feminists in his latest treatise by suggesting that
The most interesting area for feminists to explore is, indeed the recurrent assumption that a feeling for colour is itself a peculiarly female province. (Gage 1999: 36)

Goethe in reference to 'Nature' and 'her power' makes an oblique connection between colour and woman

speak and manifest her presence to the subject we have undertaken, the subject being colour, and 'colour' 'belonging to nature as a whole. (Goethe 1810: xxxvii)

The consistent naturalisation and recuperation of ideas that have no foundation in a morality of the real is simply that, a naturalisation of maladjustment. Lichtenstein allows herself some indignation in her chapter on Truth in Painting where she says that,

It seems not entirely unreasonable to ask Plato to account for the consequences that history draws from various aspects of his philosophy, to seek in Plato’s texts the conditions that give rise to misreading and that fostered a particular use of Platonism in the domain of painting.

In particular Lichtenstein states that Plato and Aristotle should answer for the feminisation of colour and its resultant denigration and gives as an example the elision of 'cosmetics' and colour; the former described by Plato as

the artifice that advertises its presence, an ornament whose sole function is display, a cosmetic taking pleasure in showing off,

and of colour as being

suspect to philosophers, the brilliance of its make up and the charm of its luster giving it the formidable power of seduction that characterizes all that is poikilos.40

Furthermore, Liechtenstein argues that colour in Platonic and Aristotelian philosophy represents by association 'woman' who is called impure, and likened to 'courtesans, mistresses, and prostitutes.' (Lichtenstein 1993: 38)
Within this epistemological philosophy of colour as a rhetorical whore, colour is an artifice with no desire for ‘truth’, preferring lies or deception, a return to Iris and the rainbow. That colour and woman are subject to the same moral reprobation is clear when as Lichtenstein states, ‘The beauty of ‘coloris’ is Medusa’s.’ (Lichtenstein 1993: 38)

Although colour has been analysed and discussed in terms of symbolism, language, and culture, the implications for women contained in the cultural assumptions given to colour and the power of such assumptions to affect the lives, self perception and livelihoods of women, particularly of women artists has not been focused on. The huge area of denial surrounding assumptions of colour and the acceptance of its derogatory meaning for women signals the same collusion that went with the use of derogatory terms such as ‘boy’ for black people, as though knowing of its possible power to damage and admitting that power is to absurd or dangerous to contemplate.

By pushing to the forefront the power of the dynamics of meaning given to colour I have attempted in this chapter and the rest of the thesis to understand and show how such dynamics act as controls on the cultural perception of the abilities and gender of women and race. In the context of my argument, I believe that women are treated as a race, subordinate, inferior, different and coloured.
It is not the task of this thesis to detail the development of colour theory from Plato to De Sausmarez, (1964). Therefore I have constructed a chronological rough guide to colour theory that is not a who's who but is a list of theoretical developments in colour theory and maps the continuity of thought and illuminates some of the historical similarities.

**Chronology of Colour Theories, and Theorists**

**Pythagoras** 580-500 BC. - Colour and Number.

**Plato** - 427-347 BC. – Colour a product of confusion, not part of the order of things.
Black and White = Form. Colour = Emotion, instability and the material.

**Aristotle** - 384-322 BC. – Colour = mimesis, the character not the plot.

**Alhazan** - Muslim, 1000 AD. – Eight books on Optiks. Colour, a Pythagorean analysis, plus empirical experimentation with the prism and spectrum, overlaid coloured glass and light beyond the body.

**Jan Van Eyck** - Christian, alchemist. 1390-1441. – Said to have developed oil paints, glazes and varnishes. Used colour as symbolic meaning, sometimes pertaining to alchemy.

Johannes Kepler- 1571-1630 The first person to take up the work of Alhazan described the movement of the planets around the sun and related colour to music and planetary harmony.

Isaac Newton- 1642 – 1727. Experimentum Cruesis, 1665-66 Published 1687. All aspects of light. Experiments with light through Prism to spectrum, reflection and refraction. Introduced the notion of harmonies (alchemy) to his spectrum, analysis controversial then, and now.

Harris Moses- 1766. Wrote The Natural System of Colours, Rarest book in the history of colour theory.

Thomas Young- 1773-1829 Supportive of Newton’s optical observations and proceeds to develop his theory of undulatory system of light. Confirmed by analysis of colours of striated substances. The work was Newtonian modern science, not Romantic Goethenian.

Eugene Delacroix- 1798-1863. Colour as expression of emotion. Colour chemistry; contrast between colour and line. His curiosity has been compared to Leonardo’s. He also related colour to mathematics and music re Pythagorean and Platonic theory. Influenced many painters.

Michel-Eugene Chevreul- 103 years of life from 1786 - 1889. French chemist, Wrote On The Law Of Simultaneous Contrast, i.e. the effect of one colour on another when seen simultaneously. Said to have been Huge influence on the Delaunay’s. His choices are
highly subjective and eclectic. He had a refreshing candor re his own colour preferences acknowledging the subjectivity of his choice.

Johannes Wolfgang von Goethe- 1749 – 1832. Wrote the *Theory of Colours*, Colour as aesthetic. Included moral associations and his own cultural preferences in the theory. Opposed to Newtonian Scientific theory arguing that the prism was a primordial force ignored by Newton and it produced colour because of its ‘Trube’ its opacity.

Herman von Helmholtz - 1821-1894. Three-colour theory, where the mixing of three specific colours could produce light of any colour. A follow on of Alhazan-disc theory.

James Clark Maxwell- 1831 – 1879. How to synthesize colours using only red green and blue light using a light box later called Maxwell’s light Box.

Ogden Rood- 1831 – 1902. Optical theories based upon Thomas Young as modified by Helmholtz and Maxwell. Rood discarded the concept of harmonies and musical theories. Moved to strictly scientific optical theory. Was skeptical of his theories to art practice in particular pointillism.

Russian Experiment in Art- 1863 – 1922. Russian belief in colour as metaphor, as its own reality. Colour as a decorative and seductive tool. A spiritual reality rather than an irritation. Colour = the real. Abstraction = the unreal. Great influence on Theosophists Blavatsky and Besant and subsequently Kandinsky’s colour theory and Mondrian’s art.

Dr William Von Bezold- 1874. A physiology of colour attempts to rebuild Goethian theory using scientific argument re light and colour Continues to argue that colour results from the interruption of light by objects.

John Ruskin –1819-1900. Colour and materials simply tools to enhance structure/architecture. Colour secondary to Form, Mimesis of Plato, and Aristotle etc. In art colour perfection only achieved through order.
Ewald Herring- 1860. Outlines of a theory of light source. Visual systems-brightness and colour contrast. Argued that green was autonomous and therefore should be included as a primary colour.

Johannes Itten- 1888 – 1967. Colour as pigment rather than phenomenon. Colour a sensuous and spiritual system of expression. Theories based on Newton and Chevreul i.e. concord of colours. Seven colour contrast principle (the seven planetary harmonies) but not simultaneous contrast.

Wassily Kandinsky- 1866 – 1944. Colour and Mysticism, colour and symbolism. Colour has meaning without representation. Colour and art similar to structure and order in music harmonies. Line and point separate from and superior to colour.

Joseph Albers- 1888- 1966. Colour concept based on the theories of Chevreul, Bezold and Weber Fechner. His theories regarded as dogma i.e. he argued that a white line had potential as a psychic and physical fact.


Georges Braques- 1882 – 1963. The only colourist amongst Cubists, tested many colour concepts including those between volume colour light and visual textures.

Christine Ladd Franklin- Ph.D., Published 1929. Colour as sensation. Darwinian evolutionary theory of colour sense related to cone receptor development (colour perception) of retinal development. The more developed and civilized the more colour perceived. Reasoned that man as primitive animal had only black and white vision having only rod development in the retina. An hypothesis only.

Mathew Luckiesh, Published 1921. Source book covers all colour theories to 1921.

C.D. Broad- Published 1923. Examines colour through wavelength theory, declares it an oversimplification.

John Dewey- 1859 – 1952. Suggested that we transferred the values given to colour to the things colour qualified. First philosophic suggestion of acculturation of colour. Important shift in colour observation.

Jose Ortega Y Gasset- published 1948. Essays on Art Culture and Literature. Cry over the dehumanisation of Art from Velasques on, accuses the use of light and fixed point of view and pallet to chiaroscurists loss of corporeality, also the separation of light from form.

Allen Leepa- published 1949. Interaction of media and ideas produce paintings without emotion related to colour and have no meaning.


Robert Meuther- published 1967. Sensory and chemical capacity of eye light and
colour. Relationship between colour chords and musical chords, re Plato Newton,
Kepler etc.

William David Wright- published 1967. Essays on the science of vision and colour,
light rays are not coloured, a revival of the colourless world.

Stiles, Cunter and Wyzecki- published 1967. Colour concepts, methods, and
quantitative data and formulas bearing on colour science, colour problems in industry
and research.

Umberto Eco- published 1985. *How culture conditions the Colours we see*, an essay
arguing that colour perception is entirely cultural, a brave attempt much criticised by
John Gage who is not included in this list of theorists because fundamentally he is
engaged with colour from an art historical perspective but does not develop a single
colour theory.

For further information on and sources on colour theory I recommend,

Buckley Mary and Baum David- (1975) *Colour Theory a Guide to Information
Albert, S. Lyons, MD, F.A.C.S. *Medicine, An Illustrated History*, New York, Harry N. Abrams

All body fluids were composed of varying proportions of blood, red (warm and moist), phlegm white, (cold and moist) bile yellow, (warm and dry) and bile black (cold and dry). When these humours were in balance the body was in health: excess or deficiency of one or more caused illness. Disease (dis ease) had three stages, fever, boiling and death; the stages were accompanied by changes in body colour.

Roeb's text is an excellent reference source on alchemy, liberally illustrated with many references to the similitude between the womb and the vasa, also hermaphroditism and androgyny.

It is interesting to note that even within this secular cosmological explanation colour has a secondary specificity. Athenian hostility to Anaxagorean secularisation of the sun as stone and not as a fixed deified planet is important in the context of the importance of the Sun in terms of Greek mythology, and may explain Plato's care in referencing the planets as Gods within his cosmological explanation in the *Timaeus*.

Aristotle was not alone in holding these views regarding women and slaves; they were a priori to most citizens at that time, the point being, such views did not disappear with the period.


I use the term *a priori* in the orthodox philosophical sense meaning knowledge that has not been tested against experience or arrived at through an empirical deductive process and needing no evidence for its support.


The Hanunoo use four basic colour terms, black, white, red and green, when asked about colour they replied that they did not talk much about colour; Research on the Hanunoo was done by Harold, C., Conklin, (19/??) Hanunoo colour categories, *Southwestern Journal of Anthropology*, Vol 11: 339-44 see: 341

Part IV Effect of colour with reference to moral associations


The Hanunoo use four basic colour terms, black, white, red and green, when asked about colour they replied that they did not talk much about colour; Research on the Hanunoo was done by Harold, C., Conklin, (19/??) Hanunoo colour categories, *Southwestern Journal of Anthropology*, Vol 11: 339-44 see: 341

Part IV Effect of colour with reference to moral associations


This quote is in Tuana, N. Ed (1989) *Feminism and Science*, Indianapolis, Indiana University Press. Chapter two Mackinnon *The Fetishisation of Method; Methodology*

The Demiurge precedes the Christian Adam Eve model but parallels Alexandrine Hebrew models of creation of woman


The connection of wine, inebriation and the act of sexual congress or penetration of the vasa or womb as routes to higher levels of consciousness have normalised these two activities for males as good states productive of spiritual enlightenment and understanding. Sex as a source of spiritual enlightenment is also part of Vedic and Hindu culture.


In 1857 General Hitchcock published *Remarks upon Alchemy* relating the beliefs and practice with the arts and sciences.

Searching for references to women practitioners of alchemy, I have found only one specifically mentioned as an alchemist in Berkhardt, T. (1967) *Alchemy science of the Cosmos, Science of the Soul*, London, Stuart and Watkins. In it Berkhardt refers to Mary the Jewess, possibly known as Miriam the sister of Moses and claims there are many references to her formula for 1st stage black material, which was as follows, a fusion of lead copper alloy with sulphur. This formula appears in alchemical texts from Alexandria onwards, but Mary the Jewess has no real history. She is commemorated however through the *Bain Marie* a pan or hot water bath for keeping food hot, part of the alchemy of cooking. Her commemorative stone therefore stays within the untheorised, the artisanal domestic and is rendered harmless by its gynocentrification.

For a further discussion of this see my section on Bridget Riley, chapter four, Part two.

Thinks, pre Sociatic philosopher scientist and engineer probably died in 548 BC born in Mileitus. Founder of the Ionic sect that included Anaximander, Anaximines, Anaxagoras, Archelaus master of

82
Socrates, he discovered the solstice and equinox and recommended the 365 day year later adopted by the Egyptians. Like Homer he looked upon water as the first principle of everything.

24 The theory had doubters, and was only accepted in France in 1715 the reason being that French attempts to sen the results of the experiment to senior members of the Academie des Sciences were they convinced.

25 As Sarton (1954) has argued, alchemical texts were expositions of an hermetic philosophy not concerned with progress, they were I suggest, a pseudo science, indeed a form of 'embezzlement'. These texts were not written in the vernacular, in the modern sense, but were inscribed only in Arabic or Latin, the trademark of a system determined to exclude the uninitiated. The work of the scripts were two fold: 1) artisanal procedure for metalworking, colour mixing, dyes and faience. These artisanal procedures recur from late Egypt to Medieval prescription books. 2) Analogous: metals that are symbolic and the colours produced are also given symbolic meaning, both emotional and physical. For instance quicksilver=maternal blood (menstruum), when it does not now outwards it nourishes the germ in the alchemical womb or athanor. Sulphur colour quicksilver, giving it form, quicksilver being symbolic of the feminine silver moon, sulphur symbolic of the masculine sun.

26 Pliny, known as Pliny the elder, Latin name Gaius Plinius Secundus, 23-79 AD a Roman who wrote a huge number of texts the most important being the Encyclopedic Natural History (XXXV, 50) the section giving the four colour palette of Apelles (a celebrated painter of Cos, son of Pityhius. Lived in the time of Alexander the Great, who would have no other to paint his portrait. Pliny's engagement with the Pythagorean mathematical theories were also considered by alchemists to explain number as a source of magic. Information source, Lempriere Classical Dictionary

27 Webster, C. (1980), From Paracelsus to Newton, Magic and the making of modern science. The Eddington Memorial Lectures, Cambridge, Cambridge University Press Paracelsus, prophet, chemist and doctor, who's Religious magical writings were important to the development of colour theory since they were to influence Helena Blavatsky, theosophist (1831-1890), who in turn influenced Annie Besant, theosophist (1847-1933), and Finally Kandinsky, pseudo theosophist, 1866-1944 in the formulation of his colour theories (Bauhaus circa 1926).

28 The 'Principia Mathematica' published 1672, was the first major western theory about light and colours.

29 The devils dye possibly named because of its origin in black India and because it devastated the woad dye industry in Britain and Europe.

30 Alison White, curator of the 'Colour Museum' in Bradford has kindly discussed this speculation with me and sees no reason to suppose that there may not be some foundation for it.


32 Elohim, Hebrew word for God, also in the Arabic form of el Ohim, meaning The God or his uniqueness.
35 Dieterici, Fr. Dr. Lehre von der Verseels bei den Araben im X Jahrhundert. Die Gattungen Der Farbe. This text is available from the British Library collection, Oriental Studies.
37 Luscher, Max. (1976), The Luscher Colou Test, London, Pan Books An exposition of the use of colour as an indicator of emotional and psychological well being. This particular offshoot of Goethenian Colour theory is still in use, an example of which can be seen in Bradford museum of Colour, where people are invited to choose from a selection of colours and discover their emotional well being. The Luscher colour test was widely used in mental institutions during the 60s and 70s and may still be in use since these kinds of normalised ideations tend to persist well past their sell by date.
38 Maynard Keynes purchased all of Newton's writings on alchemy and his works of chemistry based upon the art.
39 One of the strangest features of the Copenhagen interpretation (probability theory) brought out most clearly in the 'cat in the box experiment' is the role of a conscious observer in determining what happens in the micro world. For more on this see Gribbon, J. (1995) Schroedingers Kittens and the search for Reality, London, Phoenix: 19
40 Poikolos is the Greek word used by Plato to describe the flash set off by an overtly violent dilation of the visual ray, the dazzle that blinds the gaze, thus linking it to colour and therefore distraction from contemplation and the intellect.
Chapter two

Colour Acculturation Experiment 1996-99

(Longitudinal Perceptual Psychology)

Introduction

In this chapter I describe the methodology used in the perceptual psychology experiment conducted during the course of my thesis research. I also present and discuss the results of the statistical analysis of the experiment data.

The decision to include a perceptual psychology experiment in an Art History PhD was taken when the thesis structure was first formulated. My initial readings on the subject of colour suggested that the problems surrounding the analysis of colour and its application seemed a natural topos for psychology and for perceptual psychology in particular. The inclusion of a perceptual psychology experiment would test chromatic perceptions of gender and at the same time make a general assessment of chromatic perceptions of a variety of signifiers. The fact of my association with a College of Arts, where the majority of students were involved in some kind of visual communication using colour in different ways offered an opportunity for collecting empirical data from people exposed to colour theory and engaged with colour at a very basic level. I felt that the theoretical nature of the thesis would be improved by the inclusion of an empirical study that would increase my understanding of perceptions of colour and further my theorisations and argument.
The nature of my critique being feminist I wished also to push forward the process of unpicking the subtleties of exclusion that still operate for women. Such subtle exclusions are often transparent and obscure but they are nevertheless present and effective and colour exemplifies this. I wanted to explore how the subtle nature of such exclusions were reflected in the subtleties of significance and meaning informing perceptions of colour. The historical philosophical development of the feminisation of colour as discussed in chapter 1 is a dynamic in the process of a continuing social and cultural naturalisation.

The analysed results of the experiment demonstrated a patterning of subject response that led me to look at the importance of patterning to perception and meaning. For the analysis of cultural patterning the work of Talcott Parsons (1951) has been useful and will be referred to.

Many theoreticians in both the humanities and the sciences have engaged with the acculturation of colour perception. In his book 'Colour and Meaning' Gage states that

Since Newton, the science and the art of colour have usually been treated as entirely distinct and yet to treat them so is to miss many of the most intriguing aspects. (Not least its acculturation, my bracket). (Gage 1999: 36)

Eco (1985: 157-175) does not engage with the feminisation of colour but does argue that colour perception and meaning is cultural because it depends on the conduit of language as an interpretive tool. The subtleties of the capillary association of colour and culture need careful scrutiny if the acculturation of perceptions of colour is to be given veracity.
Gage’s criticism (1999) of Eco’s (1985) argument re the acculturation of colour does not deny its influence; indeed his challenge to feminists to engage with the subject is an acknowledgment that colour, or perceptions of colour, are indeed acculturated. Gage’s criticism of Eco’s argument is concerned with what he sees as the weakness in Eco’s argument regarding the influence of language on perception. Both theorists acknowledge the acculturation of colour but fall short of arguing the importance of acculturation in the establishment of social attitudes and resulting action.

Alison Motluk (1999) argues in the New Scientist that a shift in attitude in research on colour perception has begun to move it away from the determinist bandwagon ‘that we are on’. Motluk refers to the work of the psychologist, Jules Davidoff, whose lengthy research on colour perception has led him from his original universalist view to one where he argues that language/culture do effect our perception of the world. Motluk argues that his work has led him to suggest that colour may be seen physiologically in a universal way but that perception influenced by language has a powerful determining effect on chromatic perception.

After extensive research into 100 widely scattered languages, Brent Berlin and Paul Kay (1969) developed a structural system of universal colour terms in natural language ranging from 2 to 11 basic colour terms. Using English as the metalanguage, Berlin-Kay described this basic colour term structure as black, white, red, yellow, green, blue, brown, purple, pink, orange and grey. They argued that this range of colour terms accounted for any cultural difference, even where colour terms were supplemented by
John Gage (1995: 186-188) states that the work of Berlin and Kay aroused interest in linguists, semioticians and physiologists, the latter of which tried unsuccessfully to match the Berlin-Kay colour terms to the physiological process of colour perception through colour receptors in the retina. Physiologists also failed to match Berlin Kay colour terms with colour complementarity and retinal colour vision, for reasons already discussed in chapter one. David Bachelor (2000: 73-94) also discusses Berlin-Kay colour terms and states that agreeing with a definition of basic colour terms does not mean agreeing that there are only basic colours. He continues that to accept that there are basic colour terms of necessity means an acceptance of a cultural hierarchy of colours, an argument that would seem to lead to the acceptance of a value order for colour perception.

In a study carried out by Lin H Luo, Macdonald, L. W. and Tarrant, A. W. S. (2001), colour naming was tested on groups of British and Taiwanese subjects speaking English and Mandarin. Fifty British and forty Chinese subjects were tested for colour categorisation and the data analysis calculated the frequency and codability of each colour name in each group and sub group. Colour names were grouped for culture and gender difference although no specific comparison was made between genders. The results confirmed that the basic colour terms found by Berlin and Kay were the most widely used in both languages. The results of the study confirmed that cross-cultural comparisons revealed a clear pattern of the linkage between language and colour concepts. Authors Van Brysbergen, N.W.H, Bosman, A. M.T and de Weerts, C. (1996) argue in their paper that, confusion concerning basic issues of
universality of colour and behavioral universality creates a paradox where colour cannot achieve its fundamental status in psychological research because context has not regained its status in such research.

An important area of context is the variable of language and its function in the acculturation of perception and meaning. The seeing of red may be a physiologically universal event but the seeing of red, as danger is a culturally induced perception that does indeed influence the colour we see. The experiment that follows is a study of chromatic perceptions of commonplace signifiers, testing in particular the chromatic value given to perceptions of masculine and feminine.
489 subjects participated in the three-year experiment that ran from autumn 1996 to summer 1999. All were B.A. students engaged in three disciplines: Fine Art, Illustration and Graphic communications.

1) The age of the subjects ranged from 18 to 48 years but with an average age of 18 to 21.

2) The full three years of each discipline was covered from 1st to 3rd year and the total number of subjects in each year was,

3) 1st year-139 subjects,

4) 2nd year-175 subjects

5) 3rd year- 175 subjects

The total number of subjects in each discipline was,

6) Fine Art-151,

7) Illustration-96

8) Graphic Communications-242

In terms of gender the total of male subject’s was-250 and females-204.

35 subjects chose not to declare their gender on the test sheets and are referred to as g.u throughout the experiment.

The subjects attended two Institutions of higher education, Falmouth College of Arts and Manchester Metropolitan University. It was felt that using two institutions of
higher education would contribute to a more homogenous and consistent result, and provide a balanced base for the experiment.

Subjects across the whole group were in the majority white British as stated on the experiment sheets. Therefore the subjects can be said to be representative of a white British cultural group aged from 18 to 48, male and female and engaged in BA. Visual communication courses at Institutions of Higher Education in Manchester and Falmouth.

Materials

Documents used for collecting data were in the form of question sheets (see next page). The initial sheet design was not achieved until small pilot trials using friends and family (age range 8-60 years) proved the intelligibility of the sheet and task instruction. The sheet format required a written response and the completed sheets are the primary source of data for analysis. The sheets also requested information regarding gender, age, and ethnicity, the latter being optional.

The sheet layout presented the subjects with a header instruction (see next page) and below this are seven boxed columns each headed by a word signifier, for example, hot, cold, masculine, feminine, danger, safety, and nature, the last having only one box below. There were two reasons for restricting choice to one colour for nature. Firstly, breaking the continuity of the sheet layout might, I felt, help prevent boredom.
In **Columns 1 - 6** please write the colours that you think represent the column headings. First choice at the top, the others in descending order.

In **Column 7** please write the one colour which represents Nature.

<table>
<thead>
<tr>
<th>Column</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td></td>
<td>Hot</td>
<td>Cold</td>
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<td>Feminine</td>
<td>Danger</td>
<td>Safety</td>
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<td>Year</td>
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</table>

This box is optional

How would you describe your ethnic origin? White (please describe), Irish, Black Caribbean, Black African, Black Other (please describe), Indian, Pakistani, Bangladeshi, Chinese, Other (please describe)

Gender
Age
Secondly, by offering one possible colour choice for nature I hypothesised that subjects might paradoxically feel less constrained and therefore would be more likely to make a random selection regarding the colour choice. As boredom was not an expressed factor in sheet completion and the colour choice for nature was almost universally green, the restricting of choice to one colour had no statistically significant effect on the patterning or stereotyping of choice for the signifier nature.

The columns are divided vertically into 10 boxes and at the base of the columns are 10 blocks of colour laid out as follows; black, grey, violet, blue, green, yellow, orange, red, pink and white. From these colour options subjects were asked to list in descending value in each column their first to last choice of the most appropriate colour representing the column signifier. Therefore top of the column represents first choice and bottom of the column last choice or least appropriate colour.

Colour selections were informed from two sources, namely the ‘colour term’ research carried out by Berlin-Kay (1969) discussed earlier, and Isaac Newton’s choice of colours from his light spectrum research. For the purpose of this thesis experiment, the colours used are referred to by the use of colour terms expressed in English as the basic language. Newton’s observations of the light spectrum listed the colours as red, orange, yellow, green, blue, indigo and violet. With the exclusion of indigo, a colour now recognised as a non-definable part of the light spectrum, the colour options offered on the experiment sheet are a combination of the eleven basic colour terms outline by Berlin-Kay and Newton’s light spectrum colour terms, minus indigo.
Procedure

Subjects were accessed in their course and year groups with the agreement of Department heads, course leaders and lecturers. It was agreed that subjects would be accessed after a lecture or advisory session. Some subjects in both institutions were used once only, but others at Falmouth College of arts (principally three groups of students starting visual arts BA courses in 1996 and completing in 1999) were used three times, once in each year of their course. Those used once only were either first, second, or third year students of their course strand. Identical sheets were used for each session without variation over the three-year period. The final data analysis showed no variation in response to the task requirement whether the subjects were tested once or three times over three years.

At the time of access a member of staff introduced me to the assembled group of students. I then briefly outlined my Ph.D. project and the context of the experiment to my thesis. I then requested students to participate in the experiment procedure. I explained what was required re the task sheet but did not read the sheet header to them. I also pointed out that participation was optional as was the ethnicity question on the experiment sheet. At this point I also asked for any questions regarding the procedure or the sheet layout and answered them as they arose. Questions came mostly from the very few foreign students regarding word meanings, for example the word 'gender'.
During the task time I sat at the front of the group, where this was possible, or on any convenient seat, sitting apart from the subject group. I did not talk to members of staff or subjects during the task time.

In Manchester, due to lack of time, Fine Art subjects were accessed and completed sheets whilst working in their studios. After a fifteen-minute waiting period I then collected sheets from subjects in their studios. Except for the one occasion in Manchester the procedure took place at the end of sessions at which point the tutor would ask students to remain for the experiment. I then handed out sheets and the subjects began the task immediately and without talking. The subject’s silence was voluntary and not imposed by myself.

At this point the students became subjects. Subjects were very cooperative with only two 1st year Fine Art students opting out. On completion of the sheets, subjects got up and handed them to me at the front of the group. I timed each session and can state that the task took on average 15 minutes to complete and the time scale was consistent over the three-year period. Accessing subjects during normal lecture or advisory sessions proved to be the least disruptive means of access to the greatest number of subjects.

The first sheets were collected in October 1996 and the last in summer 1999. This process was followed in all cases and only varied slightly at Manchester Metropolitan University as described above.
Results

All column signifiers were analysed, then the written data was converted to number and analysed in three ways.

1) Year
2) Course
3) Gender

There were three basic questions against which the data was analysed.

1) Do the subjects in the experiment perceive the signifiers masculine and feminine as distinct from each other in terms of their colour perception?
2) Is there a significant difference in the degree of chromatic perceptions of gender between male and female subjects?
3) Do perceptions of colour and gender in subjects change over their course of study?

Analysis by year

All column signifiers were analysed but my particular interest is in the results of the analysis of the first colour choice for masculine and feminine.

The three dominant colour choices for feminine by the 489 subjects tested were,

1) Pink, 282 subjects,
2) White, 46 subjects
3) Red, 44 subjects

The two dominant colour choices for masculine were
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<th>SAFETY green</th>
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<th>SAFETY grey</th>
<th>SAFETY yellow</th>
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<td>42*</td>
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<td>5</td>
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<td>3</td>
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<td>10</td>
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<td>38*</td>
<td>2</td>
<td>17*</td>
<td>8</td>
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<th>HOT orange</th>
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Figure 3
### STAT.

**BASIC**
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Figure 22
1] Blue, 178 subjects

2] Black, 174 subjects (fig 2)

With regard to question 3, ‘do perceptions of colour and gender change over the course of study’? Analysis by year does show an overall increase in first colour choices for masculine and feminine as stated above. However the increase was not large enough to be statistically significant. The results were

1] 1\textsuperscript{st} year, 78 subjects chose pink for feminine

2] 2\textsuperscript{nd} year 96 chose pink for feminine

3] 3\textsuperscript{rd} year 108 chose pink for feminine.

4] 1\textsuperscript{st} year 106 subjects chose blue/black for masculine

5] 2\textsuperscript{nd} year 119 chose blue/black for masculine

6] 3\textsuperscript{rd} year 128-chose blue/black for masculine

The primary colour choices of blue/black for masculine and pink for feminine were unchanged over the three-year course of study.

Analysis by year of the other signifiers mirrored this trend. All first colour choices for column signifiers’ i.e. hot, cold etc showed an overall increase over the three years but no statistically significant increase was shown.

First colour choice of blue for cold increased from 62 subjects in the first year to 87 subjects in the third year.
Figure 4: Bivariate Distribution: COURSE x FEMIN
First colour choice of red for danger increased from 126 in the first year to 156 subjects in the third year.

First colour choice red for hot increased from 115 in the first year to 141 subjects in the third year (Fig 3).

Whilst analysis by year showed an increase in first colour choice for signifiers no statistically significant increase in first colour choice was shown. The analysis did not show any decrease or deviation in first choice for signifiers.

Analysis by year shows that first colour choice for perception of masculine and feminine is different, with pink as first colour choice for feminine and blue/black for masculine. These colour choices were specific to perceptions of masculine and feminine and were not made as first colour choice for any other signifier.

Analysis by Course

Subjects were analysed as one group according to their course of study with no differentiation into year of study. This analysis showed that

1) Of 151 subjects reading Fine Art, 61 chose pink as first colour choice for feminine, 26 chose white and 12 chose red

2) Of 97 subjects reading Illustration, 43 chose pink as first colour choice for feminine, 9 chose white and 19 chose red

3) Of 241 subjects reading Graphic Communication, 178 chose pink as first colour choice for feminine, 11 chose white and 19 chose red (fig 4 bivariate distribution)
Figure 5

Bivariate Distribution: GENDER x FEMIN

[Diagram showing a 3D bar chart with axes labeled GENDER and FEMIN, and a scale for the number of data points.]
Subjects on different courses showed no significant difference in first colour choice for masculine and feminine. The Chromatic perception of gender across all courses showed first colour choice for feminine as pink, and for masculine as blue/black, (fig 4 and 6) 

In answer to question 1, analysis by course shows that students of the visual arts do perceive masculinity and femininity differently as shown by their first colour choice of these signifiers.

Analysis by Gender

Pearson chi-square was used for this analysis. Pearson developed the correlation coefficient, that is a statistic measuring the linear relationship between two variables in a sample and used as an estimate of the correlation of the whole population.

Using this method of analysis, a statistically significant difference in the degree of first colour choice for masculine and feminine was shown.

1] Colour perception of feminine as pink by males is shown as the Pearson chi-square 150.4070

2] Females as $109.5930$ and the $p=0.00185$

These figures reveal a significant difference between males and females in the degree of colour perception of feminine as pink.

A visual of this difference by gender is shown in the bivariate (fig 5)

Colour perception of masculine as black/blue by males is shown as
Figure 7
1) Pearson chi-square 89.4679 for black and blue and the p= 94.5321
   and by females as
2) Pearson chi-square 69.5321 as black and blue and the p= 0.00561.

This statistically significant difference is shown in the bivariate (fig 6)

Both chi square analysis and charts show that although males and females share a
predominant colour choice of pink for feminine and blue/black for masculine, the degree
of male colour choice for the signifiers masculine and feminine is significantly greater
than the female.

The importance of the significant difference in colour perception of masculine and
feminine is clear when the same analysis is applied to the other signifiers where colour
choice is not shown to share this finding. All other signifiers show no significant
difference in males and females in first colour choice for perceptions of hot, cold, safety
and danger (See chi square analysis tables).

For example, first colour choice for danger was almost unanimously red as shown in
bivariate (fig 7) where of 489 subjects 434 chose red for danger.

Of these 223 of 250 subjects were male and 181 of 204 subjects were female.

The significance of the statistical difference in colour choice for masculine and feminine
lies in its isolation from the statistical results for other signifiers giving chromatic
perception of these two signifiers a special place in the system of colour perception for
the subjects tested.
Figure 8
Subjects perceived all signifiers as predominantly colour stereotyped:

1] Danger = red
2] Safety = green
3] Masculine = blue/black
4] Feminine = pink
5] Cold = blue/white
6] Hot = red (Fig 8)
7] Nature=green

The figures show a consensus between genders regarding their significance. Only masculine and feminine show a different response in degree of perception, even though the colour stereotypes are predominant for males and females.

In the analysis by gender the 36 subjects categorized as g.u were also analysed.

The first choice for all signifiers by subjects known as 'g.u.' show accordance with the first colour choice of subjects known as male and female with pink as first colour choice for feminine and blue/black for masculine.

A speculative interpretation of the meaning of the significant difference by gender of first colour choice for masculine and feminine will be made in the discussion and concluding remarks.

The answer to question

2 Is there a significant difference in the degree of chromatic perceptions of gender between male and female subjects?
Is 'yes', when the significant difference shown in the analysis by gender shows that not only do males and females agree on first colour choice for perceptions of feminine as pink and masculine as blue/black, but also that the degree of this perception is significantly greater in males than females.

Statistical analysis of last colour choices

In order to produce a balanced analysis of the sheets it was decided to also analyse the last (most inappropriate) colour choice or bottom line response for sheet signifiers. Analysis was done by gender using Pearson chi-square and percentage analysis. The results were as follows.

Subject's last colour choice for signifiers showed no measurable or significant difference between males and females. For example although subjects showed less overall agreement regarding the colour least appropriate for hot,

1] 155 subjects chose white
2] 114 subjects chose blue
3] 105 subjects chose black
4] 55 subjects chose grey

Males and females shared the degree of colour choice, even when spread across four colours as shown. Analysis by gender showed no significant difference in last colour choice across all signifiers (see appendix Pearson chi square charts).
Figure 9

Bottom choice results

"IS NOT"
Figure 10
The most interesting result of this analysis was the last colour choice for perception of masculine and feminine. The choice was overwhelmingly pink for masculine, and blue /black for feminine, as shown in bivariate chart (fig 9).

This result of overwhelming agreement as to the non-Pinkness of masculine and the non-blue/blackness of feminine was made with little difference between males and females. The subjects known as g.u also made their least appropriate colour choice for masculine, pink, and for feminine, black/blue (fig 10). No significant difference was shown between males’ and females’ last colour choice for all signifiers when tested by all statistical analysis of the figures.

Concluding Remarks and Speculations

The preceding exposition of the perceptual psychology experiment 1996-99 analyses the statistics produced from the experiment data and looks in particular at chromatic perceptions of gender.

The significant difference shown in the Pearson chi-square analysis of first colour choice for masculine and feminine demonstrates what could be said to be a significantly greater degree of conformity in males than females, whilst at the same time showing agreement regarding first colour choice for the signifiers masculine and feminine. The general agreement of first colour choice for masculine and feminine between male and female subjects goes some way to support the hypothesis that the choice is inferential rather than random and therefore based upon internalised and naturalised knowledge.
This hypothesis is also supported when consideration is given to the fact that subjects were repeatedly tested over a three-year period, some three times, and in two institutions of higher education. The first colour choice of blue/black for masculine and pink/ for feminine suggests that the discourse in chapter one on the origins of the masculinisation of black and the feminisation of colour are arguably the historical and cultural foundations from which inferential colour choices for masculine and feminine arose.

Differences shown between males and females in the degree of chromatic perceptions of gender suggest that the degree of normalisation of this perception is greater in males than females. Without a benchmark to measure against it is not possible to state whether the degree of naturalisation in males and females is greater than what has come before.

The apparent lesser degree of naturalisation in female chromatic perceptions of gender could be read as a reduction in stereotyping amongst females if the degree in males is taken as a norm. In such a speculative hypothesis it could be argued that females are more resistant to normalisation than males and that females are questioning an existing perception to a greater degree than males. Any program or attempt to deconstruct existing perceptions of gender should account for the significant statistical difference in male perception shown in chromatic perceptions of gender in the data analysis.

The results of the data analysis suggest that it is possible to move towards a general theory of the acculturation of chromatic perceptions of gender. Assisted by the results of
Figure 11
Figure 13
the data analysis of this experiment, such a theory may include the variable that acculturated chromatic perception is inferential and normalised and therefore resistant to the passage of time or random social influence neither does it decrease in institutions of higher education.

The experiment has demonstrated through a system of careful technical analysis and a series of extended concatenated steps, a perceptual system that is not only inferential and stereotyped in its general chromatic perception of the signifiers, but is arguably a culturally patterned response. That is a response arising from cultural preconceptions of the signifiers. Such patterning is clearly demonstrated in the flow charts (figs 11, 12, 13 and appendix) that show the passage of black and pink through the sheets. The charts in this sense are a visual representation of underlying rhythms of chromatic belief regarding gender. Such rhythms may not be overt on the surface of daily life but underpin existing cultural belief systems and are fundamental to cultural perceptions of gender.

Such rhythms or patterns are described by Talcott Parsons as ‘systems of generalised normative patterns’ (1951: 22-25) and can be seen in terms of this experiment as internalised in personalities and institutionalised in culture.
The referencing of colour in terms other than colour names is discussed by John Gage in Colour and Culture (1999) and Bachelor David (2000). The Philippine Hanunoo’s lack of colour terms is also discussed by Harold Conklin (1995) when he describes how colour is not referred in a colour naming way but in terms of lightness, darkness, wetness and dryness.

Chapter Three

YELLOW: An historical and Cultural Analysis of Chromatic Power and Symbolism.

What should I be, do, demand, imagine today, so that those who are now being born will from their earliest years discover an adult world in which some questions are being settled, so that they can see different ones. (Le Dœuff 1991: 303)

Preamble

The personal is not only the political; it is also the basis for the theoretical. (Braidotti 1989: 147)

Death Comes in Yellow

During the First World War 1914-1918, from economic necessity, my grandmother Sarah Andrew worked in a munitions factory whilst her husband was at the front. She had five children and very little money. The factory was in London and her job was to compress Yellow picric acid ready for detonators. As a consequence of this work her general health deteriorated, her skin and hair became Yellow and she lost all her teeth. For health reasons she was fortunately forced to give up the work and became a domestic servant instead. ¹

In the manufacture of munitions, Yellow picric acid powder was poured into moulds where it was compressed into a cube with a hollow into which the detonator was placed. The cubes were produced on a production line system, in line with ‘Fordist’ manufacturing principles.

Thirty years after my grandmothers experience, picric acid was again used in Skarzysko-Kamienna² a German slave labour camp for Jews. The same production
lines based on the same principles were once again used to manufacture munitions. In the workshops, there was no ventilation to remove the Yellow Picric Acid powder and no protective clothing provided. The Jewish workers wore rags and sometimes newspaper. Due to the heavy mortality in the workshop, girls were first introduced to the production line late in 1943. Due to lack of protection from Yellow Picric Acid powder the workers soon became saturated. Their skin, hair, teeth, and clothes or rags became a uniform Yellow, the acid permeated their lungs and eyes and they became unable to eat or breathe properly. The following is a description of workers coming off shift given by a survivor of the camp

They’re coming closer squads of Yellow creatures, not of this world, closer to skeletons than human beings, yet as long as the spark of life still flickers the bitter taste, bitter and embittering, preserves the sense of reality existing in Work C camp which breathes and chokes on the air filled with Yellow picric acid.

From the hall stretched bands of Yellow ash drawn by the prisoners sandals, its colour staining the paths through the hell of the daily and nightly to and fro of the prisoners changing shifts... The Yellow powder rose in clouds by the sides of the path, changing the colour of the leaves on the trees lining the road along which the prisoners plodded. (Karay 1996: 175)

I dedicate this chapter to my Grandmother and to Felicja Karay a survivor of Skarzysko-Kamienna’ camp who dedicated her PhD to all of the inmates of the camp as a ‘memorial’ that they never had.

Introduction.

Like women, Yellow is both idealised and despised. Forming as it does part of the spectrum of colours, it partakes of the same attribution of the feminine, as does the
spectrum itself. Yellow cannot escape its feminisation unless it is recuperated to a masculine space where it then becomes a defeminised non-colour, safe for use by the phallus. Yellow is associated with the Sun and light, it is also associated with Jews, as I shall show. The feminisation of Jews allows the use of colour or specifically Yellow to be used as a sign of their 'lack' in all respects, placing them with women in the same category of those who cannot, and who do not have form or law. I use the colour Yellow as an analogy of what colour means for those that are other, for Jews the colour is Yellow for women the colour is Pink. In both instances the use of colour as sign signifies all of the dehumanisation that goes with the construction of non-humanity that women and Jews are subjected to.

The attribution of the feminine in the case of Jews is difficult to excavate because the social and cultural order does not symbolise it as such. The construct of femininity and Jews has been and is being addressed by theorists such as Garb (1995) who argue that Jews like women are subject to stereotypical constructs designed to denigrate and contain. To be 'other', is to be feminised in as much as the 'other' is given generalised attributes that belong to them alone. In the case of Jews it is avarice, big noses and Yellow skin. In the case of black men it is large penises and for all black people a preference for bright childlike colours. In the case of women it is most certainly pink. All are othered by the signification of their difference through the use of chromatic signifiers and therefore share the pejorative meanings of colour historically founded on the lesser value of colour and the feminine as products of the ideal perfection of the phallus. In the case of Jews the use of Yellow as a chromatic signifier of race and moral degeneration is inscribed in law and will be mapped and deconstructed in this chapter. I therefore use Yellow and Jews as a revealing analogy with women as colour. This chapter is about the dynamics of the production of
cultural meaning with reference to yellow as a signifier of philosophic and cultural value. I will discuss yellow as a case study looking at the way established value systems legitimise the attachment of positive and negative value to that colour. To do this I will discuss epistemological and historical perceptions of yellow.

The study will call upon documented and legislative evidence to validate arguments of patterned acculturation, and I will deconstruct structures that combined with historical data help to produce cultural meaning.

I will discuss and demonstrate the intransigence and ability of acculturated chromatic patterns to leap time, space, and political and religious belief systems. I will posit hypothetical explanations for the origins of such cultural patterning basing my hypothesis on historical and philosophical speculation. The primary theorists used in my analysis of patterning and acculturation of colour are Talcott Parsons (1951) for reasons already outlined. I refer to Umberto Eco (1985) for his discussion of the acculturation of colour and John Gage (1995) for the breadth of his historical contribution.

I shall refer to Julia Kristeva (1984) for her theorisation of the *chora* as a pre-determined structure ordering drives and as a paradoxical process of movement and stasis, acceptance and refusal. In referring to Kristevan *chora* I will introduce my own theorisation of *chroma* as a specific of the same structure embodied as colour. I will also use Kristeva’s theory of the triple register of colour to enable my analysis of Yellow as a dynamic of meaning in Painting.

Christine Battersby’s groundbreaking work on the recuperation of the feminine to the phallus in terms of feminine madness to genius has been my guiding light and I have reworked her theory in relation to the recuperation of colour to the phallus.
Historical research will refer to texts by the historians Beaumont (1886), Bratton (1962), Dieterici (1872), Gilbert (1993), Karay (1996), Kendall (1990), Lempriere (1826), Lucas (1948), and Maclaren ((1938), for their wide ranging contribution to an understanding of the historical sources of the acculturation of yellow in particular as a sign of difference.

Value

My analysis of colour (specifically in this section Yellow) is based on my hypothesis of it as a physiological phenomenon to which meaning is attached by means of linguistic colour description. Attaching words like red, blue and yellow to visual phenomena and by addition adding the word hot to the word red the meaning is expanded to include the value of heat to a basic linguistic colour term.

An Axiological theory of value generally includes a discussion of ethics or philosophical theories of morality but it goes beyond this to discuss the attachment of value to aesthetics, technical, hedonistic and other forms of value. Any discourse that includes the words good or bad, or ought or better, or first or last, or more or less, arguably falls within the range of an axiological discussion of value. Using this philosophical framework I discus Yellow as a sign of value, that carries in its attachments of meaning the power to effect our value perceptions of reality.

In the Colour Acculturation Experiment of chapter 2, I have used an empirical methodology to ask specific questions regarding in particular perceptions of colour and gender. The general analysed results show that colour can be listed as a system of value in which some colours are perceived as hotter than others, some colder than others, some more masculine and some more feminine. In terms of gender, black blue
or grey are first colour choice for masculine and pink last choice. For feminine pink is first choice and black or blue last. The fact that 489 subjects were able and prepared to list colours in descending order of preference arguably indicates that value as a notion attributable to colour is a real phenomenon shared by a large group and not just a characteristic of one subject. The results of the experiment also suggest that subjects responded within a ‘referential’ framework, where their colour valuations came from an existing body of knowledge and were not, in the majority a spontaneous response. The colour flow charts resulting from the data analysis (appendix) also demonstrate in a dramatic way a patterned response through all signifiers, a response not initially anticipated.

The recurring patterned flow of Yellow through the signifiers indicates a valuation of that colour in general as slightly more hot than cold, more feminine than masculine and more dangerous than safe. Yellow follows a median line through the charts, being neither definite nor indefinite unlike pink or black that marks choice and value as definitely masculine or feminine, indeed significantly so. Yellow of all the colours in the charts appears to offer a line of choice that is irreducibly not extreme but at the same time does have value for the signifiers.

In terms of wavelength, Yellow is the median measure of the spectrum produced by median level light wave frequencies at between 585-575 nanometers; overall the spectrum frequency is between 400 and 700 nanometers. In this wave frequency Yellow, is neither hot nor cold, high energy nor low energy, unless it moves up in frequency to the blue end when it becomes a yellow-green (despised by Muslims) and higher energy, or to the red end becoming orange-yellow and low frequency.
It is argued by Edworthy, that general reactions to sound signifiers are largely attributable to a response based on reflex physiological reactions to sound wavelength frequencies. The physiological response to high frequency wavelength sound as a signifier of danger can be demonstrated by perceptual psychology experiments. Although physical response may be influenced to a degree by cultural conditioning, sound wavelength frequency and physical response is substantially demonstrated and proven in the work of Dr Edworthy at Plymouth University.6

By comparison and in contradiction, the acculturation as opposed to the physiological perceptual response to red as hot and blue as cold, is discussed by John Gage when he explains that

Colours seem ‘warm’ or ‘cool’ only metaphorically, of course, but the radiation of which they are visible symptoms is radiant energy, and we have known ever since the introduction of gas heating over a century ago that it must be interpreted in the opposite sense to this metaphorical usage. The short-wave frequency energy of the blue-violet end of the spectrum signals the greatest capacity to heat, and the long-wave, low frequency red end the least. (Gage 1995: 178)

The strength of the culturally determined perceptions of colour and heat is further addressed by Gage when he refers to gas product advertising, where the cosy warming effects of gas fire flames in the living room are demonstrated with red and orange. By comparison the flames of the domestic cooker are presented as blue, a correct spectrum colour for high-energy wave frequency, thus Gage suggests, giving the cooker a scientific veracity.

As our physical response to colour wavelength frequencies do not influence value perception of colour, a physiological analysis of response to variations in the colour spectrum cannot help in an analysis of colour perception. It can only help insofar as
understanding that light and therefore colour can only be seen between the spectrum frequencies.

It is possible to argue that because Yellow is seen at the median wave-length, it is therefore the colour of choice to mediate in traffic lights, where Yellow indicates to subjects that transgression at this point between Red and Green could be dangerous or safe. But to argue that the median position of Yellow in colour wavelength frequencies influences all our perceptions of the colour is not possible because of contradictory perceptual evidence. As Chevalier and Geebrant state in their definitions of meaning for Yellow,

When Yellow, collects at the level of this world, mid-way between the very high and the very low, it becomes no more than a perversion of the qualities of good and bad. (Chevalier and Geebrant 1993: 1137)

I therefore suggest that whilst Yellow has the power of perceptual mutation its perceptual meanings are fixed in cultural contexts pertinent in time and space.

In looking at texts specific to the phenomenon of cultural patterning the most fruitful for my analysis was found in the work of Talcott Parsons. The main thrust of his sociological theory being that,

Individual personalities, societies and culture can be analysed as self-equilibrating systems, sharing a common conceptual framework, (Parsons 1951: 25)

Parson’s describes self-equilibrating systems as ‘action systems’ that depend for their continuation on established patterns of normalised belief. Parson’s has also theorised the ability of people to assume and adjust their choices without reflection or conscious effort because as he argues, standard expectations or values and behaviour in social roles are learned as normative patterns that become internalised as a priori
knowledge. Parsons also argues that such cultural patterns are describable and accessible. Although unanticipated by him, the effects of patterning in the flow charts of the Colour Acculturation Experiment does demonstrate subjects normalised notions of what the value of Yellow is in relation to specific signifiers, as does the patterning in all the colours offered to subjects.

In the same way my use of Freud’s social psychological analysis acknowledges that it is not concerned specifically with gender but as with Parsonian theory, it is useful in gaining insight to the importance of roles and social control for socio/cultural analysis in general. The importance of Parsonian theory for my analysis is that he was concerned to analyse and deconstruct how opaque social and cultural controls survive changes in economic, religious and political structures. Parsonian theory presents social structure as amoral, concerned with order not happiness, maintaining core values by normalising them and by the regulation of collective activities and individual role performance. More importantly and usefully for my analysis of Yellow, he discusses the importance of the establishment of value to the determining of stability and functioning of society in general.

In this light, communication within a given cultural system would depend upon an agreement of those things that are considered pertinent within the dynamics of meaning of that cultural environment. Within such a formulation, chromatic perception may be described as being dependent upon those significations which a system has as Eco states, (in discussing the need for cultural and social agreement) ‘isolated and outlined as pertinent’ (Eco 1985: 159). This definition applies to systems of communication that require cultural cohesion, not as Kristeva (1986) argues in
systems such as that of ‘poetic language’ that break symbolic rules of linguistic and symbolic order and cohesion by the recuperation and displacement of those very rules. If, as Eco (1985) argues, cultural cohesion is dependent on linguistic choice based upon the pertinence of social value in that context, the choice of Yellow, as a mark of racial difference for Jews can be said to make it a bad Yellow of low value, if Jews are perceived as bad and of low value in that context. On the other hand, the choice of Yellow for cultural perceptions of the Sun as a divine being makes it a good high value Yellow in that context. I propose that both perceptions are constructs that depend for understanding upon current cultural pertinences and practices and their particular corresponding expression within language.

In the German Text, Die Lehre von der Weltseele bei den Arabern im X Jahrhundert," Dr Fr Dieterici quotes at length from the 9th century Arab text on the origins and content of colours, Die Gattungen der Farbe. The form of the text and the importance placed in it upon the effect of light and dark in combination with material substances and objects such as fruit, bone, chalk, caustic solution, egg shells, silver and lead, to produce colour, place it in terms of colour theory within a nexus of Alchemy. The ethical emphasis on light as the pure, that which separates the rays of sight or the gaze and dark as the pure medium that merges them, can be said to establish a value for these two states that, like Platonic theory, gives them a high value, thus relegating their product colour to a lesser value.

Within this theoretic the Arab text states that Yellow is produced when light is ‘engaged with an intermediate member’, the ‘Mittelursache’ or in the Goethian colour theory sense the ‘Trube,’ the mediator. In ancient Arabic as in later Goethian theory with regards to the prism, when light is disrupted, colour appears. In the
specific Arabic analysis of Yellow it continues by explaining the mediating affects on specific objects,

This happens with nine things: with beryl: and hyacinth, crocus and narcissus, Zernich (arsenic) Markschisch (bone-marrow), animal flesh, gold, tree-leaves, and oils. All these are Yellow because of intermediate members, (Mittelursache) which hinder the sight in seeing light as pure as fire. (Dieterici 1872: 190)

The argument then is that when purity of light is lost Yellow is produced. Within this ancient Arabic Muslim theoretic, Yellow represents 'loss' of something that was pure, undefiled and present. Yellow in this theoretic is a state of lost purity and contaminated light. The establishment in 9th century Arabic colour theory of Yellow as a product of contaminated or lost light was a belief that became normalised through subsequent colour theories, and evidenced later in the colour theory of Goethe (1810: 308) when he described Yellow as a colour that contaminates easily and later in Kandinsky's (1926: 23) colour theory when he described Yellow as a colour easily sullied. The 9th century Arabic theorisation of Yellow as loss arguably associates it with a pertinent existing cultural perception of Yellow as a debased colour to be attached to Jews. Normalisations of value for Yellow can be mapped through texts from Ancient Egypt to now, moving through monotheistic, Muslim and Christian traditions. I propose that generalised statements such as 'the Sun is Yellow', 'the Jew is Yellow', become significant when they are culturally, linguistically, and contextually pertinent, or as Eco states in developing his argument of colour acculturation.

In any system, whether geopolitical or chromatic or lexical, units are defined not in themselves but in terms of opposition and position in relation to other units. (Eco 1985: 171)

This argument resonates with Wittgenstein's (1965) philosophical discussion of colour meaning, when he argues that saying that Yellow is Yellow, does not establish its
truth for only when Yellow is placed in relation to another concept is truth established. Therefore the proposal ‘this is Yellow’ only demonstrates the 1st truth by its relation to the 2nd truth when it is stated as, ‘it is Yellow because it is not blue’. To illustrate his argument Wittgenstein argues that a man can be said to be arrogant by pointing to one that is not, in this way the two propositions support each other but are reducible to single units of meaning. This argument of logical atomism establishes not only YeUowness and arrogance but also demonstrates the importance of language and context to a definition of meaning. In an axiological thesis of value for instance, the statement, ‘this Yellow sun is good’ establish both the sun’s YeUowness and its Goodness, each proposal supporting the truth of the other.

I propose that establishing what is meant by the proposition ‘this is Yellow’ does not depend upon consistency of hue to validate the perception but does depend upon consistencies of perception and value, or as Eco argues,

> The different ways, in which cultures make the continuum of colours pertinent, thereby categorising and identifying hues or chromatic units, corresponds to different content systems. This semiotic phenomenon is not independent of perception and discrimination ability, it interacts with these phenomena and frequently overwhelms them. (Eco 1985: 171)

Unfortunately so, since it is this very overwhelming of non-discriminatory and Kristevan (1984) free floating semiotic valuation that arguably leads to the kind of normalisation of perceptions that establish such fixed cultural perceptual patterns as ‘Jews are Yellow’ and ‘Women are Colour’. Such perceptions are founded on the belief that the objects of enrolement corrupt Yellow and colour when robed on Jews and Women, and lead ultimately to a rationalisation and social acceptance of racial discrimination and arguably institutionalised sexism. The reinforcement of the holocaust by the strategic use of Yellow as a signifier for Jews made visible people
whom until then had been largely invisible. Jews without the Yellow star looked like the people they lived and worked with. The same strategic use by the nazi’s of pink triangles as a feminising agent for the signification of male homosexuals made it simpler to identify and eradicate them. The use of both chromatic signifiers was reinforced through a lethal and legalised use of colour as a signifier of difference. Therefore I argue that chromatic meaning is not produced by the words, red, yellow or blue, but through the dynamics of the production of meaning, that are a complex combination of perceptual symbolics and signs (sometimes legalised) filtered through language.

Virgil’s use of the two words Flavae and Fulvus to describe Yellow give it two values, good and bad. Within the context of the blond Dido, or more correctly of Virgil’s Dido in Lempriere (1826: 226), Dido a ‘Valiant Woman’, who saved fifty prostitutes and built a city based upon a just commerce and her own faithful love, becomes in this context, a Flavae, or good Yellow, commemorating the heroic story of a loved and valiant woman. On the other hand Fulvus, the Latin word used to describe the Yellow of the river Tiber, is placed within the context of the polluting arsenical mud brought down at the flood. This pollution made the water undrinkable and toxic and therefore undesirable. The two meanings of yellow make a powerful connection for the association of woman to the corruptibility of Yellow, the perceived instability and unreliability of Yellow allies it to received perceptions of Yellow colour as material, transient and by implication feminised. The context of the heroic Dido and the Tiber’s pollution connotes the Yellow or fulvus and Flavae of both with low and high values that do not have fixed associations of hue in particular but good or bad contexts in particular.
Chromatic perceptions that depend for coherence and value upon context within language are well illustrated by Goethe in part IV of *The Colour Theory, Effects of Colour with Reference to Moral Associations*. Colour in the Goethian sense is apparent on the surface of objects only when it is laid upon them as acts of light. Colour in this theoretic becomes the illuminatory source of the emotional and moral value of objects. Goethe speaks of a strong yellow as it appears on satin has a magnificent and noble effect, and of Yellow Gold as, ‘in its perfectly unmixed state, especially when the effect of polish is superadded, gives us a new and high idea of this colour. (Goethe 1810: 304-307)

It follows in this theoretical argument that Yellow on the surface of gold or satin signifies a high and noble value attached to it by those objects. Goethe describes Yellow, in this context, as being nearest the light, which in his text means the Sun as the giver of light and life. The acquisition of high moral value and nobility for Yellow in the context of gold and satin reveal the pertinence of these objects to its goodness. Furthering this ethical argument Goethe goes on to expose the dark side of yellow, describing it as being, extremely liable to contamination’ and ‘the colour of sulphur which inclines to green has something unpleasant in it.

Yellow is further reduced in value by Goethe when he explains that when Yellow is ‘communicated to dull or coarse surfaces such as common cloth’; a very ‘disagreeable effect becomes apparent’8, thus giving what was a high value noble Yellow a low value in the new context. Yellow hue in Goethian colour theory remains constant; its moral and emotional effect and mutation from good noble Yellow to bad ignominious and corrupting Yellow is the fault of the surface that it adorns, Goethe concludes.

To this impression the yellow hats of bankrupts and the yellow circles of the mantles of Jews may have their origin. (Goethe 1810: 304-307)
Within this ethical philosophy of moral value and colour, it is the effect of satin or
gold or bankrupts and Jews that affect the colour Yellow, and not that colour's
ability to mutate. In the same way the bodies of women affect colour in general, their
corruption and debasement of colour a logical progression of philosophical notions of
its association with woman, who herself is a product in Platonic cosmology, of the
male fall from the ideal. So it follows in Goethian theory that colour and Yellow are
affected by the corrupting influence of those upon whom it is robed.

The Goethian recuperation of an ideal state or immutable and innocent condition for
colour places it and Yellow, within Platonic ideations of ideal form, where as a
theoretical construct it becomes inviolable until placed in a material context. The
theory does not engage with the paradox of the impossibility of an ideal state for the
Platonic materiality of colour. Such arguments were part of the development of colour
theories, as we know them, theories designed to place colour within the safety and
value of an academic and philosophic fold. The development of this theoretical
paradigm was instrumental in aiding the normalisation of cultural perceptions of
colour and Yellow as signifiers of value without fixity of hue.

Yellow as a sign in symbolic chromatic order is as my research has discovered able to
survive cultural changes of what appear to be major significance. For example,
movements of cultural perception from one religious paradigm to another, as in the
case of the shift from paganism and pantheistic beliefs to Judaism, Christianity, and
Islam. Significantly it is as a sign within religious, philosophical or political ideology
that Yellow is able to survive these changes, not only to survive, but also to retain
fixed ideological meanings within each new cultural symbolic leap. Bat Ye'or (1985)
and Talcott Parsons (1951) argue that social groups carry within them a social
heredity transmitted from age to age. To substantiate this hypothesis Parsons argues that,

A social system, like a personality must be coherently organised and not merely a random assortment of its components. (Parsons 1951: 25)

Parsons goes on to argue that achieving social coherence requires, a previous generation of teachers to pass on this learned pattern of social action. Parsons is not suggesting that a social order or system is not composed of individuals whose input to the system may be random or apparently spontaneous, but rather that despite disparity of action by individuals, the establishment of cultural patterns within the symbolic order of the social structure is paramount. The institutionalisation of ideas within a social group seems to be a predetermining factor in the organisation of cultural patterns and action. As Freud (1927) argues (using the analogy of an ant colony), it is the successful allocation of roles and values that is seminal to coherent organisation and institutionalisation of the colony or social structure. Freud develops his argument by saying that coherent and continuous repetitive social organisation has led to the persistence of ants through millennia of environmental change. A logical development of this argument and its application to the persecution and subjection of women and those of unacceptable race across millennia also seems an appropriate adaptation. The successful adaptation of ant colonies to urban and other hostile environments can be explained, Freud argues, by the discipline imposed upon the colonies through the strict allocation of roles framed within a system of prescribed patterned action, repeated ad infinitum. Neither Parsons nor Freud discusses how subjection and oppression as patterns of social action aid in the survival of social structures, and suggests that established social groups support patterns good and bad in order to maintain the equilibrium of the group. Parsons or Freud does not engage with the long-term affects of a pattern that is consistently harmful to a group or
gender, suggesting the immense difficulty of explaining how bad actions can be argued to be supportive of social survival. Current thinking in psychological theory is engaging with this problematic and looking again at the later work of Freud who began to engage with the question of social behaviour and the individual in the late 1930s, during the period of his correspondence with Einstein.

Freud (1927: 124-127) develops his thesis by adding that in human development there is also the aggressive urge to oppose authority and the urge to seek happiness or pleasure, (absent from the ant colony he argues). Aggressive opposition Freud argues is by necessity suppressed in order to maintain the love of the father or father substitute, (i.e. the state or social order). Aggression and neurosis are therefore inherent because they result from the renunciation of 'instinct' or drives. Thus appeasing a patriarchal symbolic order intent on suppressing our 'chroma', that represents an underlying association of free flowing colour, reacting spontaneously as a value free response to stimulus.

Women as an aspect of the notion of the instinctual are therefore in a special place of oppression and suppression since they are given instinct and colour as attributes of the feminine and at the same time denied what is deemed to be an alien attribute beyond explanation and law. Because of its ability to adapt and yet remain the same, chora, or chroma, is a force to be feared by a phallic symbolic order that above all requires a non-spontaneous, non-creative, value-laden response. The renunciation is according to Freud done in order to keep the love of the father, or external authority, and the consequence being the manifestation of the neurosis and attendant psychosis described in psychoanalytic theories. Theories of hysteria and neuroses in women
being the main focus of Freudian theories of repression. In Freud’s exploration of the individual and society the question still remains,

What means does civilisation employ in order to inhibit the aggressiveness which opposes it, to make it harmless, to get rid of it, perhaps. (Freud 1927: 123)

It is at this point that Freud discusses the idea of the super ego as an internal manifestation echoing the external control of the state or society and its attendant laws and prohibitions. In effect he suggests that the super ego becomes a ‘conscience’ ready to direct the aggression felt against external forces inwards against the self, the ego. The super ego Freud argues works in effect ‘like a garrison in a conquered city.’ (Freud 1927: 124) The city being the determined state.

Parson’s (1951) theorisation of cultural patterning as a powerful source of social coherence goes some way to answering the questions raised by Freud’s (1927) earlier work when he argues that social structures require continuity and systems or as he argues ‘Cultural patterns tend to become organised into systems’. (Parsons 1951: 21) Parson’s argues that the spasmodic interruption of death and renewal must not disrupt successful social organisation where actors or subjects are secure within a system of roles allocated by social structure. Parsons goes on to argue that,

The life span of the individual being limited, there must be a continual process of replacement of personnel within the system of roles if the system is to endure. (Parsons 1951: 25)

Therefore I propose that what may appear as a new cultural action or a new allocation of value, (for instance the Nazi edict of 1943 that required Jews throughout occupied Europe, regardless of gender or age, to wear Yellow stars on their clothing over the left breast), may in fact have been a repetition of a cultural pattern that had taken hundreds of years to establish. What seems to be an odious but isolated incident of cultural aberration may be no more than a repeat of previous cultural
patterning that I propose, can be mapped historically through documentation and illustration.

The association of women with pink or colour in general is an insidious repetition of the same pattern established in antiquity. In the ‘colour acculturation experiment the bar charts headed feminine illustrate the number of alternative chromatic choices made for feminine. A far greater number than those made for masculine. In most cases the first choice is Pink but as many as nine alternative colour choices are also made for feminine, these being, pink, red, violet, orange, yellow, blue, purple, white and grey. Overall, of the 489 subjects of the experiment only 27 or 5% chose black, blue, or grey as a chromatic choice for feminine. The results show that although pink is the primary chromatic choice for feminine; this signifier is also seen as ‘Colour’. The feminine is still perceived as Colour resembling the rainbow of Iris, or Colour mythologised as woman, or as the feminine principle. A pattern of perception with a recorded history of repetition spanning more than two thousand years.

As Parsons argues in relation to the importance of value orientation patterns, ‘the institutionalisation of culture patterns, especially value-orientation patterns’ are axiomatic to the coherence and stability of social organisation both good and bad, and are instrumental in creating a social environment that can ‘organise the behaviour of adult members of society’ (Parsons 1951: 25) integrating personality and social system.

A universal cultural pattern will have an internal coherence that acts as a template for cultural action regardless of religious, political, or philosophical differences within the culture or social system. Misogyny and patriarchy are good examples of a
psychological and cultural state that is not confined by religious or political systems; a
cultural pattern that is universally normalised to a greater or lesser extent.
Parsons goes on to argue that the social order or institutionalised organisation of
beliefs, laws, etc, allows for change and disagreement within the paradigm of order.

An important feature of a large proportion of social roles is that
the actions that make them up are not minutely prescribed and
that a certain range of variability is regarded as legitimate.
Sanctions are not invoked against deviance within certain limits.
This range of freedom makes it possible for actors with different
personalities to fulfil within considerable limits the expectations
associated with roughly the same roles without undue strain.
(Parsons 1951: 24)

The problematic of the establishment of social order as paramount is addressed by
Freud when he continues his discussion of the suppression of ‘instinct’ to pleasure
and happiness,

By far the most important thing is the aim of creating a unity out
of the individual human beings. It is true that the aim of
happiness is still there, but it is pushed into the background. It
almost seems as if the creation of a great human community
would be most successful if no attention had to be paid to the
happiness of the individual. (Freud 1927: 124)

This argument is closer to the amoral theories of Parson’s theory of patterned value
orientation, since it acknowledges that social harmony does not necessarily mean
happiness. 9

I propose that the use of Yellow as a dynamic in the production of meaning is not
accidental or physiological, it is, as the evidence of my research supports, a cultural
social organisation of belief instrumental in promoting the kind of actions generated
from an established pattern of perceptions of Yellow as sign.
How individuals function per se within a patterned social value system is problematic and offers a paradox engaged with by Kristeva in her thesis of poetic language as a revolutionary tool and by Parsons who states that,

The structure of the social system in this respect may be regarded as the cumulative and balanced resultant of many selections of many individuals stabilised and reinforced by the institutionalisation of value patterns, which legitimise commitment to certain directions of selection and mobilise sanctions in the support of resultant orientations. (Parsons 1951: 24)

The subject then is acting within an established structure of social and ethical values that may from time to time produce the desire for contrary action but is inhibited to a large degree by the threat of relational and social sanctions.

My quest for the hidden origins of perceptions of Yellow as a sign of good and bad value has led me to search through the remnants of three thousand years of history. The search has not been directionless inasmuch as I have been led by the constant glimpses of signs of Yellow that appear again and again like rocks at low tide in an ocean of words, beneath which they are linked by a great reef of belief, prejudice, law, and cultural perception, a reef that has a solidity invisible to the naked eye.10

My searches through historical texts have produced fragments, which have gradually fallen into place enabling me to map the constancy of chromatic perceptions of Yellow within what appears to be a chaotic social maelstrom of change. The documentation of static chromatic perception and culturally fixed social perceptions of Yellow would seem to suggest that such chromatic symbolism is embedded just as deeply within our conscious and subconscious minds as are chromatic perceptions of the feminine and masculine.
Excavating perceptions of the feminine is a task hedged about with even more
difficulty since social perceptions of the feminine are surrounded with barriers of
denial that are a catch 22 of magnificent proportions. To suggest that Barbie dolls
dressed in pink should be feared by women and carry a health warning of a serious
threat to their social cultural and even physical existence would probably be met with
derision; especially by women who have had the dolls and who have given them to
their daughters and granddaughters as a sign of their affection. The pinkness of
Barbie is meant to be perceived as cute and of course as normal and through her our
daughters and granddaughters are initiated into the grand delusion that their
femininity is pink and colour, and that accepting the perception is quite safe, and the
right and proper thing to do. The Yellowness of Jews is by the same token meant to
be perceived as normal and proper for them, the attribution of colour a
demonstration of their cultural feminisation, discussed by scholars such as Garb
(1995), a feminisation that lumps them along with women in the category of ‘other’ or
she who can be abused and denied.

Good Yellow, Bad Yellow

In discussing cultural perceptual meanings of Yellow, I use the word symbol in the
sense that it is a sign in particular, without similarity or contiguity, but having a
conventional and cultural link between the signifier and the meaning.

In the expansion and unification of the Egyptian Empire in the 18th dynasty, the
Pharaoh Akhnaton 1375. B.C. established a strict monotheism, embracing the Sun as
the god of light and life. (Bratton 1962: 48) In discussing the preliminary
preconditions for the establishment of monotheism and the effect on the people Freud argues that the new religion was one that ran contrary to thousands-of-years-old traditions and to all the familiar habits of their lives.

Freud argues that it was at this moment when traditional polytheism was repressed that; 'Religious intolerance was inevitably born'. (Freud 1939: 20)

Monotheistic Sun God worship gave a divine essence to the Sun, and by attachment Yellow or Yellow Sun, as its allotted colour, acquired the same golden divinity. To perpetuate his belief in a single Sun God Bratton (1962: 48) argues that Akhnaton had the walls of his tomb inscribed with the praise, glory and power of the divine Sun. I propose that by raising the value of Yellow\textsuperscript{11} to a signifier of the deified Sun in wall paintings and other artefacts, Akhnaton imposed a new chromatic value order on what was a chromatic reality that was, until then still relatively free from rigid value systems, as was the religious polytheism of Egypt until that time.

I hypothecate that this new divine inscription for Yellow began to change what had been a relatively chromatically aimless and polytheistic Earth, to a dogmatised and colour acculturated one.

The Yellow Gold Sun, life giver and light giver, that nurtured all and blessed all with growth and abundance, became under Akhnaton a symbol of a new divine Phallic order and a source of power for the Pharaoh as the earthly embodiment of the new divinity, an absolute power that passed subsequently to Emperors and Sun Kings\textsuperscript{12}. Later in Greek mythology Yellow became an attribute of Apollo the Sun God, and the sacred colour of Zeus, the ruler of heaven and earth. (Geerbrandt 1993: 1137) And a thousand years later in the 19th century Wassily Kandinsky (1977) spoke of Yellow as
a colour that could never be darkened, that in its true and unsullied state could only be the colour of light and life and the vehicle of youth, strength and divine immortality.13

From the rays of the Yellow sun of Akhnaton to the golden halo of Christ when he returned to his Father's kingdom, the Yellow light of life became a symbol of immortality and phallic power. The recuperation of Yellow as a signifier of phallic power, is puzzling when we consider that Yellow along with all colour is symbolic of the feminine, puzzling that is until consideration is given to Battersby's (1994) argument regarding the anomaly of the notion of male genius being linked to madness. Battersby argues that emotion and hysteria are primarily signed as the feminine, and in order to recuperate the feminine attributes of emotion and indeed madness to male 'genius' (that in the male becomes truly creative in the intellectual sense and not procreative in the feminine sense) a 're-work of characteristics of mind previously attributed to females' is necessary. Battersby continues to develop her argument by using as an example the re-working of feminine 'melancholy' in the 18th century by poets such as Dryden for instance, to enhance their artistic production thus elevating perceptions of their work as 'great art and great philosophy and the like'.

Women on the other hand, condemned as they are to be of the body and not the intellect would continue to 'suffer the pathological disease of melancholy without its glorious side effects'. (Battersby 1994: 145)

The recuperation of feminine Yellow to a divine phallic order involved what Battersby describes as a necessary down grading of any feminine attribute not recuperated to phallic law. For feminised Yellow to become part of the phallus, a down-grading of any Yellow not included in the context of the divine phallic sun is
necessary, thus enabling feminisation without contamination, or as Battersby argues, creating a state where

'Males can be feminine and still be superior' (Battersby 1994: 145).

In medieval religious painting the halo or ring of golden or yellow, light symbolises the Kingdom of the Lord full of Sun and light. Its symbolic meaning is the hidden truth and glory of Christ's resurrection, bringing light out of the darkness to which it finally returns. In The Republic, Plato ([428 BC] 1987: 245) extols the Sun above all else as the giver of light and life, giving the Sun equal status to the Good as a virtue above all others.

<table>
<thead>
<tr>
<th>The Sun</th>
<th>The Good</th>
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<tr>
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<td>Source of reality and truth</td>
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<td>the eye.</td>
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The establishment of a signification of Yellow as the phallic Divine Good, providing light and life, was used in China as the sole property of the Emperor because he stood at the centre of the universe, as the Sun stood at the centre of the heavens.

(Geerbrantd and Chevalier 1994: 1138)

To day as in Ancient Egypt, Yellow, is still given the attributes of a beneficial sun by authors of interior design books such as Warrender (1996) who describes the warm Yellow's used in a child's bedroom as providing a 'safe background' although she
does not justify the word ‘safe’ as applied to Yellow the implications of Yellow’s goodness and high value is clear in that context. The association of safety and Yellow by Warrender sets boundaries of value around it that may create in the putative user feelings of security and good parenting. Warrender describes Yellow for the living room as providing a

[...] sophisticated and elegant atmosphere while the brighter ones can make a large reception room appear more inviting and a small one more luminous and spacious.

Of Yellow itself Warrender says,

Because we tend to associate it with sunshine, Yellow, can appear as a light source in its own right. The use of yellow in any living space can create an optimistic sense that all is well with the world. (Warrender 1996: 14-83-112)

The Emperors of China were given the title ‘Yellow’ in order to preserve the power of life and wealth to the Emperor alone. Normalisation of Chinese perceptions of the power of Yellow was done through a system of coercion whereby the wearing of Yellow was restricted to the Emperor by law and transgression of the law resulted in death. At the same time a Yellow line dividing roads upon which only the Emperor could ride surrounded the city of the Emperor, unsanctioned walking on the line also resulted in death. Empirical ownership of yellow expressed through the Emperor’s person encapsulated the paradoxical symbolism and signage of Yellow producing meanings of both life and death, the life of the sun from which the Yellow Emperor descended, and the death that followed transgression of the chromatic rule.

In Christian traditions Yellow symbolises Easter and renewal, hence the small Yellow, Easter chicks, but Catholic priests lead the dead to eternal life dressed in Yellow and Gold. Yellow or gold was used as the background to medieval religious paintings
representing the Heavenly Christian kingdom of Sun and Light, an echo of an earlier Egyptian and Platonic iconography.

By contrast the Jew Judas, the betrayer is most often depicted wearing a Yellow cloak signifying betrayal, treachery and duplicity. Yellow in this instance is being downgraded by being robed, in the Goethian sense, onto the body of a Jew, where its contamination by the corrupting body feminises the colour as Jews are feminised by their down grading to a sub human level. Garb (1995) argues that Jews like women are subject to stereotypical constructs relying not only on portrayals of avarice and duplicity, but also on caricatured physical aspects of the body. The racialised construction of the Jew, Garb argues, demonstrates their cultural and psychic 'otherness' just as the feminisation (as with the Barbie doll) of women signifies their 'otherness both cultural and psychic. As Garb explains the intransigence of such perceptions as an,

otherness, which would persist even when the disguises of assimilation and integration had rid the body of its outward signifiers of difference. (Garb 1995: 23)

Arguably just as the wearing of a black power suit does not basically alter cultural perceptions of the feminine and women in general as pink.

The popular portrayal of the Jew as captive in his/her own body, (a projection done to Sonia Delaunay discussed in chapter 4) and physicality, traps them in a space occupied by perceptions of 'femininity' and 'woman' and Garb concludes that

Locked in his body, unable to transcend the flesh, he becomes feminised, castrated, weak. (Garb 1995: 26)

As Battersby argues regarding attributions of the feminine, they are
only failings in the semi human and sub human types. (Battersby 1994: 228)

into which categories women and Jews indeed all those that are ‘othered’ fit.

In Islam gold is the colour of wisdom and good advice whilst pale Yellow is the colour of deceit and betrayal. In the colour symbolism of Alchemy, a Yellow colouration (citrinitas) indicated a transitional step between the blackening and reddening in the progress of matter toward the philosophers stone or the glory of gold. (Biedermann 1990: 392) The Heaven and Hell significations of Yellow, is characteristic of its meaning on a universal scale, its ambivalence constantly setting up tensions between its duality. Yellow herald’s decrepitude, old age and death and is also the colour of fertile soil and fertility. Yellow was associated with adultery in medieval Europe since the sacred bonds of marriage had been snapped just as Satan or Yellow Lucifer had snapped the bonds of divine love. The traditions of the Peking Theatre bear equal witness to the reversals of the properties of Yellow. The actors paint their faces with Yellow as a mark of cruelty, deceit and cynicism, whilst at the same time actors playing the part of princes and emperors wear Yellow, as a sign of their elevated and divine status.14

The idea and perception of yellow as a carrier of protean meaning is what gives Yellow its acculturated chromatic value in context. The application of Yellow as sign to the body as in the case of the Yellow Emperor successfully expresses the power of the signifier and at the same time the power of the imposers of signification independent of subjective perceptions of hue. When 89% of subjects in the colour acculturation experiment chose red as the primary signifier of danger, it seems
reasonable to hypothesis that their subjective choice of red might in practice vary over a range of saturations of hue.\textsuperscript{15}

Locating the slippage of Yellow into the bad has only been possible inasmuch as it has been possible to locate it within particular cultural developments of certain historical moments. Making a definitive statement regarding the defining moment when Yellow became a signifier for death or sickness or deceit is not possible since it probably occurred before written histories and only a speculative theory is possible. Although all colours are inscribed within ambiguities of cultural meaning, Yellow, above all colours, has been given the power to determine the fate of others and to act as a signifier of difference over an historical period of 3300 years or more.

Yellow as a sign of difference is of significant research value because of its stability and inscription within cultural use over such a protracted period. I propose that the acculturation of the colour Yellow as a signifier of low and high value depends on a repeated use or a patterning of use of that colour and a cultural acceptance and agreement of the chromatic values signified. In its range of cross cultural reference and its historical persistence it is strongly analogous to perceptions of the feminine and runs parallel to perceptions of colour as symbolic of the feminine and 'otherness'.

In Freud's (1927) discussion of the development of the community as a super-ego whose influence in turn develops cultural attitudes, he argues that in developing its ideals and setting up its demands the two processes of the cultural development of the group and the individual become interlocked. The individual in seeking pleasure or happiness also then seeks not only the approval of the father but also of the state (I
include religious power as state power). In discussing the demands of the cultural super ego Freud states

It does not trouble itself enough about the facts of the mental constitution of human beings. It issues a command and does not ask whether it is possible for people to obey it. On the contrary, it assumes that a man’s ego is psychologically capable of anything that is required of it.

Acceptance of Yellow as a sign of for instance of racial difference is symbolic of the need of the individual for the ‘gratification and love of the parent/state’ (Freud 1927: 123) and expresses the degree of social normalisation of discriminatory acts created through coercion and reward in the social groups where it occurs. If sufficient gratification or coercion is offered to enough individuals within a system of roles then the acculturated subject will be disposed to accept even the abhorrent. Parson’s (1951) also addresses relations between subject (personality) and social group (alter) and how they interact or indeed act as one. He argues that subject and social group becomes a single actor in relations of value and belief that are set up by the group and individuated by the subject. Parson’s (1951) does not specify the moral codification of values or roles and does not argue that the self-regulation of society is maintained through an altruistic value system. Parsons does not argue that altruism or survival are the drives behind cultural patterning or social acts. This is unlike biological behavioural theories such as social Darwinism, where the evolutionary biological question would be ‘what does this person have to do to survive?’ In the system of action as outlined by Parsons the question would be, ‘what does this actor strive for, on what bases does the actor (subject) make his selections’? Implicit within the theory of action is the notion that survival is not the sole ground for cultural selections, quite the contrary it is held that internalised cultural values are significant grounds of such selective processes.

The empirical significance of selective or value standards as determinants of concrete action may be considered problematical.
and should not be prejudged. But the theory of action analyses action in such a way as to leave the door open for attributing a major significance to these standards (and their patterning). The older type of biological frame of reference did not leave this door open and thus prejudged the question. (Parsons 1951: 21)

As part of my thesis research I have discovered a huge amount of evidence covering a long period of history, of the use of Yellow as a sign of difference for Jews. The evidence is so great and so well documented by many scholars I have decided to append it to this chapter as a chronology. This important information is empirical proof of the persistence of cross-cultural patterning over a protracted period, and the devastating effects that this can have.

**Semiotic Chroma**

Julia Kristeva’s (1984: 93-98) notion of the ‘semiotic chora’ as a means of disruption to the stasis of symbolic order has been of immense importance in the theorisation of women’s intervention in meaning and to my understanding of the processes of inscription and resistance. In this section I will adapt it to suggest particular ways in which it might apply not only to language but also to colour, I will call this adaptation the ‘semiotic chroma’. I use semiotic in the Kristevan meaning in relation to ‘artistic’ practices where it is ‘the precondition of the symbolic’ and where it may be ‘revealed as that which also destroys the symbolic’ (Kristeva 1984: 103), by its ability to adapt to the symbolic without completely losing its pre-conditioned state. The interrelationship between ‘chroma’ as body and ‘chroma’ as inscription is compatible with the need to have continuities between the material and the symbolic that
complies with current work of feminist theoretical interventions. I propose that our 'chroma' is an essentially mobile and indeterminate articulation within a disposition that already depends upon representation. The chroma is embedded within our bodies, our consciousness, our chromosomes and is a rhythmic arrangement of mutating colour, where our physicality is defined by the structure of our chromatic organisation and subject to cultural and social organisation.

I am not arguing that we are pre-determined by our chromatic structures but rather that our pre/foetal organisation is benign and though there may be dispositions to likeness etc, the free floating mutational quality of 'chroma' is later organised by an external symbolic order. The 'Chroma', or bodily colour as I prefer to think of it, described by Kristeva as the 'instinctual chora,' the so called

[...] Primary processes structuring the disposition of drives, but also the primary processes that displace and condense both energies and their inscription.

is not yet a position that represents something for someone. It is not yet a sign

[...] nor is it a position that represents someone for another position (i.e., it is not a signifier either);

Kristeva continues,

It is however generated to attain to this signifying position. Neither model or copy, the chora precedes and underlies figuration. (Kristeva 1984: 93-116)

'Semiotic Chroma' occupies a space that has no thesis or position but becomes impressed by the process by which significance is constituted. This places us it would seem, within a definition of signs within which we are always already constrained, without our own perceptions and experience of our chromatic organisation being allowed to flower. I propose that our Chroma is within our bodies and is subject to social organisation dependent on our participation and co-operation within a social
and cultural organisation over which we have very little control certainly in the foetal stage.

Our internal Chroma which we are informed by and grown from is, it would seem, repressed by an imposition of a social symbolic order powerful enough to overcome the chroma of the flesh, but not powerful enough to eradicate it.

However, Kristevan chora or my thetic 'semiotic chroma' does precede and underlie figuration, configuration, systemised interaction, premeditation, evaluation, and contradiction and all the articulations of systemised and naturalised actions, reactions and premeditations. Kristeva argues from a Kleinian and Freudian view that semiotic chora are semiotic functions and energy discharges involved in pre-Oedipal drives. The semiotic chora or chroma therefore forms part of the dynamics of action and function that are pre-Oedipal in the sense that they are not text or narrative, cannot be read or understood in the teleological or lexical sense and that it is a state of constant mutability, a reactive and proactive state that is not yet determined or given signs of notoriety. And if theories of the 'chromatin' (see note 16) are correct, they are also female.

In this sense the semiotic chroma is a miasma of colours not fixed, but a mutating mass of trial and retrial since there can be no error within this state. It is free flowing chromatic, semiotic and somatic, but not traumatic. It cannot collide since it can only mutate, indeed mutation is its constant state, contained as it is within the stimulus of constant energy driven drives. It is not located within a structure of imposition but rather more like a pinball that rebounds and impels its way to a destination of release unaware as yet of the defining terms of the structure of the residing wizard. In
Kristeva terms the wizard imparting control and mediating laws and structure is defined within the modality of the female (who is Pink, a non-colour, only present as a product of two defining colours), i.e. the mother. This female who imparts, this non-colour who acts as conduit, is constructed without meaning herself. The same chromatic non-meaning associated with homosexuals who are also given and indeed take the colour or non-colour of pink as a signifier of self. The association of colour to male homosexuality is noted by Batchelor in his discussion of Benjamin Britten's music where the,

Chromatic ' passages or dissonances are linked to the unnatural or homosexual side of his behaviour, while the major or 'white' passages corresponds to societies normal expectations. (Batchelor 2000: 63)

The construction of the normal subject requires a chromatic order that is compatible to the symbolic order that requires it. All things feminine including male homosexuals and Jews must be inscribed with colour that is the defining resonance of their 'non-self'. If this is so then the semiotics of the initiated female is constructed to non-subjectivity by the mediation of a non-subject, the 'mother', in which case the construction becomes a void or a hollow receptacle for non-meaning. The mother within this Kleinian, Freudian, and Kristevan definition is a non-Subject, simply an electric conduit. But even a conduit has a construct without which conductivity would not, could not occur, positive and negative poles which allow the free flow of current. The non-Subject is therefore a construction of non-subjectivity, the negative being indispensable within conductivity; therefore the construct of 'non' is not a vacuum. Non-subjectivity can be decompartmentalised into its parts and constructed from these just as the notion 'Subject' is a total of all its constructive parts. The semiotic chroma exists within the two poles of the mediating conductor, between positive and negative, and arguably the maleness and femaleness of the constructed
chroma and chora depend upon the polarity of the disposed organising energy
dynamic that in the case of the chromatic is female.

Kristevan drives are described as contradictory structures simultaneously ‘positive’
and ‘negative’ doubling, producing a dominant negative wave, read by Freud as
‘death’ or more correctly as ‘death drives’ that disrupt pleasure (narcissism) as
temporary positions, leading to new realisations which in turn then become ‘death
drives’\(^\text{17}\). If in this reconstruction of the poles or drives as positive and negative, the
negative or female is the stronger, the dominant wave, or death, becomes female, and
in this way the mother can then be read symbolically, as the founder of the warring
state, for which she is continuously blamed.

The Kristevan definition of drives as propellants or waves of attack constrained by
biological and social structures into stases, does not fully comprehend my analysis of
semiotic chroma as free flowing and mutating colour. But it does fit the analogy of the
structured body as static or as a stases whereby the wizard signifies the symbolic
against which the semiotic pinball continuously rebounds upon itself, each rebound
bringing about another configuration of the ball.

The medical model describes stasis as the arrest of blood in the circulation.\(^\text{18}\) I
propose that this arrest creates an open window through which a virus may step.
Using this analogy, racism interpreted as an inverted response to sensory drives,
develops as invert within an interruption of free flowing chromatic circulation and
locates itself within the nerve fibres of consciousness where it can then become
normalised, accepted and concealed until an appropriate moment of crash within a
material social system, when it can emerge as a virulent disorder within a system already open to attack.

On release through the birth process the pinball is unlocated within structure but is inscribed throughout the chaotic process of the actual journey by the stases of the surrounding structure until birth at the end of the initiating process. The wizard is a structural continuum of established, formulated and synthesised ideomaterialistic structure which has a polarity generating action between two poles, positive and negative. The semiotic is described by Kristeva as 'a psychosomatic modality of the signifying process' and the semiotic chora is disposed by Kristeva within the sensory, for example, as 'the sound and visuals of negotiation'. (1984: 93-116) The pre-Oedipal drives located within this sensory semiotic are responsive to and stimulated by the mechanisms of stimulus recognition and location locked into the chora and chroma which is free flowing within the pre-Subject and free from the material world of synchronicity.

Sensory charges, which elicit a response from the semiotic chroma, may be re-sought as a pleasure to be re-enjoyed within a stimulated response mechanism. In post-Oedipal sensory response mechanisms, retention of faecal matter within the anus may produce intense sensory pleasure within the rectum since retaining the faeces may respond to social edicts to not foul the space occupied by the body. Therefore the pleasure comes from non-evacuation and resultant non-chastisement and not from a love reward response. The sensory disruption necessary to invert the pleasure of defecation which is lost upon evacuation is an inverted learnt mechanism of jouissance and not part of the semiotic chora's pre oedipal constant play enacted through the dispersal and absorbance of bodily fluids which is not directed or
prescribed. If post parturition defecation was rewarded at all times, but especially rewarded when it was evacuated into the lavatory or the potty, then to shit would be a pleasure, but to shit in the pot would be a special pleasure. If the body politic in the same way were to reward the idea of citizenship at all times, but especially to reward it when applied to all people, then the idea of partial citizenship for those bodies acceptable only within a national or racial paradigm would perhaps be less acceptable.

The disrupted semiotic play that such sensory disruptions create is necessary to invert this pleasure, at the same time disrupting the semiotic chora keeping it in a constant state of uncertainty and creating an environment of anxiety. Such disruptions may be a necessary part of the naturalisation of social patterns such as racism and misogyny whereby rewards for love that produce love and pleasure are in antithesis replaced by hate which will also produce love and the concomitant sensory pleasure. The semiotic chora that has been subjected to and has learnt from constant disruptions and contradictions of its disposed chromatic fluidity is reformed and repressed by the radical social construction of a rainbow.

Kristeva describes the fragmentation of the body by the constant arrest of drives as 'processes of displacement and condensation' processes that are vital to the organisation of the semiotic. The semiotic which in turn, Kristeva argues, connects the fragmented body to itself and external objects and subjects

Articulating a continuum: the connection between the (glottal and anal) sphincters in (rhythmic and intonational) vocal modulations, or those between the sphincters and family protagonists, for example (Kristeva 1984: 93-116)
This fascinating connection between speaking and shitting links the effects of socialisation to the outcomes of behaviour from the earliest training to the spoken action system at a very basic level, a system of orientation that I explore with my theorisation of chroma.

Kristeva quotes Mallarmé who she says calls attention to the semiotic rhythm within language when he speaks of the mystery in Literature Le Mystère dans Les Lettres this space is defined as indifferent to language, enigmatic and feminine. The space underlying the written is described as rhythmic and unfettered, but I would argue that rhythm implies recognisable patterns of structure, whereas the unfettered and spasmodic I accept as underlying the written.

The mutations of a constant play of colour that interact with sunshine produced by oil on the surface tension of water is closer to my definition of the semiotic and undetermined chroma which is determined only when the oil is dispersed by disruption of the surface tension. I propose that tension set up by contradictory and non-contradictory sensory reward and the constraints of language initiate the establishment of cohesive patterning (good and bad) and a cultural chromatic order.

Kristeva posits that it is within artistic practice that the semiotic, the pre-conditioned of the symbolic, can disrupt the symbolic. This thesis supposes that these practices are not already inscribed by the dynamics of symbolic patterning and meaning. The structure within which the semiotic may appear as nuisance is one in which it can play but not exceed since its compulsion is to be recognised and the chaos of the semiotic heterogeneous signifier is recognisable only within the constraints of a symbolic order.
A universal adoption and wearing of the Yellow star as a sign of difference would negate it as a signifier of otherness and difference outside a symbolically defined order. When does an act become revolutionary? Is it as Kristeva suggests when the symbolic is recuperated and used against it? Or does the semiotic always remain an infantile disruption or disorder, either outside or contained within the symbolic?

We therefore maintain that what we call the semiotic can be described as both analogue and digital: the functioning of the chora is made up of continuities that are segmented in order to organise a digital system as the chora’s guarantee of survival (just as the digitability is the means of survival both for the living cell and for society) the stases marked by the facilitation of the drives are the discrete elements in this digital system, indispensable for maintaining the semiotic chora. (Kristeva 1984: 93-116)

Kristeva is suggesting that the semiotic pre-Oedipal subject may not be entirely chaotic but has some chromatic synchronicities, or discrete values left after moments of interruption, in this way becoming both genetic and pedagogic in essence. The ‘semiotic chroma’ in the same way may be discretely organised by the interruptions of symbolic structure within and throughout its free-flowing disposition. This analogous designation of subjectivity is a continuity that ensures the survival of the ‘semiotic chroma’ but which necessitates a corresponding digital semioticism of the chroma in order that the chroma may be identified as chroma.

I propose that the primary colours of subjective existence are an established chromatic order requiring a limited description and designation just as in language the number of colour terms needed to facilitate communication are within a scale of six to eleven words, so the pre-subjective chroma can be described as a restricted code allowing and depending upon the deviation and discretion of the semiotic chroma to facilitate and enable change in structure as and when required. This ability to
elaborate from a restricted code exponentially is what empowers it as in a binary notation system represented by *on* and *off*, the actual function is infinite.

The outcome for the semiotic chroma is an ability to mutate. If the living organism is no longer able to tolerate discomfort which has escalated to dangerous levels, the semiotic may be required to stimulate the necessary chromatic change to re-establish pleasure.

Chromasomatic change therefore may depend upon the toleration and accommodation within the symbolic, of the semiotic digital chroma, whose flexibility and non-location in turn, attributes and empowers the symbolic with adaptation, but not necessarily fundamental change.

**Painting Yellow.**

Popular wisdom\(^\text{20}\) that the attribution of Yellow to Jews was just a product of nazi ideology is not born out by my research findings from the documentation and records of historical cultural perception and practice. The transcultural nature of the perception and its longitudinal life suggest that chromatic ideas of difference do not only reflect the time or space of their representation but have a more embedded resilience that can survive periods of time when the idea is not deemed to be pertinent or valid. What the research indicates is that deeply held epistemes transcends change and inertia and enters a kind of store cupboard of ideas to be recuperated when necessary or expedient to current hegemonies.
Yellow, as a sign of difference for Jews, is less familiar than the usual stereotyping of large noses and funny hand gestures but its use as a sign of overt oppression gives it and Yellow a more dangerous meaning and perception in particular contexts. I propose that Yellow in this context signifies more than a warning since it carries with it the threat of death. Red warnings on the other hand signify a possible danger that can be avoided. Yellow in the context of Jews, electrical installations and poison signify death, just as colour in general signifies the material and all of the pejorative baggage attached to Mother Nature and Woman.

The use of colour as a sign of difference for Jews is an example of the use of chromatic signification for otherness that feminises all it touches, by robbing them of subjectivity. For women, its most overt use is in the blue Burkha in Afghanistan. In 1977 Maulvi Qalamuddin, head of the Taliban religious police, (that not only required women to completely cover themselves with the Burkha, preferably blue, although yellow and red was also used) issued new regulations for women that stated,

Women are duty bound to behave with dignity, to walk calmly and refrain from hitting their shoes on the ground.

This new regulation added and enforced an almost impossible to keep silence to invisibility for women, and led Hilary Clinton to state in 1999,

When women are savagely beaten by so-called religious police for not being fully covered or for making noises while they walk, we know that is not just the physical beating that is the objective. It is the destruction of the spirit of these women, (Ahmed, R. 2001: 105-182) 

Or, I would add of women in general. For to see others like yourself subjected to humiliation and abuse either makes you a complicit observer or an active objector.
Women like Jews are and have been publicly subjected to humiliation and abuse designed, as Foucault (1977) argues, to break the spirit of all by example and not just to punish the one. Such extreme requirements of women as invisibility and silence, leads one to suggest that the next logical step is femicide or a getting rid of altogether as an outcome of ideological fervour, just as the final solution for Jews was the outcome of such an ideological aberration. Arguably, only biological necessity keeps women alive in the most violent and oppressive social cultures.

The use of blue as a cover for women is recognised in Christian iconography as the Madonna colour. The mixture of Judaic Arabic and Christian cultures created a melange and adaptation of beliefs that included the iconography of colour that moved from the ancient to the medieval. In Ancient Egypt there was no word for blue, its silence signifying death (Gage 1978: 7-11) and in early Christian mysticism, deriving from what Gage (1999) describes as a pseudo Dionysian belief. Blue next to black or dark was the seat of God or where the divine source for all creation came. The representation of Christ's mother as a virgin in blue signifies her separation from her womb by the recuperation to her body of a colour that not only signifies the masculine (through the divine) but also from an earlier Arabic culture where it signified death. The significant robing of women in the colour blue either in the Burkha or the blue robe of the virgin therefore robs them of gender and signifies their death as subject, since the colour removes them from life and sex.

In her essay ‘Giotto's Joy’ Kristeva (1980) engages with colour as a signifier within painting as sign, or as sign within sign. The painting as sign in itself is discussed as a carrier of symbolic meaning within which colour acts as an endorsement of
contemporary legend or story. Despite the shift from Byzantine to Renaissance representation, the Christian pictorial legend continued to follow biblical and evangelical canon, particularly in the early renaissance paintings of Giotto at Assisi and Padua. Kristeva argues that

Christian legend, then, provided the pictorial signified: the normative element of the painting, insuring both adherence to social code and fidelity to ideological dogma. (Kristeva 1980: 211)

Colour, Kristeva argues, acts as an area of symbolic and narrative normality giving life to paintings that were democratised in the renaissance by the inclusion of recognisable people as actors in the pictorial symbolic legend.

Christian painting experienced the mass arrival of characters with their itineraries, destinies and histories: in short their epic. (Kristeva 1980: 211)

Therefore some of the characters in Giotto’s painting may carry a double meaning or as Kristeva suggests a triple meaning, that is as the 1] historical character, 2] the donor i.e. Serovegni donor of the Arena Chapel, and 3] the artist as interpreter. In the same way Kristeva argues, colour also has a triple register, beginning as she argues with 1] the instinctive response to objects, 2] the physiological response and 3] The censored response to sign as a system of representation. Continuing her hypothesis of art or creativity as the dynamic from which disruption or challenge of symbolic order may come, Kristeva argues that colour per se is able in Giotto’s works of Assisi and Padua to at once challenge and support the symbolism of the pictorial legend. Whilst I concur that there is some credence to the argument, that colour regarded as an abstract energy communicating with the observer on a sensory instinctive level (providing that the concept of instinct is accepted a priori) can enjoy an autonomous position within symbolic structure. I feel that this reading of
autonomous chromatic abstraction does not engage with the power of the sign and symbol to overwhelm the proposed autonomy of colour.

Colour may communicate on several levels, one of which is sensory, but even that sensory reaction may be overlaid by a normalised acculturation further complicating what it is tempting to simplify. An observer of Giotto's work might react to its colour by thinking what a beautiful Yellow Judas cloak is, but that individuation may be overwhelmed or at least modified by the symbolic meanings that objectify colours in painting and in general. Colour is as free as Christian painting was free when as Kristeva (1980: 211) argues it served the narrative when within the framework of the narrative it had free rein.

The autonomy of colour is not really in dispute since all things visual or sensory enjoy an abstract autonomy until named, but the ability of colour to challenge symbolic order from such an abstraction is I feel a romantic notion that does not bear close scrutiny. The 'chroma' of our lives may be an autonomous dynamic that is constantly present but I must acknowledge that the symbolic order that organises and constructs us as individuals is a powerful and complicated web in which our 'chroma' is an acknowledged part, and may be our salvation, but not necessarily so.

Barosche (1987) in his text Giotto and the Language of Gesture has noted the Jewish facial stereotype used by Giotto for depicting the face of Judas. Stereotyping of Jews as a normal part of art practice in 12th and 13th century Renaissance painting followed the edicts of the 4th Lateran council of Pope Innocent 3rd, in 1215, when Christian discriminatory garb for Jews was introduced. In Giotto's The Kiss of Judas
Giotto: Judas kissing the Lord 1267-1337

Illustration 6
1305-6 (illustration 6) or, as it is otherwise known Judas kissing the Lord, the central figures of Christ and Judas are the main focus of the piece and Judas is depicted as the only figure wearing Yellow signifying his difference in a dramatic way. Judas chromatic stereotyping is reinforced by comparison with the symbolic achromatisation of the other figures. The Yellow robe of Judas covers himself and the figure of Christ, encompassing them both in the colour of shame and betrayal. This theoretically and historically sullied and contaminated Yellow is contrasted to the divine Golden Yellow of the haloes of Christ and the two apostles. That particular Yellow is unsullied and places them within the divine light of God and historically the light of the Sun, life and renewal, and at the same time Christianises all other Jews in the painting. Thus the four figures in the drama of Judas kissing the Lord are separated by the strategic use of Yellow as sign within the context of good and evil. Both ends of the value spectrum of Yellow, are used to illuminate the contrasting Christian goodness of Jesus and his apostles and the evil and deceit of the Jew Judas who is also the only ‘woman’ in the piece since the disenfranchisement of Jews placed them symbolically alongside women as subjects of no value. The use of Yellow as a signifier of difference feminises Judas’s body and his persona.26

Removing the bad Yellow of Judas and the good Yellow of Christ and his apostles would rob the painting of its main iconographic and symbolic meaning, a meaning that would have been instantly understood by the mostly illiterate observers, well versed in chromatic significance pertinent to that context. The Lateran edicts enacted in 1215 had substantially normalised the semiotics of Yellow and Jews for a largely illiterate populace under the influence of a reforming and reformed Christian church and Holy Papal blessing. The acculturation and normalisation of racial difference in this context was given power and meaning through legal documents and religious
painting and validated and normalised on the streets by Jews wearing the discriminatory Yellow garb of Yellow hats for men, Yellow veils for women and the three fingers of the Yellow badge of shame, the trinity of disgrace, disease, and betrayal. Was the figure of Judas a real person, a portrait from life, or was the archetypal Jewish face a representation beyond the real? The question is, was Giotto an anti-Semite painting Judas in a way that seemed appropriate to his racial beliefs, or was he simply swimming with a normalised tide rather than against it. If he had swum against it and insisted on dressing Judas in blue, would that have been acceptable to the Holy Church and Scrovegni at Padua and if so would it then have been a revolutionary action separate from a sensory autonomy of colour?

In 1857 Degas was in Italy, and in July of that year he visited the chapels at Assisi and Padua. It is claimed by Kendall that Degas was completely captivated by the work of Giotto declaring,

There is an expression and an astounding drama in Giotto. He is a genius. (Kendall 1990: 36)

These sentiments Kendall argues expressed Degas own wish to dramatise his work, to express within the facture an 'expression' of the scene depicted, to produce in the observer an intense subjective reaction to the evocative effects of the work. The desire for expression was tentatively used in his early works of historical scenes, but his portraits and later the impressionist works of the ballet, racing, laundresses, theatre and Circus etc used to effect the power of the iconic image to impact on the subjective response of the observer. Degas desire to give full rein to the emotional or descriptive quality of the work is arguably present as a thematic throughout his oeuvre illuminating a moment, a piece of history and an event.
Degas 1857, La Femme Au Chale Jaune.

Illustration 7
In the same year and following Degas visit to Assisi and Padua he spent some time in Rome where he painted amongst other works what I would suggest is an extraordinary expressionist portrait of an old woman *La Femme au Chale Jaune*. (Illustration 7) The face and posture of the woman whilst having the normal characteristics of age, also has something else, the stereotyped characteristics of the archetypal Jew described by Bealieu (1895). The long nose, the abject expression and the Yellow shawl worn upon the head in the Arabic Muslim fashion, signify something more than age. After the 1215 Lateran edict Jews throughout Italy were sporadically forced to wear discriminatory garb. (Straus 1942) In Rome from 1555 to the intervention of Napoleon who abolished the ghettos and discriminatory garb, Jews were forced to wear Yellow hats and Jewesses to wear Yellow veils. After the fall of Napoleon in 1815 all ghettos in Rome were restored and the Yellow veil and hat reimposed. Indeed, by 1857 many old people wore this garb from habit even when younger Jews were discarding it. (Straus 1942) Degas choice of the colour Yellow for the old Roman woman’s shawl could have been coincidence, but the archetypal physiognomy, the posture and a reading of the shawl as discriminatory garb signed by Yellow, cannot be ignored when at this time anti-Semitism was rife in Italy prior to the emancipation of Italian Jews in 1870. (Gilbert 1993: 59) Nochlin (1991: 159-160) suggests in discussing what she construes as Degas anti Semitism, that he suffered from ‘status anxiety’, that is a condition common to anti Semites wishing to distance themselves from those they resemble and hate. In the case of Degas Nochlin explains the anxiety was caused by his family background and wealth that was not aristocratic but founded only fifty years before his birth in merchant banking and money lending. As Nochlin states, regarding the reasons for his anxiety,

Degas then, had come from a background as arriviste as that of any of the nouveau riche Jews his fellow anti Semites vilified. (Nochlin 1991: 159-160)
In discussing the problematic of authorship to the dynamics of meaning Pollock argues that if the work of art is attached only to the author it

[... then becomes merely a mirror or at best a vehicle for communicating a fully formed intention and a consciously grasped experience. (Pollock 1991: 82)

Whereas, the notion of the death of the author, or a reading of the work solely by the subjective viewer, creates, a subjective reading in an environment of meaning that is in a sense one dimensional, without communication, reference or mirror, where historical cultural referents exist in a vacuum without echo or resonance.

Pollock (1991: 82) suggests that a more realistic appraisal is of interactions of social and cultural meaning that occur between maker and subject and that these are ‘economically and culturally determined’ and subject to the inscription of transactions that are the economic ground of exchange that positions meaning for subjects as readers or viewers. Colour within this paradigm acts for the viewer in a register of meanings that includes, as Kristeva (1980) argues, the sensory and physiological response compressed with ‘ideological values’ that are germane to a given culture. Within this dynamic, the painting by Degas becomes more than just the depiction of an old woman in a Yellow shawl, it is also inscribed by Degas history and cultural perceptions and the internalised knowledge shared by painter and viewer of the pejorative value for Yellow specific to this particular cultural context.

As Nochlin argues with regard to paintings as spaces of meaning, a painting is a space of

[...] significances inscribed for the most part unconsciously or only half consciously, in this vignette of modern commerce.(Nochlin 1991: 144-148)
Vincent Van Gogh: Sunflowers, Arles 1888
Illustration 8
To argue that the portrait is anti-Semitic or that Degas was anti-Semitic is not possible on the fragile evidence of one portrait, but to read the painting as a sign of an anti-Semitism that as Nochlin argues (1991) many Frenchmen and Women and Italians followed, tolerated and used especially in literature or painting where ‘certain representations of the Jew or of Particular Jewish traits’ (Nochlin 1991: 83) were common currency, representing culturally held racial attitudes by gentiles and Jews alike, who subscribe to them for different reason.

Such representations are always present in the dynamics of an economy of meaning stored or used in a relatively benign or even humorous way until the virus of racism makes pertinent their active use again. If we accept that Degas paintings of dancers and laundresses give insight to the condition of the dance and of physical experience of dancers and laundresses bodies and their inscription within social sexual conditions of the period. ‘La Femme au Chale Juane’ gives us insight to the condition of the old age of a Roman Italian woman and of a life possibly lived in racial discrimination at a time and place where the Yellow shawl or veil was still used as a sign of difference.

In 1888 Van Gogh painted a series of Yellow sunflower studies (illustration 8) described by Schapiro (1985: 78) as ‘decoration for his room with backgrounds of Yellow and Blue’ One-year later, the melancholy that had dogged Van Gogh settled into what Schapiro (1985: 24) describes as ‘attacks of insanity’.

The association of Yellow to the feminine and to madness, and of madness to women, creates around the sunflower paintings readings that link them to the feminine through a strategic route of colour and creative genius that Battersby (1994) argues, is a recuperation of feminine designations to a masculine dynamic. Yellow as feminine
and madness as an attribute of the feminine, is on the other hand denied the quality of creative genius given to it when attributed to the masculine. As Battersby states with regard to the slippage of meaning of madness and creativity

The distinction between creative (productive) and pseudo creative (reproduction) is integral to all the romantic theorists of art. (Battersby 1994: 153)

Battersby goes on to explain how these romantic presuppositions have been unfair to women particularly when expressed by de Beauvoir, 'mother' of second wave feminism, who she quotes as saying,

How could Van Gogh have been born a women? A woman would not have been sent on a mission to the Belgium coal mines, she would not have felt the misery of the miners as her own crime, she would not have sought a redemption.

De Beauvoir, Battersby states, measured all cultural achievement by the paradigm of the romantic genius that walks the narrow path between sanity and madness. Battersby continues her discussion with another quote from de Beauvoir

'There are women who are mad and there are women of talent, none has that talent in her madness we call genius'. (Battersby 1994: 153)

Van Gogh's madness can be read as the one unique male characteristic needed to ensure his description as a genius, and his Yellow sunflowers as an expression of it. Yellow, as a sign of madness is a common cultural perception, in Russia asylums for the insane are known as 'Yellow houses' a traditional cultural perception passed on from the Tsars to the Soviets and now to Russian democracy. Modern colour theory is not exempt from this cultural perception, for as Birren in (1961) states,

Finally we see yellow as the colour of schizophrenia...This yellow is the proper and intrinsic colour of the morbid mind. Whenever we observe its accumulative appearance we may be sure that we are dealing with a deep lying psychotic disturbance. (Birren 1961: 161)
Established chromatic perceptions seem to survive no matter what interventions are made by reasoned or so-called rational persuasion.

When Schapiro suggest that the Yellow sunflowers of Van Gogh and the Yellow of Sunflowers can act as a background to a living room, he promotes the idea of adding decorative comfort to a living space, adding the odd dimension of wallpaper to the work of Van Gogh.

On another level, Shapiro's suggestion that Van Gogh saw his work as room decoration, initiates a notion of eccentricity to the work of (what was after Theodore Duret's first biography in 1916 a normalised view) Van Gogh as a mad Genius.

Battersby's thesis that the concept of genius needs to be appropriated by femininsts and made to work for them is recognised by her as a difficult task when romantic ideas of genius are as she says still firmly in place and often used by academics who, have given up using the word but still cling to the old assumptions about genius in the way they talk write and think about human (or more to the point male, my bracket) creativity.

Battersby illustrates her argument with a recollection of an extra mural course at her university on Michelangelo and Van Gogh that advertised itself by offering to compare

the two artists of genius who both suffered greatly (Battersby 1994: 23-24)

The notion of suffering and genius and insanity and genius are well entrenched in the construct of genius and the artist, as Battersby well illustrates. Madness in the phallic construct of genius is seen as a positive advantage, once again recuperating notions of the feminine as a tool in the constructs of phallic symbolic order.
Vincent Van Gogh: L'Arlesienne (Madame Ginoux)
1888.
Illustration 9
In Van Gogh’s letters to his brother Theo he describes the background colours of his portraits, for instance, L’Arlesienne (Madame Ginoux) Arles 1888 (illustration 9) as symbolic of intense emotional and spiritual meaning. Schapiro describes the Intense Yellow of the background as

This exotic Yellow that darkens the image of the woman perhaps sublimates a hidden eroticism, (Schapiro 1985: 90)

in this way engaging our perception of the colour as carrying not only the ecstasy of reverie ‘the portrait of an individual in reverie,’ 28 but also an erotic symbolism of female sex repressed. A female sex of the Yellow book (that perhaps lies open on the table) forbidden and concealed beneath layers of petticoats and skirt and bourgeois sentiment.

By contrast Van Gogh speaks to Theo of Yellow as symbolic of light and love, echoing an ancient perception of Yellow as the Sun, colour of light and life. Of the sunflowers paintings Schapiro (1985:78) speaks of the Yellows as symbolic of health and fulfilment, of the Sun, and the effects of the paintings as ‘a poem of joy in light and intense growth’. Schapiro states that ‘the intoxication of the Yellow sunlight, colours the entire canvas’ and is ‘indeed a composition of Yellow’. The appropriation of the words reverie and intoxication to the Yellows of Sunflowers and Madame Ginoux adds a subliminal reading to the layers of meaning and readings already present in the works. These Yellow’s filtered through intoxication and reverie offer a reading of decadence and addiction to pleasures beyond the normal pleasures of flowers or reading.
During 1888 when Van Gogh settled in Arles he painted over two hundred canvases spread over a period of fifteen months.\textsuperscript{29} It was in 1888 that Gauguin visited Van Gogh and the famous well-chronicled ear-cutting episode occurred, also during this time he sold no work and is said to have suffered recurrent nervous crises, hallucinations and bouts of madness\textsuperscript{30}. In the following year Van Gogh went voluntarily into an asylum for the insane at St Remy. Heinrich discusses the contingency of Van Gogh’s mental deviation to the evaluation of his work and compares the paradox of critical appraisals of the ‘sanity of his letters and the lunacy of his works’ (Heinich 1996: 76). Heinrich also discusses the aesthetic value of Van Gogh’s deviation as a space of ambiguity since she argues that he is framed as having sacrificed his sanity to his work, creating a good sacrifice, but at the same time his madness prevented his acceptance by the art world. Heinrich argues that by 1916 Van Gogh’s madness was framed as a sign of a real hallucinatory state illuminating his work with insights beyond the reach of normal men thus adding a high aesthetic value to his deviation. Framed in this way the madness of Van Gogh can be read as the embodiment of an insane and Yellow essence, over which the artist had no control, almost a separate being to the man it inhabits. I propose that Van Gogh’s Yellow Sunflowers and the Yellow of Madame Ginoux are symbolic of a perceptual heaven and hell, on the one hand perceived as light and love whilst on the other hand the Yellows carry within them a constant reminder of the sick feminine Yellow of insanity.

Viewing Van Gogh’s Yellows in these works offers a constant disruption of perception, on the one hand the initial perception of Yellow warmth and joy, on the other the perception of a Yellow madness that inhabits the work. The values involved in the perception of these Yellows can be said to arise from all the complex
conceptions of colour, involving all of the processes and including finally the necessary historical decantation of the whole.

Feminist readings of the ‘work of art’ engage with complexities of cultural meanings in order to raise consciousness to the danger of the normalisation of such meanings through what may appear to be benign one-dimensional objects such as paintings. That from generation to generation, laws, traditions, customs and social behaviour, transmit social heredity or cultural patterning in a way that feels to the normalised subject as natural as breathing in and out. I also suggest that Yellow as a normalised signifier of the Sun and warmth and of racial difference is accepted and validated through visual signage that engages with the viewer in silent, complex and powerful ways, normalising the diversity of meanings and culturally integrating them despite differences of religious, and political hegemonies.

History and chronology of the use of Yellow as sign

The Egyptian deification of the Sun as a phallic God from which all life came, can also paradoxically be argued to have had an historical significance in the choice of Yellow as a sign of low value and difference for Jews, thus again demonstrating its positive and negative aspects. Assman (1995) argues that in the 18th dynasty of the pharaoh Akhnaton, the Egyptian Empire expanded to become the largest world power. Until that time, immigrant Hebrew tribes had lived in Egypt and other fertile areas of the Arabian peninsula and basin in relative freedom. It is also argued by
Bratten (1962) that the Hebrews were refugees from drought and famine in Canaan, but between 1800-1500 BC they were taken into slavery to expand the Egyptian Empire and build new palaces and towns. Lucas (1948) writes that during the 18th dynasty the industrial expansion and urbanisation of Egypt also occurred. During this time the production of Egyptian glass and faience was improved by the use of pigments such as Yellow orpiment (sulphide of arsenic). (Lucas 1948: 400) At this time two Yellow pigments were used, Yellow Ochre, an earth pigment in plentiful supply in the countryside and more importantly Yellow orpiment, a bright pale yellow pigment much used in wall decorations, faience, glass, and tomb painting. Yellow Ochre was mostly used in pre-dynastic times but because of its fugitive quality was largely replaced by the use of the permanent Yellow orpiment particularly from the 18th dynasty on. Lucas (1948: 400-414) states that of eleven specimens of Yellow pigment that he examined from the 18th dynasty three were Yellow ochre and eight were yellow orpiment.

The bright Yellow obtained from orpiment is one of the arsenical sulphide ores and was used like arsenic oxide in glass manufacture when the glass containing Yellow orpiment was ground to make a non-fugitive Yellow pigment. However, the side effects of long exposure to low level arsenical compounds are serious and injurious to health. The following is an abbreviated list of the side effects of long exposure: cell blocking and lessening of tissue respiration, paralysis and smoothing of muscle tissue, disruption of the continuity of capillary endothelium, causing many small haemorrhages and blocked cell division. Arsenic is a carcinogenic element and prolonged low dose exposure causes cancer of the skin and/or internal organs, also cancer of the hands and feet. In a letter to Sir Martin Gilbert (1993), I suggested that Hebrews of the 18th dynasty who were used as forced labour might have been used to...
extract orpiment as an ore and to grind glass for yellow, pigment. I also suggested that their prolonged exposure to arsenic may have caused a yellowing of the skin and cancer of the feet which would have led to limping, and consequently to the labelling of their descendents as 'Limping Yellow Jews'. Sir Martin Gilbert replied that my speculation though interesting would be difficult to substantiate. The question is, did cultural perceptions of the 'Limping Yellow Jew' described by Beaulieu (1895), originate as a perception of Hebrew difference beginning in 18\textsuperscript{th} dynasty Egypt? If my hypothesis has credence then the Muslim hatred of pale Yellow and its use as a sign of difference for Jews in 800 AD may have been no more than the continuation of an earlier Egyptian cultural chromatic pattern normalised in the 18\textsuperscript{th} dynasty.

It is argued in the \textit{Encyclopaedia Judaica} that Omar the 1st introduced a mark to distinguish those who did not practice the dominant religious faith. He ordered that all \textit{dhimmi} (those not of the Islamic faith) should wear testamentary distinction (called \textit{giyar}, i.e. distinguishing marks) of a different colour for each minority group.\textsuperscript{33} The ordinance was unequally observed, but was reissued and reinforced by Caliph al-Mutawakkil 847-61 AD.\textsuperscript{34} The Jewish subject condition and imposition of discriminatory signs was documented by Muslim judicious edicts from this time. The significant colour, Pale Yellow, (the colour of orpiment) despised by Muslims was the colour applied to Jews as the vestimentary sign of difference or, \textit{the colour of shame}.

After the Muslim conquest of Arabia under Muhammad in 634 AD there followed 1,402 years of the imposition of discriminatory signs of Yellow for Jews beginning with the Decree of Caliph al-Mutawakkil in 850 AD stating that all Jews were to wear two patches affixed to their slaves garments, one to be worn on the breast and one on the back, each patch to measure five fingers in diameter. They were to be honey
coloured, and turbans also were to be honey coloured and the veils of women were to be of the same colour. Yellow as a sign of difference was to be the sole prerogative of Muslim decree until 1215 when Muslim and Christian law began to run parallel in the imposition of Yellow as a discriminatory sign for Jews.

On the 11th November 1215, the Pontiff Pope Innocent the 3rd called together and presided over the 4th Lateran Council. There he declared a further crusade against Raymond Count of Toulouse and the Albigenses, a continuation of the Church's massacres and cruel persecutions of the Albigensians for their alleged heretical beliefs.

Included in the Fourth General Council of Lateran was Canon 68, a seminal moment in the legalisation of European anti-Semitism. I propose that Canon 68 normalised in Christendom what until then had been an unauthorised and loosely practised bigotry. Prior to this legislation Christians, Muslims, and others had enjoyed a relative sexual freedom, with many Muslims, Jews and Christians marrying, living and working together both in Arabia and Europe. The Jewish population in Italy and Germany was established and indigenous BC. Evidence of Jewish Settlement are documented Gilbert (1993: 31) in Italy at Genoa, Venice, Polar, Ravenna, and Rome and in Germany at Cologne, Magdeburg, Frankfurt, Worms, Metz, and many other cities including Prague. Jews had well-established practices of negotiating good relations with their host countries and with Roman Emperors. (Encyclopaedia Judaica: 62-73)

Canon 68 is recorded thus:

In several provinces, a difference in vestment distinguishes the Jews or the Saracens from the Christians: but in others the confusion has reached such proportions that a difference can no longer be perceived. Hence at times it has occurred that Christians have had sexual intercourse in error with Jews or Saracen women and Jews or Saracens with Christian women. That the crime of such a sinful mixture shall no longer find
evasion or cover under the pretext error, we order that they {Jews and Saracens} of both sexes in all Christian lands and at all times, shall be publicly differentiated from the rest of the population by the quality of their garment, especially since that this is ordained by Moses. (Beaumont William 1886)

These draconian measures to mark Jewish difference occurred when the Holy Roman Catholic Church under Innocent the 3rd was establishing a unified central authority. Innocent the 3rd represents the apogee of medieval Papacy when for the first time the canons of the Lateran Council established the Papal right to interfere in secular affairs. Canon 68 established the imposition of signification on the bodies of Jews and Saracens marking their difference for the stated purpose of preventing sexual intercourse. The canon established a legal foundation for the physical persecution of Jews and other minorities, and arguably for the physical control of the bodies of those designated as different or other. It is argued in the Encyclopaedia Judaica that the Fourth General Council of Lateran, is the first instance that a consistent record of anti-Semitism that can be traced to Christian Doctrine.37

The Council did not specify how the clothing of Jews was to be signified merely that it should be marked and different. As a result the edict when carried out was translated as a Yellow sign (a recuperation of the Muslim colour) to be worn upon the outer garments of both sexes. Following the Lateran edict and a repeated order on March 30th 1218 the Council of Oxford ordered all Jews to wear the Yellow star above the breast on all clothing. This was the first recorded use of Yellow as a discriminatory sign in Europe; the last was in April 1944 in Hungary where all Jews of all ages and of both sexes were compelled to wear the Yellow badge of Shame.
Chronology of the Sign Yellow

The Jewish Condition under Muslim Rule 750 AD- 1900 AD.

634 AD. Muslim conquest under Muhammad

600 AD-1900 AD 1,200 years of continuous occupation

Jews of Tunis

800 AD. All Jews were forced to pay an annual tax-which became income for the state. (Bat, Y. 1985: 53)

850 AD. Decree of Caliph al-Mutawakkil, All Jews were to wear two patches affixed to their slave’s garments, one to be worn on the breast and one on the back. Each patch to measure five fingers diameter. They were to be honey coloured, turbans also were to be honey coloured and the veils of women also of the same colour. (Bar, Y. 1985: 186)

Jews of Baghdad

908-32 AD- Baghdad, Caliph al-Muqtadir bi-Amrallah forced Jews to hang bells around their necks, to put wooden effigies on their doors. Their homes were to be smaller than Muslim homes. They should wear a badge and a Yellow turban, whereas Jewish women were to wear Yellow veils and different coloured shoes, one White and the other Black.

1075-1094, Caliph of Baghdad, al-Muqtadi imposed that each Jewish male should wear a Yellow badge on his headgear. He should also wear a piece of lead about his neck inscribed with the word Dhimmi. (Bat, Y. 1985: 205)
Jews of Egypt

1301 Cairo Emir Rukn ad-Din Baybars

Jews and Christians were summoned to assembly on Thursday, 20 Rajab, and informed that they would no longer be employed in public administration or in the service of the emirs. Jews were to wear distinguishing Yellow turbans and belts.

Jews of Tehran

1197-The Shah published the following decree that all Jews should wear a distinguishing Yellow badge of discrimination and cut their hair.

1145- Jews forced to convert or leave.

1250-Jews forced to wear distinguishing Yellow marks on clothing.

The Jews of Italy, Sicily

887 AD Jews made to wear ‘Yellow badge of shame’ by the Muslim Sicilian ruler ‘Ibrahim. (All above Bat, Y. 1985)

Jews of the Magreb

1224-All Jews obliged to wear Yellow garments and Turbans. This measure was taken because of the misgivings as to the true conversion to the Muslim Faith by Jews by Abu Yasuf 1184-1198 and his son Abd Allah adil the first 1224-1227.

Baghdad 1220- Ibn Fallah 1233, in a letter to Caliph Nasir Ad-Din Allah complaining of the wealth, corruption and decadence of Jews in Baghdad. ‘Whereas in former times they were obliged to show their inferiority by wearing distinctive Yellow signs required by Islamic Law’ (Bat, Y 1985)

Jews of Tunis

1205-Jews forced to wear Distinguishing yellow marks on clothing. (Gilbert 1993: 21)
Jews under Turkish Rule 1500-1914

1518-1830 Jews forced to wear black skullcaps and grey cloaks and hoods, with yellow markings. (Reubens 1973: 66)

Jews of Persia

1892 Jews Disabled by discrimination in occupation and signs of discriminatory yellow on dress. (Gilbert 1993: 11)

The Jewish Condition under Christian Rule


Oxford.

1218 The recommendations of the Lateran Council were repeated in an order of March 30th.

1222 Council of Oxford orders all Jews to wear Yellow Star above the breast on all clothing.

1253 Obligation to wear the badge renewed.

1275. Statum de Judeismo of Henry Third renewed the obligation by ordering the Yellow Tabula to be worn in a prominent position. Edward the First stipulated the Yellow colour of the badge and increased the size. A piece of Yellow taffeta, six fingers long and three broad was to be worn above the heart of every Jew over the age of seven years. The badge thus took the form of the tablets of the law, considered to symbolise the Old Testament, in which form it is to be seen in various caricatures and portraits of medieval English Jews. (All above Reubens 1973: 64)

Jews of France

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The Jews of France wearing the signs of shame

Illustration 10
1217, Papal legate in southern France ordered that Jews wear a Yellow rota (circular wheel) on their outer garment, over the breast. The wearing of the badge was compulsory from the age of seven years for both sexes. (Illustration 10)

1219, King Philip Augustus ordered the Jews to wear the badge in the same form.

1217-18 Numerous church councils, i.e. Narbonne 1227, Rouen 1231, Arles 1234, Beziers 1246, Albi, 1254, reiterated the instruction for wearing the Yellow Badge.

1269 June 19th, a general edict was issued by Louis 1X (Saint Louis) for the wearing of the Yellow badge. This edict was endorsed by Philip the Bold, Philip the Fair, Louis X, Philip V, and by the councils of Pont-Audemer 1279 Nimes 1284.

Jews of Spain and Portugal.

1218, following the edict of the Lateran Council Pope Honorius Third instructed the archbishop of Toledo to see that the wearing of the badge was rigorously enforced.

1228, Navarre.

Jews forced to wear distinctive Yellow badge.

1228, Aragon.

Jews forced to wear Yellow badge.

1234, Navarre, The edict was carried out.

1263, Alfonso X the Wise, of Castille in his Siete Partidas imposed a fine or lashing as the penalty for neglecting the order.

1405, Castille Henry Third yielded to the demand of Cortes and required even courtiers to wear the Yellow badge of shame.

1397, Queen Maria (consort of King Martin) ordered all Jews in Barcelona to wear on their chests a circular patch of Yellow cloth, a span in diameter with a red bulls eye in the centre.
1492, in the period before the expulsion of Jews from Spain the wearing of the Yellow badge was universally enforced.

PORTUGAL

1325 Jews forced to wear Yellow badge.

JEW'S OF ITALY

1215 Fourth General Council of Lateran. Pope Innocent Third, Canon 68, decrees that all Jews shall wear distinctive vestments to separate them from Christians.

1221-22 Emperor Frederick Second Hohenstaufen the 'Enlightened', ordered all Jews to wear a badge in the shape of the Greek letter 'R'.

1257 Alexander IV, in the Papal States ordered that all Jews should wear the Yellow Badge in the form a circular patch a handspan in diameter.

1555 Pope Paul IV, enforced the wearing of the Yellow badge and a Yellow hat for men and a Yellow veil for women. This decree was later imitated throughout Italy and initiated the Italian Ghetto system.

The Jews of Central Europe

1279 Budapest. Church council decree, all Jews must wear a red wheel ring on the left-hand side of outer garments, regardless of age or gender.

1555 Papal Legislation- All Jews to wear Yellow Hats, All Jewesses to wear Yellow veils.

3 The Jews of Byzantium 640-1532.

1320 Cyprus- Jews were forced to wear a Yellow Badge.
Jews of Germany

1279 Ofen (Budapest), A church council decreed that the Jews were to wear on the chest a round patch in the form of a wheel.

1434 Augsburg, the badge was imposed for the first time, men were ordered to attach Yellow circles to their clothes in front and women to wear Yellow veils, its general enforcement was imposed by Nicolaus of Cusa and John of Capistrano.

1530 the ordinance was applied to the whole of Germany (Reichspolizeiordnung)

1531 Austria The ordinance to wear the Yellow badge was applied to the whole of Austria.

1740 Prague, The Jews were required to wear Yellow collars over their coats.

Discontinuance of the badge tended to occur alongside the revolutionary movements of Europe. Following Jewish emancipation in Germany and Austria Emperor Joseph the Second abolished in all the Austrian territories of the crown the wearing of the Yellow Hat. In the Papal States in France the Yellow hat was abolished in 1791 when the revolution reached the area. In the Papal States in Italy the obligation was reimposed as late as 1793, but when the armies of the French Revolution entered Italy the Ghettos were abolished. It seemed at this time that the Yellow badge of shame was just an evil memory of the past.

1939 Oct 24th, Wloclawek, SS Oberfuehrer Cramer ordered that every Jew in the town was to wear a Yellow triangle at least 15 cm in size on their backs. The order was issued on his initiative without waiting for clearance from central authority. The official order was published in the Leslauer Bote (Oct 25 1939) the order applied to all Jews without distinction of age or sex.
Application of the official orders followed rapidly in the occupied Eastern regions, particularly in Poland where they were greeted with enthusiasm.

1939 Cracow, Jews were compelled to wear the sign and it was rigidly imposed.

1939 DEC 12th, Warsaw, Jews were compelled to wear the Yellow badge.

1941 July 15th, Lvov, Jews were compelled to wear the Yellow badge.

1941 Sept 15th Eastern Galicia, (Birthplace of Sigmund Freud’s Mother) Jews were compelled to wear the Yellow badge.

In the smaller communities official German instructions were replaced by an announcement of the Judenrat.

In the Reichsgbiet (the territory of the Reich proper) the order was issued on Sept 1st 1941. It was published in the Reichsgesetzblatt and was applied from Sept 19th 1941. This date is also valid for Jews of Bohemia, Moravia, and Slovakia. The age for wearing the sign was from six years for Germany and Western Europe and ten years for Eastern Europe.

1942 May, Holland, Jews were compelled to wear the Yellow badge.

1942 June, Belgium, Jews were compelled to wear the Yellow badge.

1942 June, France Jews were compelled to wear the Yellow badge. A meeting was held in Paris in March 1942 to co-ordinate the application of the order in the three countries.

Other Occupied Countries.

1942 Sept, Bulgaria, Jews were compelled to wear the Yellow badge.

1943 February, Greece, Jews were compelled to wear the Yellow badge.

1944 April, Hungary, Jews were compelled to wear the Yellow badge.

The types of badge varied but the principle forms were as follows, Yellow stars of David inscribed with J or Jude. A Yellow armband with or without inscription. A Yellow button in the form of the Shield of David, a Yellow triangle, a Yellow circle.
This general use of the Yellow Shield of David was unknown in the middle Ages and was a refinement of the Nazis. Inscriptions on the badges were designed to resemble Hebrew characters.

In concentration camps Jews wore a sewn Yellow triangle or a Yellow striped shift to distinguish them from non-Jewish prisoners. 39

This litany of repression using Yellow, as the sign of shame placed Jews in an exposed position from which there was no escape. The compulsory use of the distinctive discriminatory Yellow sign became in the hands of the Nazis a powerful means of identification to facilitate the final solution.

1 Since I am an old fashioned feminist, I still believe that the personal is political and do not apologise for including my own family history in this thesis.

2 These camps were designed to be obliterated by means of extermination of the entire prisoner population. 25,000 Jews passed through Skarzysko-Kamienna, a Polish camp that prepared land mines and under water mines involving the use of picric acid.

3 Picric acid has the distinction of being the first synthetic dye manufacture and is the simplest dye known. It had been vaguely recognised in the 18th century as the Yellow colouring matter formed by the concentrated Nitric acid on many substances including skin. The silk dyers, Guion, Marnas and Bonnet exhibited silk dyed with picric acid at the Great Exhibition in London in 1815. Picric acid was further synthesised from oxidisation with indigo in the 19th century by Woulfin in 1826, from this it went on to be used in the manufacture of explosives. For further information on picric acid and other dyes see McLaren, K. (1938) The colour Sciences of Dyes and Pigments, Bristol, Adam Hilger Ltd.

4 For an association of bright colours to those of the southern hemisphere and to children and women see Goethe's Colour Theory (1810) Chapter on Colour and Moral associations. Generally through the text there are spurious connections made between racial and gender stereotypes and colour.

5 Green is the favoured colour of Muslim belief and culture. Pale yellow or green yellow is a yellow that corrupts the favoured green and is the colour that they first officially applied to the vestments of Jews in 850 A.D. Decree of Caliph al Mutawakkil. In Ye'or, B. (1985) The Dhimmi: Jews and Christians under Islam, London, Associated University Press, 191

6 Or Edworthy’s work is concerned with the production of alarm sounds for noisy environments such as hospitals etc, where a sound signifying danger must be recognised above the normal sounds of the environment.

7 My thanks to Martina Heintke, final year visual studies student for the translation of the text.

8 Dieterici, Fr. (1872) Dielehrre von der Weltseele bei den Araben im X. Jahrhundert, Leipzig, J.C. Hinrichs'sche Buchandlung.

9 My thanks to Professor Penny Florence for this analogy.

10 Earliest written records of colour value are found in the poetry of Alcmaeon of Croton 5th century B.C. that concentrate on the antithesis of Black and white providing the material for further developments of colour hierarchy by Democritus and Empedocles that in turn developed theories of colour harmony specific to earth, air, fire, and water later taken up by Alchemists in their own development of colour value.
‘Sun King’ being an epitaph of Louis XIV of France.

Kandinsky, W. (1977) Concerning the Spiritual in Art, trans Sadler, M.T.H. New York, Dover Publications: 93. Kandinsky gives the heaven and hell meaning of yellow a new dimension when he describes it as follows, Yellow inclines to the light. Pure yellow has a spreading movement out from the centre. Yellow is the most sensitive colour to adulteration and is very easily sufficed. The colour becomes sickly and unreal. Yellow is brash and importunate. Yellow represents the manic state of madness. Tolstoy uses yellow as a signifier of madness in Crime and Punishment, a sign taken from the Russian name for the madhouse, The Yellow House, a possible source of Kandinsky’s perception of Yellow.


To verify this hypothesis a further colour experiment would be necessary.

The chromosomes contain a part of the nucleus known as ‘chromatin’ that consists of DNA, RNA, and proteins and forms the chromosomes staining them with basic dyes before they split to form ‘daughter chromosomes’ at another phase. It seems from this that at the chromosome level, we are all female. Collins English Dictionary, (1998) Glasgow Harper Collins.

For an explanation of the ‘death drive’ See note 23 in Revolution in poetic language where Kristeva explicates this difficult concept. The self-enveloping notion of the semiotic and the symbolic acting as a dragon eating itself is what I think the death drive is symbolic of in terms of Kristeva and I therefore assume, Freud.

The Yellow Star was adopted and worn in Holland by non-Jews in World War two as an act of defiance against the Nazi edict of the use of the sign for Jews. Denmark was given a collective award by Israel in 1953 for their acts of heroism in helping Jews to escape and in risking their own lives to defend them.

My experience with students has shown that in general they regard the use of the yellow star for Jews as a nazi phenomenon and also a generational thing. Discussion of the phenomena was usually difficult and obviously embarrassing for them.

note number 26 in chapter 13. It must be pointed out that Hilary Clinton’s attack on Taliban policy was a little like shutting the gate after etc. The Taliban in fact just took over the Mujaheddin rules regarding the Burka for women. and they took it from others before them etc etc.

John Gage explains the double meaning of blue as associated with the dark and light arguing that the association of blue with light probably came from the medieval development of stained glass. Gage J. (1999) Colour and meaning, London, Thames and Hudson: 73

Broadly Byzantine art was religious art although it characteristics did overflow on to carvings metalwork textiles etc. It did not disappear with the growth of Renaissance work and along with the Russian Orthodox Church flourished until around 1453. Its main function was to act as a conduit for the education of the faithful the thought s and edicts of the theological councils. A tradition that continued in renaissance painting with Giotto.

Relying on the concept of instinct is problematic since the whole concept has been a question of debate both in Science and philosophy particularly by behavioural psychologists such as Pavlov, and Thorndike whose work on the Law of effect confirmed the problematic of inferring from animal behaviour what is occurring in consciousness, and emphasising the effects of conditioning even in the unborn such as canaries in their eggs learning song patterns before birth.

My criticism of Kristeva thetic of colour as revolutionary model comes not only from my own thesis but also from her neglect to address correctly the physiological process of colour vision. Briefly she talks of rods as receptors of colour vision with reference to blue in particular: 224. Visual receptors are divided in the eye between rods and cones the latter acting as colour receptors, Rods allow non colour vision in dim light being sensitive to light at low frequency so that people who have only rod vision or defective cone vision will either be duzyotic that is see in black and white (see Sacks, O. (1996) The Island of the Colour Blind, London, Macmillan), or be colour blind. 8% of males are colour blind and their mothers also 8% will also have a slight colour deficiency and some may in fact have extra colour vision although research on this phenomenon is still ongoing. Arguments regarding a generality of perception to colour should I feel be aware of the physical discrepancies that are part of visual perception? Referring to normal colour vision as though it were a single condition is rather
like referring to the feminine as though it were an essence particular to all women at all times. Recent realisation by John Molton (1995) in ‘Colour art and science’ that what we call normal colour vision is in fact subject to a range of variables makes the identification and selection of colour as sign an even more acculturated experience.


37 Nochlin (1994) refers to A caricature by Pissaro called ‘Capital’ in ‘Turpitudes Sociales’ in 1889 where he depicts a statue of a fat banker clutching a bag of gold with the stereotyped features of hooked nose, thick lips, and slack pot belly. Pissaro’s recuperation of the Jewish stereotype was designed to attack Capitalism and to take the image away from anti-Semites so empowering Jews with the ownership of even undesirable images of themselves: 144-148

28 Ibid

29 The figures do vary somewhat in critiques of Van Gogh, this figure comes from The Oxford Dictionary of Art (1993) and although not definitive may be more accurate than other claims.

30 Van Gogh’s madness is also well chronicled in most texts on the artist and Schapiro argues that it was likely to have been an epileptic process and not schizophrenic. Heinich (1996) argues that madness was not attributed to Van Gogh’s work until 1916, with the publication of the first biography by Duret. Duret she argues only attributed madness to his painting using a construction of the Freudian thesis of repression and art to establish his credibility as an artist of genius.

31 The use of orpiment cannot be traced earlier than the 18th dynasty. It does not occur naturally in Egypt as an ore, so must have been imported from Persia or Armenia in Asia Minor. Cornelius S. Hurbut, Jr Copyright-1995 McGraw-Hill Inc

32 Orpiment is a mineral, composition AS2S3 and crystallizing in the monoclinic system. The lustre is resinous and pearly and the colour is Lemon Yellow. Orpiment is associated with Realgar and stibnite in veins of lead. It is found in Romania, Peru Japan Russia and Parts of the United States typically the Yellowstone National Park.

33 Zoroastrians and Christians were forced to wear blue discriminatory signs and although red was sometimes used as a sign for Jews it was rare and the favoured colour was Yellow. Red was not used as a sign of difference for Jews in Christendom because it was feared that it would be mistaken as a sign of the clergy. More information on colour as a sign of discrimination can be found in, *Encyclopaedia Judaica.* (1972) *The Jewish Badge,* Vol 4, col 62-73, Jerusalem.

34 This unequal observation was probably due to the inconvenience caused to the inhabitants of Arabia by the introduction of these religious edicts that inevitably had disruptive secular effects. For more information on the disruption caused by Muslim edicts see the discussion of the Oasis of Khybar and the introduction of the dhimmi, or the treaty of Khybar in 628 AD, in, Bat, Ye’or, (1985) *The Dhimmi Jews and Christians under Islam,* London, University Press. The dhimmi forced Jews and other non Muslims of Arabia to cede half of their income and produce to Muhammad. The treaty or dhimma was the foundation on which the Jihad or holy war was built.


36 The crusade of 1215 followed the crusade of 1201 against the followers of Saladin who had closed the port of Acre against Christian pilgrims.

37 Before this time there are some fragmented and ambiguous references to the compulsory wearing of distinctive Jewish clothing in documents from the 13th century Charter of Alais 1200, but real consistency of Papal and secular legislation for the identification of Jews through the use of a Yellow, sign is directly attributable to the Fourth Lateran Council of Pope Innocent the 3rd.


Chapter 4

COLOUR ME WOMAN

Sonia Delaunay and Bridget Riley; Aspects of Women Artists as Colour

Introduction

In this chapter I discuss how feminised colour denied by phallic achromatism is problematic for two women artists. I have argued in chapter one and shown from the analysed data in chapter two that the feminine is chromatised and women are perceived and culturally inscribed as colour. I will discuss how this perception and acculturation frames women as the chromatic embodiment of all that is not the colourless phallus and as a result denies them entry to phallic fields of power and meaning. I will discuss how this negative problematic with the attachment of colour cannot be acknowledged and accepted into the phallic power dynamic, since it would entail an unacceptable fundamental change to its ‘black and whiteism’, symbolic of its power and stasis. I will analyse how phallic denial of colour in art as argued by Batchelor (2000) is more than just a convention in that it affects the value of the work of women artists at a very deep level, requiring that their colour be denied and framed in a way that meets the criterion of a phallic world still dependent on ‘black and whiteness’ for its definition and theoretic substance.

My analysis will be framed around the work of two women artists, Sonia Delaunay 1885-1979 and Bridget Riley, born 1931. The artists do not share a common identity because of their sex, and while they do share a common artistic identity, as woman perceived as colour this impacts on their oeuvre in different ways. I discuss how their embodiment as colour affects their interpretation within art discourses in ways that are both subtle and overt. I will refer to critical appraisals of the artists and their use of colour that demonstrate the difference in critical appraisal of colour denied and
colour in the body and the effects of these critical constructs on cultural perceptions of the artists work. Informing my argument and discussion are critical texts of the artists' work and the recorded opinions of their attitudes to colour in relation to their work. I shall refer to the biography of Sonia Delaunay and interviews with Bridget Riley to answer questions regarding their use of colour and art practice. My theoretical analysis will be informed and assisted by feminist theorists such as Bal (1991), Battersby (1994), le Doeuff (1978, 1989, 1991) Florence (1995, 1997), Grosz (1994), Kristeva (1974, 1980), Lichtenstein (1993), Nochlin (1985, 1991) and Pollock (1988, 1992) who have engaged with the persistent problems of exclusion for women and the problematic of the tangle of pejorative perceptions of the feminine body and women's ability to achieve isonomy. Each feminist theorist in her own way has painted the glass ceiling in order to reveal it and its boundaries and I in turn will add my colour in order to make clearer the boundaries that perceptions of colour create. I will also refer to the philosophers Aristotle, Democritus, Locke, Mill, Plato and Wittgenstein in some instances in direct response to their theorisations of colour and in others to their general philosophy of perception, allowing these to overlap where useful and productive. I will refer to Lichtenstein (1993) and Batchelor (2000) for their specific references to colour and its pejorative associations to the feminine.

I discuss how the sobriquet 'colourist' acts as a double bind when attached to women artists being less a source of flattery than a way to flatter and insult at the same time. I argue that when Damase (1972) describes Sonia Delaunay's use of colour as residing along with sensibility 'in her skin' and by Cohen (1978) as 'atavistic' her body and work are etched with discursive systems that feminise and ethnicise at the same time. I argue that Sonia Delaunay, a Russian Jewish woman artist whose identity was arguably subsumed by her marriage and her need for acceptance, may have used
Sonia Delaunay, Flamenco Singer 1916.
Illustration 11
colour and geometric form at a deep level to express a symbolic reality beyond networks of power and their definitions.

I discuss Bridget Riley’s work in terms of the construction of an institutional woman artist masculinised and canonised through formal, academic and classical theorisations of her art. The art product structured in this way becomes a Phalliphermaphrodised feminine art, or an art without colour. I discuss how colour in Bridget Riley’s work is described as a product of form or as a surrogate of itself. I argue that colour for Riley has been a problematic needing a continuous de-achromatisation of her work.

Section 1. SONIA DELAUNAY:

I am not a poet. I am a free spirit. I have no method of work. I have a sex. I am not very sensitive. I do not talk objectively of myself. All is Life and the Body. (Sonia Delaunay 1978: 55)

What was originally nothing but a hypothesis, to be proved or disproved by actual facts, will in the course of consistent action always turn into a fact, never to be disproved. In other words, the axiom from which the deduction is started does not need to be, as traditional metaphysics and logic supposed, a self-evident truth; it does not have to tally at all with the facts as given in the objective world at the moment the action starts; the process of action, if it is consistent, will proceed to create a world in which the assumption becomes axiomatic and self-evident. (Hanna Arendt 1961: 87-88)

In 1916 in Portugal the artist Sonia Delaunay painted a large oil entitled The Flamenco Singer. (Illustration 11) The painting although figurative is constructed
from coloured circles and was part of a transitional period from her earlier representational work through the *electric prisms* done between 1912-1914, when like Frantisek Kupka she explored the coloured circles or coloured haloes produced by the artificial lights of Parisian night life. That journey led to the *Flamenco Singer*, a work that involved both the figurative and abstracted coloured auras of light produced by the heat of the body rather than the heat of light. This transition in painting style gradually moved her from her early representation to her later obsessional work in pure geometric abstraction.

The *Flamenco Singer* was also an expression along with many others of the symbolic move from Romantic Impressionism to abstract geometric modernism. For Sonia Delaunay, the transition to abstraction once achieved was sustained throughout her twenty years of design work and large illustrative work for exhibitions such as *The Air Pavilion* at the World exhibition in Paris 1937. The transition was completed by 1938 and was where she stayed for the rest of her long productive artistic life.

The mesmeric coloured circles of *Flamenco Singer* create a strange catachresis of the traditional Madonna and Child composition with the addition of a dark diffused male figure in the background. The colours of the circles are prismatic, red, orange, yellow, green, blue and violet and in their swirling pace create the circular forms of the woman, child and background that all except the male figure are dissolving into. The male figure who we know is male because the signifiers of jacket and cap are black, a colour that is the general symbolic of maleness and phallic power and is also the conventional colour of the clothes of male Flamenco singers. The male figure has a solidity that the mother and child do not have, he stands holding a guitar like shape highlighted in white that leads our eye to the central circles of red, blue, yellow, green, black and pale brown. This centre of colour and sound are linked to the woman and...
child by bands of colour that run from the child’s head into the guitar. For Sonia Delaunay music and colour were linked as

[...] Haloes of celestial reverberations, a mysterious language in tune with the vibrations of life, the life itself of colour. (Sonia Delaunay 1978: 44)

Colour was the pivotal part of Sonia Delaunay’s life’s work and her perception of it grew from deeply felt feelings and ideas that she accepted as part of her body and life.

A general interpretation of the representation of the woman and child as colour and the male as black, make visible and reflect acculturated ideas of colour that are as I have suggested in chapter two, the underlying patterns of perception informing and structuring our daily consciousness, a consciousness saturated with the colour of our acculturated daily perceptions of life. Such underlying patterns of colour seemingly so fragile but in reality so strong are resistant to change, even it seems when change appears to be gathering pace. Or perhaps it is as Florence (1997) suggests, that the ‘seeming velocity’ of change with regard to institutionalised symbolic order is illusory, and in reality, the change is

[...] more of a decomposition into a kind of surface fibrillation over either an unchanged and resistant core or a phase of intermittence. (Florence 1997: 253-266)

The philosophical idea of woman and colour as indivisible seems to be a core belief moved across by history and culture but only altered on a surface pertinent to that time and place. There may appear to be alteration or peripheral alteration, but core values regarding colour and femininity remain the same only mutating in the semiotic moment, then like cell memory in rubber, snapping back into shape once the pressure is off.
The Delaunay's in Vila do Conde
Portugal summer 1915

Illustration 12
The painted areas of coloured darkness and brightness in the painting can be read as a metaphor for the dream or 'le reve' of Sonia Delaunay (1978: 32), a dream state as I will show that she often speaks of in her life. The painting also resembles a photographic family portrait taken at the same time, (Illustration 12) but transforms the black and white of the mechanical portrait to a painterly coloured dream sequence of her life in Portugal at a time of escape or exile for her and her family.¹

The swirling colours seem to engulf the figures in a miasma of visionary fantasy. The woman’s face with eyes closed is slightly turned away and is reminiscent of the closed eyes of Kupka's *Gamme Jaune* (discussed later) she holds the child close to her and in her reverie it seems as though the two are dissolving slowly into the coloured circles of light that both surround and is them. Repeating the idea of ‘halo’ as bodily emanation in light Sonia Delaunay speaks of her spectrum colours as

> [...] haloes of unknown colours and shades, turning and vibrating like unknown things fallen from the sky, friendly and mad. (Sonia Delaunay 1978: 43)

The coloured circles of Sonia Delaunay can be read as a symbolic representation of her inner life as discussed later when account is taken of her own declaration of the importance of ‘le reve’ or the dream to her existence. In the light of these insights the coloured circles can be read as an obsessive expression of a chromatic and abstract reality that Sonia Delaunay clothed in sensuous colour and abstract form, a further reflection of her attachment to the idea of halo’s colour and light. In this dream she was able to live a life unclouded by her other more sordid and imposed reality, where she could escape to a symbolist dream of the real artist, whose colour and line could represent ideas beyond conventional reality and form.
Naming

The name of Sonia Delaunay’s birthplace is spelt in various ways in various texts. Damase (1972) does not mention it or try to spell it. Cohen spells it Gradishsk, and states that ‘Sonia’s family name was Stern-she came from a Jewish family in Gradishsk.’ (Cohen 1976/77: 5-10) Baron in his biography of Sonia Delaunay spells it Gradizhsk, ‘Born November 14th in the Ukraine town of Gradizhsk Russia.’ (Baron 1995: 158)

Different authors also report Sonia Delaunay’s forename differently, for instance Baron (1995) states that she was born as Sarah Stern in 1885 but Damase (1972) claims that she was born as Sophie Stern. The only forename we can be sure of is her adopted name of Sonia that seemed to be with her consistently following her supposed adoption by her uncle and the move to St Petersburg in 1890.

Diligent searching of many maps in the British library map room eventually located the small town /village/ Shtete of Gradysk, the definitive spelling given by Yad Vashem is Gradisck and is the one I shall use. Her critics and biographers do not dispute Sonia Delaunay’s birth in the area of Russia called the Ukraine, nor is Ukraine ever spelt incorrectly.

The inconsistent spelling of Gradisck is possibly because of its geographical location between Poland and Russia both of whom periodically annexed it as spoils of war. But for Sonia Delaunay’s biographers, who did not feel motivated to establish a correctly named place for her origin, its Jewish/industrial associations may have been the cause of their lack of enthusiasm for precision. The colourful Ukraine is where her writers prefer to locate her, since this is where they locate the source and influence of
her use of colour. For Damase the Ukraine is her place of origin and the origin of her colour,

The memories of the little girl who lived in the Ukrainian plains are memories of colour and light. Along a path between walls of snow the little girl goes out to fetch her father home for lunch. All around, long, low, white houses. Soon winter passes, and the endless, rolling countryside is ablaze with sunlight; nature is resplendent, manifesting her faith in life, and in her thick, rich soil; melons and watermelon grow; fields of red tomatoes encircle the farms; gigantic sunflowers, deep gold with black centres, reach up to a clear sky. Carts roll by, drawn by the same swift, strong horses, which had pulled the tinkling sleighs through the snow.

Everything is vast, boundless, and full of a joy, which makes us think of Gogol, another child of this land. Later, a large deserted beach on the shores of the Baltic Sea; and the same little girl, five years old, picking up pieces of amber in the fine white sand.

(Damase 1972: 37)

This elegiac description appertains to Sonia Delaunay’s birth in 1885 in a Russia only twenty years after the emancipation of the serfs to peasants, and where poverty and death walked hand in hand across the Russian landscape.

As Cowie argues in her article Woman As Sign

[...] the name is more than a name, it is a sign and part of a system of representation and a point of production of definitions,

(Cowie 1978: 92-95)

that in the case of Sonia Delaunay would have led to her suspect origins and therefore to an uncomfortable fact to be brushed over or ignored, as Damase (1972) ignores it in his elaborately illustrated and beautiful coffee table book on Sonia Delaunay.

In discussing the importance of the correct naming of Elizabeth Siddal, Griselda Pollock foregrounds the difficulty created by the absence of fixed names when attempting to define a woman artist. As Pollock argues Siddal (as opposed to Sidall, the correct spelling) functions as sign. ‘More than the name of an historical personage it does not simply refer to a woman, or even woman’ (Pollock 1989: 55) it is a system
of representation for producing values for the signified that will promote an image designed to promote woman as sign. Pollock argues the recovery of the history of women artists is ‘prime necessity because of the constant obliteration of their work and persona in what passes for art history.’ (Pollock 1989: 95)

The ground for art history and artistic practice is structured by and structures gendered power relations where practising women artists live and work. It is in terms of woman as colour that critics have both promoted and contained Sonia Delaunay, as this elision of her birthplace shows. A generalised place such as the colourful Ukraine is used to maintain as ‘natural’ her use of colour as signifying a colourful and joyful life closer to Gogol than Gradisck. But for an artist from Gradisck, where nails and other products of heavy industry were produced in smoke and dirt, to make such an art required the power of imagination, of production rather than reproduction.5

Sonia Delaunay adopted the name Sonia Terk for her first mixed exhibition in 1908 at the gallery *Notre Dame des Champs* of the art dealer Uhde. In 1908 she married Uhde using her Jewish name Sarah Stern on the marriage certificate, she did not adopt Uhde’s name for her profession as painter, clearly signalling her independence of thought, and her confidence at that time in her Jewish identity. Her independent choice of name at that time pre-empted the question of naming for married women raised by feminists fifty years later, a debate that still continues (details of her marriage certificate are in note6). Following her divorce from Uhde and after what is reported as her second marriage to Robert Delaunay in 1910 she signed her work Delaunay Terk, at this point repudiating the Jewess Sarah Stern. At around 1920 the name Terk disappeared and for the rest of her life her work was signed Sonia Delaunay. It is interesting to note here that the name Terk (a name claimed to be her
Uncle's in St Petersburg) was given by Russians to the nouveau riche, particularly nouveaux riches Jews thought to have more money than taste. The adoption of the name Terk may have been an example of Sonia Delaunay's ironic inventiveness, in this instance in the face of opaque French anti-Semitism and also by the need to present an acceptable face, for as a Russian Jewish émigré at the turn of the century in a France not long past the Dreyfus affair, acceptance would have been easier if assumptions of Aryan wealth and connection could be made. The orthodox name of Sarah Stern would have framed her as the Jewess that she was, whereas the name Sonia Delaunay was aristocratic (if only by connection) and French.

Inconsistencies around the spelling of her place of birth, her own name changing, plus critical mistakes in translation of her autobiography, are passed from one text to another. The word 'rente' as used in Sonia Delaunay's original French text translated means 'income or allowance', Ma Tante m'assurait une certaine rente chaque mois, (Sonia Delaunay, 1978: 32) which I translate as 'my aunt assured me an allowance'.

In all biographies and articles on Sonia Delaunay the French word 'rente' is referred to as rents, as in money from properties. Indeed Cohen (1978) claims that,

She had the inheritance I recall, of the rents of 100 apartments in St Petersburg, (Cohen 1977: 5-10)

an uncorroborated statement, made possibly because of the recurring misuse of the word rente and because of Sonia Delaunay's lack of intervention in correcting statements of this nature. The difference between an allowance and rents from 100 apartments is huge, not only in fiscal terms, but also in perceptions of White Russian wealth and the framing of Sonia Delaunay. The word 'rent' also implies ownership of property giving Sonia Delaunay the added status of a person with more than ordinary wealth.
The confused spelling of Sarah Stern's birthplace begins the literary obfuscation of her life, whereas her name changing signals a deliberate and strategic shift in identity. As Carlo Belloli says of Sonia Delaunay in his catalogue introduction for the exhibition *Il Contributo russo alle avanguardie plastiche*, Milan 1964,

"In the more than fifty catalogues and essays consulted for this text, only one identifies Delaunay's birthplace. Although she may well recollect events of her childhood, Delaunay never reveals them completely. (Belloli 1964: 117)

The confusion surrounding the name and birthplace of Sarah Stern help to promote her as a woman of mysterious and fascinating childhood located somewhere beyond her Jewish origins and ancestry. Critical perceptions of colour and Gradisck are therefore significant to understanding how Sonia Delaunay is framed as a woman, a colourist and a practising artist.

**Biography**

'Sonia has an atavistic sense of colour’ (Sonia Delaunay 1978: 32)\(^8\)

Inaccurate or lazy use of biographical facts by critics would show a lack of respect, but it is reasonable to say that what appears to be careless or insensitive reporting of facts may be a reflection of the acculturated perceptions of women and women artists that slants such inaccuracies toward a particular point of view. In Fay Lasner's interview with Cohen for *The Feminist Art Journal* he claims that Sonia Delaunay

[... ] did not have a show from the time of her first exhibition with Uhde until she showed again at the Gallery Bing in 1955. That is to say there was a period of roughly 45 years in which there was no public exhibition. (Lasner 1977: 5-10)

This is a statement that could lead us to believe that she did not show any work in this time. On the other hand whilst Baron (1995) agrees that she did not have a one
woman show between 1908 and 1955 he lists twenty two mixed shows where her work was exhibited along with Arp, Tauber–Arp, Albert Magnelli and Robert Delaunay amongst others, in Paris, Portugal, Poland, Berlin, Netherlands and Jerusalem. This kind of critical inaccuracy may also be said to demonstrate a disregard for the truth of the lives of women artists as they are culturally destined to remain on the margins of phallic space. Unlike Bridget Riley’s important control of her critical biographical attributions (discussed in section 2), Sonia Delaunay did not have absolute control over the details of her life as reported by critics and Journalists etc. Delaunay was not and is not consistently promoted by institutions of art or official art histories edited by her. The inconsistencies of Sonia Delaunay’s biography beginning with the spelling of her birthplace are part of a framing of her and her work as a sign of the mysterious female colourist, ethnic, different, lonely and neglected. A framing that does not promote her as a symbol of classical permanence within a canon that has clearly defined routes of artistic and theoretical connection from the past to the present, but as the exotic and instinctive feminine painter who does it without thought or theory who is incapable of reason and whose mind is concerned only with sense and the impulsive response to sensory stimulus. Indeed Sonia Delaunay says of herself that she ‘was quiet, listened, and was happy when she was asked to speak’ (Delaunay Sonia 1978: 59), or as Cohen quotes her as saying, ‘Robert was the theoretician; I would listen,’ (Cohen 1977: 5-10)

The critical slotting of Sonia Delaunay into the classic stereotype of the silent compliant and instinctive woman raises the question, why did she comply, not only with this but also with Robert Delaunay’s later description of her sense of colour as atavistic, a legacy of her racial or antecedents origin? Compliance is not Sonia
Delaunay’s sin alone, it is a condition she shares with women in general that comply with versions of themselves that are less than they are or can be because to argue would be to challenge or bite the hand that metaphorically feeds them, or the hand of phallic law. From the acceptance of lower pay to the acceptance of a weekly beating women comply with versions of themselves as a survival strategy (not always successful) in a reality that denies them their colour and a clear true voice. The question of compliance or ‘consent’ to law and social and cultural norms was addressed by Arendt (1958 and 1962) when the concept of objective or subjective consent to a condition that is oppressive even in a minor degree is discussed by suggesting that consent forms part of a contract or agreement whereby,

We all live and survive by a kind of tacit consent, which however it would be difficult to call voluntary. (Arendt 1962: 88)

This statement is a reflection of the Parsonian argument regarding the compliance and co-operation of subjects in a system of cultural patterning. Arendt’s argument that for oppression to work consent or compliance by the oppressed is necessary, brought her opprobrium especially from the Jewish community who saw any suggestion of compliance in their persecution in the holocaust as a betrayal. The argument that consent or compliance are structural components of oppression (along with paradoxically dissent) presents us with an uncomfortable notion that we must unpick if we are to attempt to understand the complicated structures that support social and cultural oppression, where compliance or consent are important factors in the whole dynamic. As Parsons (1951) has argued regarding the repetition of cultural patterning, the pattern or action may not seem to be beneficial to the subject or actor but their compliance in the overall pattern of action may be necessary to the maintenance of that particular social and cultural structure. The dynamics of power distribution within the structure are dependent for their survival on the compliance
of the subjects involved in the patterned action, and in Parsonian terms cultural patterns are amoral and concerned only with the self-replication of the action patterns. As I have posited in chapter three with regard to the chroma, acceptance of a perverted response mechanism may result from the fundamental desire for reward and protection in infancy and may lay the foundation for the acceptance of such paradoxical and schizophrenic responses in later life. In the same way my theorisation of the chroma attempts to understand the origins and establishment of patterns of behaviour that do not immediately present as beneficial to the subject. Sonia Delaunay’s compliance read in this way is no more than a reflection of a wider behaviour agreed upon as a form of social contract and control.

Sonia Delaunay’s compliance can also be read as an expression of her own working of the law, a compliance that fits Suleiman’s (1990: 162-163) ‘double voicedness’, where she argues that woman engaged in avant-garde practices were not concerned to produce a mimesis of male practitioners, (such as Robert Delaunay the husband of Sonia Delaunay) but also to create as Suleiman argues a ‘substantive revision’ of male avant-garde work. Using this reading, Sonia Delaunay’s acceptance of being non-theoretical (Robert was the theoretician) may be interpreted as a rejection of what she may have considered unimportant or irrelevant to her art practice, or even further it may have reflected her disdain for attempts to theorise a phenomena that her Russian cultural background regarded as reality. We can be fairly sure of Sonia Delaunay’s rejection of books since she states in her autobiography that she stopped reading everything except poetry at the age of fifteen when her brother took from her a gold medal prize, a history of all the philosophies. She states that Spinoza was her Master ‘Spinoza était mon Maître,’ (Sonia Delaunay 1978: 14) and she goes on to say that she devoured the book but that when she got to Kant her brother took it and she never forgave him. Spinoza’s philosophy regarding the apprehension of relations
between things, adopted an idealised view that all relations are internal and consist of complete pluralities or double aspects. This expression of the double aspect may have been what attracted Sonia Delaunay to his work, since her own philosophy was one that embraced the continuities and relation of all things.

A feminist maxim to accept the words of women, leads me to agree with Battersby’s attitude to the writing of women artists and their body of work where, as she says:

> We can only reinstate women creators in cultural history when we pay them the compliment of treating their works with the care and respect that we accord to the individuality of (white) males.

And even further I agree when Battersby states that:

> Men would not have made silence a virtue for women unless women talked— and unless Men were afraid that women would be heard. (Battersby 1989: 231)

To not listen and try to understand within context the words of Sonia Delaunay as an individual creative artist who can stand-alone and be judged as such would be to be deaf as Battersby states, ‘to the roar of our grandmothers and great grandmothers voices’. (Battersby 1989: 231)

We may compare the ‘listening’ of Sonia Delaunay, to the ‘weaving’ of Penelope, who used the pretext of weaving to achieve her own agenda. However, Sonia Delaunay’s own words in her autobiography were not always instrumental as I will show, in the structuring of subsequent books of her life, a fact demonstrated by the apparent careless translation of her words, a carelessness that may conceal both an intentional agenda and Parsonian patterning.

Following Delaunay’s reported adoption by her wealthy Jewish Uncle, Henri Terk, at the age of three, she is said to have received a good general education in St Petersburg and at sixteen showed great talent in drawing. At eighteen she went to Karlsruhe
Sonia Delaunay: Self portrait 1904, Possibly drawn in Finland. 
Illustration 13
Academy of Art in Germany and studied drawing and anatomy (Illustration 13) with Ludwig Schmidt-Reutter. Her training there was classical and formal in the sense that it followed academic rules of drawing and structure pertaining in art academies at the turn of century. In 1905 Sonia Delaunay went to Paris to study at the Academie de la Palette where Amedee Ozenfant and De Segonzac were her fellow students. After completing her studies Sonia Delaunay Unlike Bridget Riley did not have a spectacular exhibition like The Responsive Eye 1972 to launch her career internationally, nor did she win the Venice Biennale as did Riley and as a result enjoy the universal publicity that followed.

Throughout her long life Sonia Delaunay exhibited her work in many shows but despite this her work was not singled out for praise in the way that Riley’s work has been, or in the way that her second husband Robert Delaunay’s work has been, for example his series of Eiffel tower paintings 1909-1912 of which much has been written and theorised. I will not be illustrating his work as I wish Sonia Delaunay’s work to stand on its own merits and not be constantly compared to her second husbands. As Le Doeuff argues regarding the relationship of Simone de Beauvoir and Sartre

She had to play the part of derived subjectivity, make herself the echo of her master’s voice to preserve Sartre’s interest in her as a lover. (Le Doeuff 1991: 176)

But more than this le Doeuff argues, the concept of ‘couples’ requires a positioning of the female as second best in a relationship that requires subservience to a better more theoretical and intellectual half. Le Doeuff states that de Beauvoir was enmeshed in a perception of couples that prevented her from taking her own philosophic power

All her life she kept repeating that she ‘left the philosophy to Sartre’ as though there was only room for one person.

Sonia Delaunay was also enmeshed in a perception of couples where
It seems that the couple did not consist of a relationship between two formed and changing beings, but between a formed self-assured man and a sort of tabula rasa. (Le Doeuff 1991: 136-137)

In order to establish Sonia Delaunay’s singularity I will agree that there are similarities in their abstract work for instance in *Rhythm Colour 1938* by Sonia Delaunay and ‘*Rhythm No 1 1938*’ by Robert Delaunay, (Illustration 14) but I will show that the similarities are obvious and superficial and on examination are closer to an expression of Suleiman’s ‘double voicedness’. I will work the comparisons of Robert and Sonia Delaunay to show the difference in their work and also to demonstrate the difference in critical appraisals of their work that will help to illustrate in general the difference applied to the use of colour by women and men artists.

Sonia Delaunay embraced the abstract oeuvre with a greater commitment, a different perceptual approach and an enthusiasm that informed her use of the geometric throughout the twenty years of her design work. Robert Delaunay was not single minded, he painted a great many portraits between 1921 and the early 1930s when he once again returned to exploring abstraction. In answer to Lasner’s question regarding the difference between Robert and Sonia’s work Cohen Replies,

She could be focused while he was not because she had a singular vision,

Cohen enlarges his explanation by talking of the contradictions in Robert Delaunay’s personality, [... ] whereas with Robert the contradiction was resolved in different ways namely that everything that was diverse in his own personality went into painting. Sonia had a single obsession with abstraction. In Sonia Delaunay it would be applied to an immense amount of surfaces. (Lasner 1977: 5-10)
The exploration of the circle or disk by Robert and Sonia Delaunay followed different lines of enquiry. As Buckberrough points out

Robert Delaunay's Disk from the early Paris period, divided into four parts, in which both colour and form were carefully controlled,

and were a result of his experiments of close observation of the sun and its effects on the retina. Whilst as Buckberrough states

Sonia began her own experiment with abstract disks of a very different sort (Buckberrough 1980: 48)

coming as they did from her observation of geometric forms in nature and the coloured spectrums of artificial lights and of course her free use of colour uninhibited by any theoretical input and an excellent sense of design. The two divergent lines of enquiry epitomise the cultural and perceptual chasm between what is deemed to be the masculine and the feminine mind. This pattern of enquiry and work fit exactly into what Battersby describes when she speaks of what needs to be done to reinstate women creators when we recognise that they were

[...] writing as women who emerge from a female situation (which needs to be explicated), and who fit into patterns of patrilineal and matrilineal continuity. (Battersby 1989: 231)

As to the use of colour, Robert’s colour is described by critics as analytical, clever and theoretical, Sonia Delaunay’s as bodily and of the senses, sensual. Duchting dedicates two pages to a description of Robert’s development and application of simultaneous contrast theory discussing his fenetre works 1912 in depth and theorising them as

[...] works of plastic life, nota bene, as far removed from tapestry as a Bach fugue

and of his colour

[...] his prismatic palette lent his motifs a brilliance removed from reality. (Duchting 1994: 25)

Duchting’s descriptions distance Robert’s work at once from tapestry/craft, reality, and the materiality of colour, elevating it to a brilliance that is beyond earthly and
bodily contamination. By contrast Duchting description of Sonia Delaunay's use of colour during the same period begins by stating that

Sonia brought with her an instinctive use of colour, and a feeling for ornament and decoration which went back to her Russian roots. (Duchting 1994: 25-36)

As Buckberrough points out the use of the word ‘craft’ can be misleading when the English meaning of the word craft is applied to the French word métier.

Buckberrough explicates Robert Delaunay's use of the word craft thus

[...] we find that the important aspect of the term ‘craft’ in Robert Delaunay's work is that of technical skill, the process by which the world is transformed. (Buckberrough 1979: 105)

The problematic of linking the work of Sonia and Robert Delaunay is highlighted by this unified application of the word craft to their work. Robert’s use of the word métier was in reference to the technical facture and its theoretical input to his painting, whereas the use of the word craft to Sonia Delaunay’s work by critics such as Cohen was always in reference to her decorative design work.

Such phallic theorisations of facture, work and colour dictate the means by which an intellectual balance can be achieved and artists can protect themselves from a somatic and chaotic world of colour and pleasure. The signification is one of a literary, art historical and theoretical attribution of Fauvism and Orphism to Robert and an illustrative, non-theorised coloured and derived attribution to Sonia.

But if Sonia Delaunay's oeuvre and colour was a separate and distinct body of work it comes from sources that emphasise both colour and an underlying orthodox Jewish appreciation of the geometric as the only true form of representation, since to portray or create the figure or the figurative is in Judaism (and the Muslim faith) to imitate the creativity of God. Neither would be likely to increase appreciation of her work.10
The feminisation of colour requires an unquestioning acceptance of its gendering by those deemed to be colourists since to be a colourist is to be feminised. The question as Grosz suggests is concerned not just with inscriptions, 'simply imposed on the individual from outside' but is concerned with impositions that are apparently in a sense 'sought out' (Grosz 1994: 138-159)

The question is not the stereotyped one of why do women collude in their own inscription, but rather how do such collusions serve the subjects inscribed? To take the argument of consent a little further the condition of collusion with an oppressor certainly arguably requires the compliance of the oppressed but such a collusion may be read as a strategy of survival or as Grosz suggests a strategy of resistance and survival. When power lies beyond the remit of a protagonist in an argument or criticism the powerless response may be to create closure by using a verbal shrug such as the word 'whatever' signifying capitulation without concession. Delaunay had in a sense no alternative but to accept the effects of her inscription as colour together with the penalty of an inscription that framed her work in an instinctive and femininised art. This inscription signalled to her normalised putative audience (subjects perceiving men as black or blue and women as pink or colour) that her work was as it should be, inscribed by a colour corrupted by what Batchelor describes as 'the terrors of the flesh'. (Batchelor 2000: 31) In this way Sonia Delaunay and her work became entangled in a double bind of admiration and loathing, an ascent into delight, and a descent into a colour that is deemed to be as Batchelor states, 'Sensuous, intoxicating unstable, impertinent,' and where there is only a, 'loss of control, loss of focus, and
worst of all loss of self.’ (Batchelor 2000: 31) Delaunay’s actual use of colour remained illegible within the dominant.

In western art cultures a woman artist biographically described as an instinctive colourist unknowingly puts herself beyond the kind of criticism that will treat her work seriously and render it colourless, thus making it an institutionally acceptable commodity. For as Batchelor argues regarding the denial of colour in art and art criticism

Forms of Chromaphobia persist in a diverse range of art, from more recent years- in varieties of Realism, for instance, with its unnatural fondness for brown, or in Conceptual art, which often made a fetish of black and white. And it is in much art criticism, the authors of which seem able to maintain an unbroken vow of silence on the subject of colour even when it is literally staring them in the face. (Batchelor 2000: 31)

What Batchelor does not say is that it is the ‘vow of silence’ on colour, which validates the work of art, removing it from the kind of contamination that colour brings. Batchelor understands the problematic that colour is and even describes the silence of critics as a prejudice and as he states a prejudice that is ‘bound up with the fate of Western culture’, and as such has in Batchelor’s opinion been unchecked and passed unnoticed. And yet it is a prejudice that is so all embracing and generalised that at one time or another, it has enrolled just about every other prejudice in its service. If its object were a furry animal, it would be protected by international law. But its object is, it is said, almost nothing, even though it is at the same time a part of almost everything and exists almost everywhere.

Batchelor continues his argument by implicating the main institutions of culture and education in the promotion of chromophobia

Generations of Philosophers, artists, art historians and cultural theorists of one stripe or another have kept this prejudice alive and warm, fed and groomed. As with all prejudices, its manifest
David Hockney: A Bigger Splash, 1967
Illustration 15
form, its loathing, masks a fear: a fear of contamination and
corruption by some thing that is unknown or appears
unknowable. (Batchelor 2000: 22-31)

But Batchelor does not go on to relate the Chromophobia of critics and others to the
means whereby colour in art is rendered acceptable. In this way critics and art
historians such as Knight, Schiff and Weschler are able to promote the work of
painters such as David Hockney without once referring to colour as a critical aspect
of his work. Scouring the book of Hockney’s Retrospective 1989, a book filled with
wonderful reproductions of his work that are all colour, I found no reference to his
use of colour as an informing influence on his work. Instead the references are
concerned with him as ‘one of the most articulate artists of our time’ and again ‘His
lectures with their clear and provocative insights have become legendary’.

Christopher Knight describes his painting _A bigger Splash_ 1971, (Illustration 15) as

[... a large square canvas depicting the splash made by a now
submerged diver, claimed as an affectionate image of the blank
good life under the Californian Sun. (Baron and Tuchman eds
1989: 10)

The blues in the water, the yellow of the diving board are not deconstructed nor is
Hockney’s attitude to colour ever questioned or discussed.

Duchting describes Sonia Delaunay’s painting ‘Rhythm Colour’ 1938 as a painting of

[... reds, blues, greens, and yellows and achromatic whites, blacks
and greys, making up her richly contrasting palette, all lying flat
within their respective geometric forms. (Duchting 1994: 81)

This thematic style of analysis is applied unstintingly to Sonia Delaunay’s work,
alongside comparative critiques of her husband Robert’s and her abstraction. Sonia
Delaunay’s work is never theorised other than through her geometry and her ‘flat
slabs of colour’ as though that was all there was to see. Spate (1979) discusses at
length the involvement of Robert Delaunay in the development of Orphism, Sonia
Delaunay’s work is mentioned in relation to her husband’s and her non theoretical
contributions to the orphic oeuvre is discussed with particular reference to its influence on her design work. Spate discusses Robert Delaunay’s work as a colour analyst and his use of dense colour and claims that it may have been influenced by his wife

It is possible that Delaunay’s use of denser, more material colour owed something to his wife who seems to have resumed painting at about this time. Her first new paintings had none of the colouristic vitality of her Fauve works, but in her collages for book bindings and posters, the colours were more dense and opaque than Roberts, and indeed he later emphasised the significance of the fact that her use of colour was not influenced by cubism (Spate 1979: 202)

This depressingly familiar critical analysis of Sonia Delaunay’s work demonstrates again an unconscious attribution of the possible influence of her feminine material non-theoretic colour on her husband. As a result of this kind of attribution the work may acquire marginal interest but never serious or structural significance.

Despite Sonia Delaunay’s collusion and the resulting temporary publicity and renewed interest in her work, the publication of Damase’s biography in 1972 did not alter the fact that Sonia Delaunay remains a footnote in most biographical dictionaries. Even in works written by her accepted art critics and herself, Damase (1972) Cohen, (1976) Sonia Delaunay, (1978) Duchting, (1993) Baron (1996) she is framed as an adjunct to her husband Robert Delaunay and the Orphism said to have been developed by him. Cohen speaks of her non-inclusion in the exhibition catalogue of 1936 where Robert showed six works and Sonia two. Sonia’s name appears nowhere in the characteristically knowledgeable introduction by Alfred H. Barr, Jr where the fact of her omission is reported but not commented on. Cohen replies to Fay Lasner’s questions regarding Sonia Delaunay’s contribution to Orphism by saying
I think the question is not whether Sonia was involved in the origins of Orphism but whether Sonia extended almost intuitively the experimentation of Robert. (Cohen 1977: 5-10)

In Duchting's Delaunay sub titled 'Sonia Delaunay' he introduces his comments on Sonia Delaunay's work by prefacing them with explanations of what Robert was doing at the time. In reference to what is described as the Fauvist works of Robert and Sonia, two pages are devoted to an art historical development of Robert's transition from Impressionism to Fauvism, framing Robert's work as an influence on the development of Picasso and Braque and the development of Cubism. Sonia Delaunay is given four coloured reproductions of her work plus a brief exposition to the illustration of Yellow Nude connecting her work to Die Brüke through van Gogh and Gaugain. Duchting says of Sonia Delaunay's ascribed Fauve works that they have 'powerful colours and simplified forms pointing to the strong influence of Fauvism' (Duchting 1993: 12-13), not as of Roberts that they are Fauve but that they are influenced by Fauve. The Fauvist style was based on the use of intensely vivid non-naturalistic colours, where trees could be red, skies green and skin yellow. Colour used in this way was freed from its traditional descriptive role and the extreme intensity of the colours was intended to foreground the emotional and decorative nature of the works, a genre bound to have a short life based as it was on the expression of emotion and the decorative. The Fauvist use of colour to produce emotional effects was similar to the use made by German Expressionists of colour in portraiture, all influenced by Van Gogh and Gauguin. Toulouse-Lautrec made a similar use of non-naturalistic colour in his paintings in his louche depictions of the Moulin Rouge.

Sonia Delaunay's own description of her so called Fauve works reinforces the association of the colours of the works to the wild animals that the critics alleged painted them. Sonia Delaunay says of her work of this time
[...] her creative source is instinctive like her animal power, and furthermore, that it was from a very strong desire to go beyond Fauvism that my work was born, and finally she condemns them, I reproach the Fauves for not being strong enough (Delaunay Sonia 1978: 20) 12

Sonia Delaunay’s own second besting of herself is apparent when she says of her artistic relationship with Robert

What intense years, explosive for Robert and for me! Delaunay prophesised and did not stop. Before the war, Brilliance, Robert lit the fires in all the senses, me, on earth, I collected the fallout of fire. (My translation Delaunay Sonia 1978: 45)

Baron reports what he calls ‘the one satisfying event of 1964’, for Sonia Delaunay, that is the donation of 117 works by herself and Robert to the Louvre. Baron quotes the words of Jean Cassou the art critic and historian

The generous donation of Mme Sonia Delaunay constitutes an inestimable enrichment for the Musee National d’Art Modern and confirms in a striking way the place Robert Delaunay occupies and at the same time, indivisibly that of the couple Robert and Sonia Delaunay. (Baron 1995: 150)

The biographical coupling of Robert and Sonia Delaunay did not result in an equality of action, good for both, but a tandem unity in which the intellectual and theoretical Robert Delaunay is always in front of Sonia the sensual ethnic colourist.

For women artists such biographical constructs also work within an episteme that says ‘women are colour’. Women are the daughters of Iris and her rainbow and of the colour theories of Plato, Aristotle, and Goethe, and a contemporary gendered chromatic perception of colour demonstrated in the colour acculturation experiment of chapter two that refuses the feminine black blue or grey allowing it only a chromatic perception confined to pink, a derivative colour or colour in general. The perceived attribution of the feminine as colour adds a further construct to what may
already be gendered perceptions of the work of women artists. As Florence has argued it is the absurdity of the idea that women are colour that gives it a strength and subtlety that restrains rebuttal. It is the comparative invisibility of such epistemes that makes the obvious so hard to speak. The absurd idea however is supported by an elaborate and intricate system of philosophical differentiation, and in art practice the recuperation of such philosophical dogma is what allows such an absurd concept to continue to act as part of a system of differentiation and exclusion. The contemporary a priori assumption that women are colour and not black grey or blue is what John Stuart Mill ([c1806-73] 1958) referred to when he spoke of our tendency to accept whatever ‘is’ as a natural and self evident truth, a pre determined and necessary condition of organized and coherent experience. Essentialist and determinist assumptions of women as nurturing, caring, and instinctive etc are normalised by what is claimed as an everyday general knowledge of their behaviour that chooses to ignore actual behaviour and contradictions. The art practice of giving a darker hue to the skin of men and labouring women and maintaining the myth of women as pale or pink skinned is not born out in reality.

Gage (1999: 100-101) describes how in 1390 Cennino Cennini argued in his Il libro dell ‘Arte that the surface of the flesh of men and women should give a pearly appearance with the flesh of men giving a darker hue reflecting their strength. All flesh should be underpinned by green and the correct sequence of colour should be followed (an alchemical reflection) to achieve the pearly surface so desired by Medievalists. An amateur observation of the skin of men and women will show an equality that is affected only by exposure to the sun or race. These philosophical points of view are most effectively challenged by quantum theory arguing that such
Determinist natural laws are not ever *a priori* but are constantly subject to a statistical probability of occurrences at a sub atomic level. So that although general assumptions of knowledge of women may assume a tendency to nurturing, a quantum analysis recognises only the improbability of such behaviour as a definitive and fixed assumption of what constitutes women *a priori*.

The assumption that women are colour is a naturalised response that feels so natural it is shown in chapter two to be shared by the majority of subjects in the colour acculturation experiment to a degree that is statistically significant. The experiment demonstrated male perceptions of gender and colour that are greater than female perceptions, even though the chromatic perceptions of both are the same. Such naturalised assumptions are the subject of argument in this thesis and the deconstruction of the mythic, philosophical and acculturated basis the intention.

Colour in art is obviously not restricted to women artists and it is clear that in the works of Corot, Matisse, Lautrec, Kupka, Goya, and Hockney colour is used in a way that is not designed to minimise its impact. Arguably it is possible to suggest that works done by Matisse, Lautrec and Hockney can be read as an art feminised by colour and to a certain extent this is true, since Matisse for instance is allocated a critical language that in some respects, mimics the language used for critical analysis of the feminised work of women artists. This gives rise to a fascinating erasure of women from the 'feminine genius', as in the recent Matisse-Picasso exhibition where Matisse substitutes for the missing female. In discussing the Picasso and Matisse exhibition at the Tate Modern 2002 the critic Neil Cox speaks of the first Matisse
Picasso exhibition held at the Paul Guillaume Gallery in Paris in 1918. Cox quotes Guillaume's 'short text that kept them apart' where he speaks of Matisse as


Cox continues of Guillaume,

He captured his reading of Matisse in a remarkable simile, worthy of a metaphysical poet: If one were to compare Henri Matisse's work to something it would have to be an orange.

Cox compares the perception and descriptive language used for Matisse and Picasso by explaining that

If Matisse was a natural painter, fruiting in accordance with his instinct, Picasso was a lyrical painter in profound communion with the art of the past, strong willed protean, crossing uncharted territory. If a painting by Matisse bursts with sunlight, one by Picasso is animated by life and thought and illuminated by an internal light. (Cox (2002: 22-28)

The key words used for Matisse are, instinct, sumptuousness, an orange, natural and fruiting, for Picasso they are lyrical, profound, past, strong, life, thought, and light.

The two sets of words reflect a perception of one as material and the other as ethereal, the first a feminine concept the second masculine. As Battersby argues regarding the recuperation of feminine qualities to genius,

Although femininity seems always to have been associated with passivity, femaleness has not. Males can be feminine and be superior. (Battersby 1989: 99)

Although Matisse is attributed with the language of the feminine this does not critically detract from his genius but it does arguably separate and slightly downgrade him from the male genius of Picasso.

To argue that colour feminises all art is to simplistic and misses the point. It is not the colour of the paint in the work that is problematic, since women and men artists of the same period have all used colour in a way specific to the genre. Neither is it the attribution of femininity to colour in art in general that would as Florence (1997)
Sonia Terk: Yellow Nude, 1908
Illustration 16

Sarah Stern: Odalisque, Photographic study taken in St Petersburg.
Illustration 17
argues simply be 'a projection of an unknown masculinity' that 'explains nothing'.

The problem of feminised art and colour is the naturalised gendered perception of what colour is and what it signifies. As Nochlin states

The question of women's equality in art as in any other realm devolves not upon the relative benevolence or ill will of individual men, nor the self-confidence or abjectness of individual women, but rather on the very nature of our institutional structures themselves and the view of reality which they impose on the human beings who are part of them. (Nochlin 1973: 1-43)

Colour in art acts as a signifier within a dynamic of meaning that combines the cultural, metaphysical, linguistic and ideologically normalised perceptions of a gendered chromatic reality.

Jewishness

Despite Sonia Delaunay's exclusion from the Fauve group, and her own criticism of the oeuvre, critics such as Damase (1972), Cohen (1977), Buckberrough (1987), Duchting (1994) and Baron (1996) describe as a Fauvist work a painting done by her in 1908 entitled Yellow Nude. (Illustration 16) Buckberrough (1981: 18) describes the work as a 'major canvas' that 'marks the emergence of an individual style'. A turning point Buckberrough argues, for Sonia Delaunay, in that it became a point of departure from the traditional influence of her artistic past in Karlsruhe and St Petersburg where until then her artistic training had occurred. Duchting (1994: 80) describes the facture of the work as using 'powerful colours and simplified forms' and a natural product of the strong influence of Fauvism in Paris at that time.

Between 1871 and 1905, Russian pogroms occurred in thirty-three places one being Dusyata in 1905. Despite the fact that Dusyata is approximately fifty miles from St
Petersburg where Sonia Delaunay lived during that time, critics such as Buckberrough (1986), Damase (1972) Cohen (1977) and Baron (1996), claim that she lived in a liberal environment untroubled by persecution. During the period of Sonia Delaunay's residence in Russia and in particular her residence in St Petersburg from 1890 to 1905 the Jewish population of St Petersburg was 21,000 and in 1891, 2000 of them were deported into the 'Pale of Settlement', many of them in chains. In 1900 one in four Jews residing in St Petersburg received free fuel from fuel charities organised by the Jewish community. Attempts by Jews to assimilate into Russian life were largely unsuccessful, the government, aristocracy, peasantry and intellectuals all prevented any relaxation of barriers or diminution of hostility. Jews in St Petersburg and elsewhere played a large part in the revolutionary socialist parties and in 1897 their own Jewish socialist party called the 'Bund' was formed in St Petersburg.15

As Buckberrough (1988: 18) correctly points out, the 1860s and 1870s in Russia were periods of liberalisation for Russian Jews. It was, she states, a time when many felt safe enough to move from the pale of settlement (to which they were confined by law) to areas such as St Petersburg and Dusyata, a decision later regretted by many for obvious reasons. Gilbert (1995) states that the pogroms from 1881 to 1906 were stimulated by a growing hatred of Jews and were encouraged by the government. State persecution is hard to ignore in any context and it is therefore debatable whether Sonia Delaunay would in those circumstances have been able to either ignore or live in denial of the persecution of her fellow Jews. Although, of course, this is always possible, in which case her later concern shown for her fellow beings is out of character.
Whilst it is difficult to argue the influence of Sonia Delaunay's Jewishness on her work because of the lack of debate by critics and her own texts on the subject, a reading of *Yellow Nude*, as an ironic comment on her Jewish origins is possible, because of the implications of yellow in relation to Jews and Sonia Delaunay's oblique and often ironic references to her Jewishness. To ignore the complexity of her historical and cultural origins simply because they are not well documented is to ignore what may have been an important influence and facet of her work and it also flies in the face of Freudian psychological theory to suggest that her early environmental influences did not affect her work or her attitude to life. As Freud's early theories of the unconscious dynamic argue, repressed unconscious or painful and frightening memories gained between birth and the age of six are the foundation of our later behaviour and attitudes even though those memories may be repressed.

Indeed the efforts of Nochlin and Garb (1995) to address the whole question of the omission of the Jew in the text is testimony to what they see as the need to understand the stereotypical representation of Jews in texts and to attempt to read concealed or obscure Jewish authorship in the work of creative artists. Unlike most critics, Buckberrough (1986) engages with Sonia Delaunay's Jewish origins but only by acknowledging her birth in Gradisck in the Ukraine and stating that her family was Jewish, 'The Terk family was Jewish'. Buckberrough goes on to argue (even though the records show that Sonia Delaunay lived in Gradisck until she was three or some suggest five¹⁶) that

> If Sonia had remained in the village her character might have been more clearly marked by this aspect of her heritage. (Buckberrough 1986: 18)
Buckberrough (1986) concludes her argument regarding the lack of Jewish influence on Sonia Delaunay’s work by stating that any such influence would have been rendered ineffective and non influential because of the assimilation of Russian Jews in St Petersburg at that time, when history shows that assimilation was impossible for Jews in Russia regardless of wealth or position. Cohen (1977) goes so far as to make the erroneous claim that Sonia Delaunay’s adoptive uncle (Henry Terk) enjoyed a position as a court Jew with all the privileges that went with the position. Garb argues that to ignore the Jew in the text is to ignore a broader set of assumptions about Jewishness.

The Jew in the text retains its specificity, its character as representation, while referring to the wider field of Textuality of which it is constituted and to which it in turn contributes (Garb 1995: 20-30).

To ignore or deny the authorship of a text with regard to race and gender is to exclude from the general body of work and life a defining factor that could fundamentally alter the dimension and meaning of the whole.

Painting as sign constitutes a complex series of readings, including a reading of colour that may involve the denial of colour, but that acts within the complexity of contexts that constitute the whole reading. Amongst the contexts addressing the artists sociological and psychological history (as with Van Gogh) are acknowledged art historical tools for the analyses of the influences that are inseparable from all other contingent layers of meaning.

Within such a reading I choose to read Yellow Nude as a self-portrait of Sonia Delaunay, an ironic parody of her Jewish identity and of the only too obvious bourgeois perceptions of her race at that time, framed within a satirical comment on the genre of the Odalisque.
Matisse: Odalisque au fauteuil Turc, 1927/28.

Illustration 18
The pose of *Yellow Nude* is characteristic of the archetypal Odalisque as later portrayed by Matisse, typically in *Odalisque au fauteuil turc* 1927/8, (Illustration 18) where an equally problematic feminist reading of the Odalisque as symbolic of male fetishisation and the objectification of woman as sex object can be made. As Pollock argues regarding the erasure of the gaze for women, to enjoy paintings such as the Odalisque we women must adopt, ‘masculine positions or masochistically enjoy the sight of women’s humiliation,’ as also with the imposition of the blue Burkha.

A feminist reading of the odalisque as a portrayal of woman as consumer product, a sexual object of the male gaze, though problematic is necessary and as Pollock states one of the means by which

> [...] femininity is thus reworked by the rearticulation of traditional space so that it ceases to function primarily as the space of sight for a mastering gaze. (Pollock 1991: 85-87)

My feminist reading of *Yellow Nude* not only inserts into the text the Jewish woman that Sonia Delaunay was but also rearticulates the painting within accepted tropes of art historical practice. As Pollock states with regard to the reasons for the rearticulation of painting in art history by feminists,

> The structural sexism of most academic disciplines contributes actively to the production and perpetuation of a gendered hierarchy. What we learn about the world and its peoples is ideologically patterned in conformity with the social order within which it is produced. (Pollock 1991: 1)

A photograph of Sonia Delaunay said by her critics to have been taken in St Petersburg (Illustration 17) can also be read in the contest of the Odalisque. Both photograph and painting suggest, by the addition of decorative blobs on the couch cushions, a decadent opulence expected of an Odalisque study. In *Yellow Nude* the
yellow female figure reclines on a couch of (in terms of the Odalisque) sexual intercourse, but the body signs none of the seductiveness of the harem: instead the angular tension of the body expresses an acceptance of a fate to be endured. The serpent like formation of the hand holding the head is reminiscent of a snake poised ready to strike and in this conceptual context the yellow skin offers a reading of venom contained within the serpents seductive duplicity.

The cultural perception of yellow skin in relation to perceptions of Jewishness is discussed by Gilman (1995: 104) in his essay Salome, Syphilis, Sarah Bernhardt, where he argues that yellow skin is an established pictorial sign of Jewish identity, designed, he adds, to signal Jewish difference. With regard to the artist Hans Makart\(^\text{18}\) Gilman (1995: 114) states that Makart's portrait of Sarah Bernhardt was withdrawn from the most important Viennese exhibition of the year because of comments such as 'you are now painting trash' and because the portraits colour was 'jaundiced'. Gilman suggests that the accusation of the portraits 'to yellow image' evoked all of the images of decay and degeneration and the general racial connotations of the colour yellow. Gilman reports Bernhardt herself as saying

\[
\text{Yellow on Yellow was the colour of Henri Renault when he painted his Salome, shouldn't the famed Sarah not also be permitted to be Yellow. (Gilman 1995: 114)}
\]

*Yellow Nude* recuperates a powerful chromatic symbol of Jewish identity to a work that would have been read as Fauvist not least because of its inclusion in the 1908 exhibition at Uhde's gallery Notre Dame des Champs along with other fauve artists of the time such as Derain and Vlaminck. Critics such as Buckberrough (1981) have described the work as expressionist influenced by Gauguin and Van Gogh and Duchting (1994) claims that the same influences are responsible for the fauve style of
the painting. A reading of the work as expressionist is certainly acceptable since it conforms to all of the chromatic tropes of the oeuvre. Colours in the painting are used freely in unorthodox ways and yellow in that context is no more than an expression of the chromatic freedom used in such works. Yellow skin, on the other hand as I have shown, has a reading that is also culturally pertinent to illness, decay, the feminine and Jews. The critical likening of Yellow Nude to expressionism or fauvism is symptomatic of the viewers need to believe in an acceptable truth of the object. But the production of such a work as a copy or catachresis of an oeuvre, a breaking of the law or a breach of the 'Thetic' can be as Kristeva argues, 'precisely the construction of an object, not according to truth but to verisimilitude, to the extent that the object is posited as such.' (Kristeva 1984: 109)

As in poetic language or in Suleiman's (1990) 'double voicedness' the likeness of an object is dependent, as Kristeva further argues, on the subject of an enunciation that may

[...] not suppress the semiotic chora but instead raises the chora to the status of a signifier, which may or may not obey the norms of grammatical locution. (Kristeva 1984: 109)

Yellow nude, may obey some of the constitutive rules of the Fauvist oeuvre ascribed to it, but it is possible that the artist may have by imitating the rules also have attacked and undermined the symbolic meanings controlling the work and in so doing eroded its appearance of truth. Such an oblique and ironic comment on archetypal portrayals of Jewishness is an example of an art made by Jews, but not a Jewish art. In this case, Sonia Delaunay's painting, can be read as being deliberately duplicitous and containing multiple meanings commenting on her Jewish identity. An identity to be read in the context of a European and Russian anti-Semitism that may have been in the store cupboard and indeed was often countered by an anti anti-Semitism, but
Frantisek Kupka: La Gamme Jaune 1907.

Illustration 19
remained nevertheless a pervasive undercurrent of perception influencing readings of
identity in a subtle and censoring way.¹⁹

In the same way the self portrait *La Gamme Jaune’* (illustration 19) also painted in
Paris in 1907 by the Jewish artist Kupka (1990), could be said to be making the same
ironic comment depicting as it does, yellow skin redolent of, indolence, idleness,
sickness, and Jewishness. The painting’s title can be read as a play on words,
Gammes, meaning either a musical scale, in this case a scale in yellow, or a yellow
good for nothing, an idle boy in Kupka’s case an idle Jewish boy.

An epistemology that inscribes yellow in the skin of a people for thousands of years is
a powerful signifier for a subjective reading of identity. Whilst acknowledging the
difficulty of proving my argument that these two paintings are significant not just
because of the symbolist or expressionist or fauvist influence, but also because they
are *expressions* of the Jewish identity of the artists. I believe such a reading is possible
because of the historical and cultural narratives contained in the works expressed by
the significant and subversive use of yellow, as a signifier of racial difference. These
ironic modernist paintings made over six hundred years after Giotto’s *Kiss of Judas*
are united with it by the portrayal of yellow as a sign of the degenerate, corrupt and
abject Jew.

From the Dreyfus affair in the 1890s, to the rising spectre of Fascism in the 1930s,
France exhibited along with other European countries including Britain an Anti-
Semitism that culminated in 1940s in Europe, the same horrors experienced by Jews
elsewhere in central and Eastern Europe. Sarah Stern’s/ Sonia Delaunay’s birthplace,
Gradisck, was in the area of the Ukraine where with Poland, Latvia and Lithuania
over four million five hundred thousand and sixty-five Jews perished in the Polish
labour and extermination camps of Treblinka, Sobibor, Maidanek and Belzec\textsuperscript{20}. The Jewish population of Gradisck in 1945 following Nazi occupation is recorded as 8.\textsuperscript{21} Sonia Delaunay or her critics do not comment on the holocaust experience.

In the reconstructive modernism of the 19\textsuperscript{th} century, the Jew became harder to identify, and therefore became a repository for what Tamar Garb describes as ‘notions of Jewishness’, a ‘Jewishness unlike Judaism that could not be discarded.’\textsuperscript{12} Jews began to inhabit a space and categorisation that did not depend upon dress or habitat. Jewishness no longer belonged to belief or custom, it became an essential property of the Jews, their nature and their difference. In her essay on the difficulty of exactly what is a representation of French anti-Semitism Murray (1995) uses some of the illustrative work of Toulouse Lautrec to examine the question. During the Dreyfus period, Murray claims that Lautrec’s attitude to toward Jews remained ambiguous since like other artists of the period he did not ally himself with either side in the argument. But, in the 1890s Lautrec illustrated several books and Murray explains that he

\begin{quote}
[...\] presented bourgeois male figures with distinctly Semitic features as lascivious voyeurs, or consumers of exotic “products” of Parisian nightlife. For example, in a lithograph of 1895 entitled “Why not...once is not a habit” he depicted an encounter between a fat top-hated bourgeois Jew and two prostitutes, who appear to reject him (they literally turn their noses up in disdain). (Murray 1995: 57-82)
\end{quote}

The prostitutes disdain of the Jew being a clear indication that even the so-called debased have difficulty with the acceptance of Jews as their customers. Murray does state that the illustration may be an example of Lautrec’s close interpretation of the text\textsuperscript{23} and not necessarily his own attitude, just as Giotto’s use of yellow for Judas may be a similar artistic reflection.
Lautrec's ambiguity with regard to anti-Semitism is used by Murray to illustrate the contradictory and inconsistent anti-Semitic situation in France during the 1890s and the subsequent years. That anti-Semitism was a factor in French life cannot be denied; the evidence as Murray points out, is plentiful, if contradictory. What Murray illuminates in her essay is the complexity of late 19th century attitudes toward Jews

[...] and the difficulty in gaining a perspective on them, and the fact that beyond the easily recognisable anti-Semitism of the fanatic professionals, the situation in not at all clear-cut. (Murray 1995: 57-82)

In Proust: in Search of Identity Julia Kristeva identifies the problematic of Proust's Jewishness and homosexuality and how these can be read in the texts of his work.

Since a writer is basically someone who writes, we will consider Proustian identity- and from this his relationship to national, religious and social belonging- within the logic of his writing. (Kristeva 1995: 141)

So with Sonia Delaunay, her identity and work with colour can be read within the logic of her relationship to her gender and race.

Sonia Delaunay’s references to her Jewish ancestry are oblique and fleeting, for example in her autobiography she recalls the

[...] church of my race, In the front enormous domes cut with diamond points and detached from them triangles in blue, white yellow, gold.

Later she mentions

It was a pleasure to have Apollinaire at the table. He was a good eater who appreciated large helpings. After dinner we frequently went for walks in that lovely area so calm at that time. We also walked a lot in the Jewish quarter behind the hotel de Ville. Guillaume approached the women with great courtesy, he just wished to talk, to talk of life, but his manner was very innocent, very pure. (My translation, Delaunay Sonia 1978: 10)

She makes no overt connection between the women and herself as Jews but within the reference is a sweet regard for Apollinaire’s attitude to the Jewish women they met
within the ghetto, women who were not always treated in this way. Referring to the Uncle Henri Terk of St Petersburg Sonia Delaunay recalls for Damase that he kept a magnificent table, covered in rich foods,

La Cuisine est Fameuse dans la Ville. C’est la second après Celle du Tsar. (Delaunay Sonia 1978: 15)

The cuisine is famous in the town. It is second only to the Tsar’s.

It was so good Damase (1972) recalls it always included a large Ham. Sonia Delaunay’s use of irony and sarcasm is frequent in her text and her inclusion of a large ham in a Jewish household is another example of her ‘hamming it up’ or registering her ironic response to a secularised household and at the same time giving her critics what they wanted in the knowledge that they would not question what she said. What she said was of no great import to the real purpose of the text that was to promote her work as that of a colourful Ukrainian artist. When speaking of Roberts illustrious familial connections, with Bonaparte for example, she comments,

I did not go into the details of my wonderful family. I was not very exact about it (my translation Delaunay Sonia 1978: 20)
giving an ironic twist to the difference between hers and Roberts’s origins.

Sonia Delaunay’s move to Paris in 1905 did not remove her from the effects of anti-Semitism. It merely moved her to a new environment where anti-Semitism was an undercurrent rather than a pogrom. French anti-Semitism was a flavour of French life, but not as in Russia an overt physical attack upon people and souls. The attacks were not overt that is until articles such as those written by the chauvinist anti-Semite Camille Mauclair began to be published. Mauclair reserved his most virulent attacks for Jewish artists and art dealers. Even as late as 1929 he wrote of the painters of the so-called ‘Ecole de Paris’, who he claimed were made up of the ‘Bulgarians, Tartars,
Valakians, Slovenians, Finns, and Pollacks, and for whom the name ‘Giotto is pronounced Ghetto’.

Judith Weschler (1995) argues in her essay on Lissitzky Interchange Stations, the Letter and the Spirit, that his illustrations of Hebrew texts and his abstract work in the Graphic Arts were informed by the importance and impact of his Jewish origins inside the Russian Pale of settlement, that she argues, was an insistent informing factor of his work. The Jew Lissitzky was born within the ‘Pale’ in 1890 (five years after Sarah Stern), in Polshinok in the province of Smolensk. Discussing the denial of his Jewish origins by critics and art historians Weschler states,

Most historians who maintain that Lissitzky abandoned Jewish concerns for revolutionary ones after 1923 do not consider how deeply a Jewish upbringing is embedded.' She continues, ‘Although he no longer adhered to religious practice, earlier ways of thinking, both verbal and visual, continued to inform his life and work'. For Jews born within the Pale of Settlement Wechsler argues this was particularly so, ‘In the Pale, to be part of the Jewish community was to be orthodox, and steeped in Jewish law and lore. (Weschler 1995: 188-189)

Such deeply embedded epistemes and cultural patterning should not be ignored when the biography of an artist, in this instance Sonia Delaunay, is being written.

When Sonia Delaunay’s critics say that the first five years of Sarah Stern’s life was lived in a colourful Ukrainian landscape surrounded by yellow melons, red tomatoes, and gigantic golden sunflowers, they are establishing a framework of exotic colour for her that resonates with our naturalised assumptions of colour. When Goethe states that, ‘Men in a state of nature, uncivilised nations and children, have a fondness for colours in their utmost brightness,’ and goes on to enforce the theorisation by adding that, ‘only the ignorant and uncivilised are attracted simply by colour.’ (Goethe 1810: 326-329)
Goethe is merely articulating a patterning that continues the assumptions of Giovanni Conversino a 14th century humanist, who is said by Gage to have stated, ‘people of refinement have a disinclination to colour.’14 and of Seneca 31-37 AD Gage states that he criticised the Roman fashion for adorning their homes in bright gaudy colours and extravagant decoration.

We think ourselves poor and mean if our walls are not resplendent with large and costly mirrors and if our marbles from Alexandria are not set off by brightly coloured mosaics of Namibian stone. Gage 1995: Chapter seven)

The reference by Seneca to Egypt and Namibia as the source of what he saw as tasteless abominations frames colour and the decorative within the exotic, tasteless and oriental. In the context of Sonia Delaunay for exotic and oriental read Ukrainian, instinctive, naïve, and unspoken Jewishness. Kristeva argues that for Proust

The conjunction of sexuality and Judaism is coloured pink’ and ‘red and pink are systematically associated with Judaism.

This epistemology of Jewish colour places and retains it as a perception of the other of representation where exotic sexuality and decadence are seen as a perpetual conjunction of ‘Sex and Zion’. (Kristeva 1995: 149)

Contradicting this ideation of Eastern decadence and colour, Toshihiko Izutsu (1972) argues in his paper, The elimination of colour in far eastern art and Philosophy,15 that there is a natural inclination observable in Chinese and Japanese high culture toward a subdual of colour that leads to a total elimination of colours apart from black and white. The juxtaposition of black and white within the refinements of civilisation, sensibility and taste is an interesting parallel with similar perceptions from Plato and current perceptions of the masculine in chapter two. Izutsu’s indirect rebuttal of western chromatic perceptions of the East, does not however alter western
normalisations of colour perception that leads to ideas that say *Women are colour* and for Sonia Delaunay that her colour was instinctive and of her race, or as Robert Delaunay said of his wife ‘Sonia has a sense of colour that is *atavistic*’. (Delaunay Sonia 1978: 20) His meaning being that her colour came from a recurrence of the primitive characteristics of her ancestors or race. Sonia Delaunay is quoted by Chadwick as saying of herself,

She, a Russian Jewish expatriate, all warmth and generosity, quietly adjusted herself to his [Robert’s, my brackets] needs, setting aside her own career as a painter and instead devoting herself to applying his aesthetic theories to the decorative arts. (Chadwick and Courtivron 1993: 33)

The darkening of Sonia Delaunay’s life was learnt early as a survivalist strategy in an anti-Semitic Russia where pogroms were endorsed by the state and the Tsar. Sarah Stern and Sonia Delaunay had also learnt that adaptation did not necessarily lead to assimilation. On the other hand obfuscation led to a kind of invisibility, one that allowed her freedom to participate without making waves. Sonia Delaunay controlled what was said but in a subtle opaque fashion, a strategy that helped to keep her Jewish self in a safe place.

**Speaking of Fauvism**

*A style of painting in which colours are the all important theme of the work* (Reed 1984)

Traditional and classic arguments regarding *Designo* and *Colore* were still raging at the Fin de Siècle, and to attack the art of drawing was still to attack the academies themselves. Lichtenstein (1993) develops her discussion of the ‘Clash between colour and drawing’ by stating that when artists question not only the theoretical principle
of the primacy of the drawn they also fundamentally attack ‘the institutional base of paintings general dignity’. (Lichtenstein 1993: 148)

Les Fauves, the wild beasts of art, emerged from the impressionist pastoral and pastel art of the 1890s. Denis (1909) states of the emergence of these works that seemed to reject all of the norms of artistic expression, that

They were making a clean sweep not only of academic teaching, but also of and above all of naturalism whether romantic or photographic, which was then universally accepted as the only theory worthy of an age of science and democracy. (Denis 1909: 51)

Ironically the colour of Fauve undermined the very act of insurgence since it carried with it to the new modern art a feminine essence that would inevitably lead to its rejection. In general Cubists did not make the mistake of expressing their new geometric and dimensional vision of modernism in the colours of flesh and wild animalistic feminine chroma that was plastered on the canvasses of the Fauve experiment. The position of Cubism as a pivotal moment in the history of modernism seems secure. It is serious and colourless

The use of colour as form by Fauve artists in the early 20th century produced an inevitably outraged and irrational reaction by critics and art historians a reaction that was not knew since the futurists had already been attacked for their blatant use of colour. Linda Nochlin (1997) in her article on Ellsworth Kelly quotes some powerful prose to describe the reaction to the blatant use of colour by the Fauves of Montmartre. She quotes an attack in the caricaturist publication titled Album Primo-Avrilesque [April-foolish Album] of 1897

Here, a pure black canvas was denominated ‘Battle of Negroes in a Cellar During the Night’; a red painting, ‘Harvest of Tomatoes by Apoplectic cardinals on the shore of the Red Sea’: and an all
The identification of the colour black as Negroid (bodies in close physical contact), red as tomatoes (token representatives of the whole vegetable and natural world), and white as anaemic young girls (presumably virgin) is the kind of prejudiced reaction that Batchelor speaks of with regard to Chromophobia when

[...] prejudice to colour as with anything leads eventually to excesses of loathing, chauvinism, and racism. (Batchelor 2000: 31)

The flamboyant use of colour as form by Fauve artists threatened at its source the phallic projection of a reality without colour, a colourless reality protected from horrible threats of colours corruption and the final horror of death that colour represents. Irigaray’s thesis (1989) in ‘Flesh colours’ that blood is love hated and repressed because of its association with female–maternal genealogies, in which birth is the other side of death, gives a reading of colour, if blood is read as colour, that

[...] gives rise to fantasies, to a ceaseless cry for wounds that open up the question of life and identity. In turn this leads to racist extravaganzas between peoples, rivalries between individuals and of course, conflict between the sexes. (Irigaray 1980) 26

This Phallic derogation of Colour to a negative, without materiality is a continuation of Platonic theory that blamed colours material ability to interfere and destroy the ideation of form and light and is what has led Lichtenstein to describe negation as bearing

[...] a striking resemblance to the god of negative theology that categories of rationality can never adequately apprehend and of which the only way to speak is to say nothing. (Lichtenstein 1993: 148)

The four elements, Earth, Air, Fire and Water, were associated by the pre Socratic philosopher Democritus with the four primaries, black, white, red, and yellow or
green. As I have argued in chapter one, this association of the four elements with colour fixed them to an earthbound reality and in the realm of knowledge that is bastard and not genuine as in perceptions of the real, separated from the senses. Brusatin states that Democritus's atomistic theory argued that

\[
\text{Sweet exists by convention, bitter by convention, colour by convention, atoms and void [alone] exist in reality}
\]

True knowledge of reality could only be found beyond the materiality of

\[
\text{[... sight, hearing, smell taste and touch, where the real is separate from all this, (Brusatin 1991: 27-28)}
\]

Form therefore could not be built upon something as unreliable as the sense of sight and by association colour. Within this paradigm the Fauve flirtation with colour as form can be read as a flirtation (albeit unconscious) with femininity.

Platonic description and theorisation of a universal reality required an ideal architecture for the establishment of 'Logic' and 'discourse'. Colour philosophically ascribed to the feminine and the material was condemned to unpredictability and an incorrigible lack of theoretical and logical structure.

The Russian view of colour does not subscribe to the Platonic western view of form giving birth to colour. Russian belief in colour is as a metaphor, as its own reality, a perception of colour as life and the real. The real in this sense means the physical and material or a definitive knowledge of the world through the senses.

This is a philosophical explanation closer to Locke ([c1632-1704] 1969) than to Platonic ideals, where the empirical approach of Locke's Theory of Knowledge argues that our knowledge of the world, 'comes to us through our senses and that we have no innate ideas,' only those that we formulate through our acquisition of knowledge from empirical experience. Locke argued with regard to Platonic ideal form that,
'neither children or idiots are aware of these alleged innate truths.' (Locke [1632-1704] 1969: 193-200) and that to argue that the reality of ideal forms was there without our knowledge as an innate understanding was nonsense. Locke's philosophical empiricism is in some respects closer to Wittgenstein's Philosophical investigations when he would on embracing a tree say, 'This is a tree' proving his knowledge of tree through his senses and language. Making the connection between Russian colour theory, Locke and Wittgenstein, may seem to be surprising, but what I wish to show is that the three philosophies of the world rely upon an empirical knowledge gained through our senses rather than through a metaphysical belief in either ideal form or innate ideas.

When Cohen (1977: 5-10) reports Sonia Delaunay as saying ‘Colour makes the world’ we can take it that she is declaring her sense knowledge of it and naming her knowledge with the appropriate word. The Russian perception that colour informs our knowledge of life and beyond which everything is an unreal imaginary is very close to the empiricism of Locke and the 'Ordinary Language School' of Wittgenstein. Russian colour perception is symbolically perceived as a family with fathers, mothers, children and grandchildren etc. This anthropomorphism of colour whilst giving it a gendered hierarchical value is one that places it within the chromatic body or within that which is born from the bodies of men and women. In this theoretic, colour and the body do not have a pejorative meaning and although gendered colour is not perceived as less than form because of its materiality. Colour is given a superior status within what is a naturalistic and sensory perception of a chromatic world, one that can be argued to coincide with Russian pre Christian and Moslem paganism and animism, or a trust in things. This schism of perception between Western Platonic chromatic philosophy and Russian chromatic philosophy may give a better
Sonia Delaunay: ceramics, table mats and rug designs c 1928.

Illustration 20
Sonia Delaunay: Abstract colour forms illustrating Trans Siberian Express by Blaise Cendrars 1913

Illustration 21
explanation for Sonia Delaunay’s perception of colour as constituting the world. A perception that led her to make no distinction between canvas or fabric, or as Cohen says a lack of distinction that lead to the pejorative description of her as an artist ‘craftswoman’ a name said by Cohen (1977) and Rendell,28 to have led to her non acceptance as a serious artist. During the 50 years of her work as an artist, Sonia Delaunay covered every conceivable surface including cars, playing cards, fabric, furniture, cot covers and her own body with the geometric coloured abstraction for which she has now become known. (Illustration 20) The surface for Sonia Delaunay was colour and her vision of it shattered the Goethian notion of ‘Das Trube’ where colour is affected by the surface it robes. The surface for Sonia Delaunay was a coloured plane that did not infect the colours with moral associations, as it did in Goethe’s colour theory with the bodies of Jews to yellow.

In 1913 Sonia Delaunay’s previous work as an illustrator including the illustration of covers for exhibition catalogues and important journals such as “Der Sturm” 191329 led her to collaborate with Blaise Cendrars on his poem Transiberean Siberian Express (Illustration 21) a work reflecting his thoughts and reactions to what he saw on a train journey. Sonia Delaunay illustrated Cendrars words with a fugue like sequence of abstract coloured forms that followed the text for a length of two meters. Sonia Delaunay recalls the work and her feelings at the time

Madam Delaunay made a very beautiful book of colours, that poem was saturated in the light of my life. It was this that made me very happy. Also because the book was two metres in length, nearly reached the height of the Eiffel tower. (Delaunay Sonia 1978: 56)

An ironic comment perhaps, on Robert’s Tower paintings.
Russian Lubock: Come on, Mishenka Ivanich 1863.

Illustration 22
Sonia Delaunay: Philomene, 1907

Illustration 23
Mashkov: Portrait of a boy in an embroidered shirt, 1909

Illustration 24
Sonia Delaunay’s Russian view of colour as constituting the world may also have been informed by her experience of Russian ‘Lubok’ prints. ‘Lubok’ employed simplified forms, strange perspective effects and a brilliant use of colour in surprising and unexpected ways. (Illustration 22) Natalia Rudakova (1990: 61) argues that traditional Russian Lubok was influential in the development of Russian painting and that the conceptual nature and the perception of the world in terms of symbol, metaphor, and colour helped Russian artists to break with heavy 19th century realism into a dynamic modern art.

Sonia Delaunay’s involvement with Frantisek Kupka a Jew like herself was I suggest another source of influence on her use of colour, in particular through him an insight to the Die Brüke group formed in Germany in 1905. Her own portraiture of this period was bold to the point of recklessness (Illustration 23) and was described by Cohen (1977) as ‘very powerful Fauve pictures’. I prefer to liken these works of Sonia Delaunay to the work produced at the same time by Frantisek Kupka and Ilya Mashkov a fellow Russian (Illustration 24). Both artists had connections to the ‘Die Brücke’ and the ‘Knave of Diamond’ Moscow based group that Ilya Mashkov belonged and were influential in producing the kind of paintings associated with German expressionism rather than Fauvism. The Die Brücke work, although apparently similar to Fauve is not really so, since it is much closer to the kind of German Expressionism painted by the Scandinavian Munch, and by women German expressionists such as Paula Modersohn- Becker, Marianne Werefkin and of course Gabriele Munter. Max Pechstein describes Die Brücke as ‘a tormented Fauvism’. He goes on to say that Die Brücke was ‘strongly tinged with Messianic Judaism’. 

30 no
doubt a contributory factor to members of the group being labelled as ‘degenerate artists’ in 1937 by the Nazis.\textsuperscript{31}

Sonia Delaunay’s work of that period is expressionist in the Russian and German tradition of Die Brücke, and her use of colour is Russian to the extent of the influence of ‘Lubok’ and a Russian colour perception that saw colour as a metaphor for reality. With her move into abstraction Sonia Delaunay’s use of line as a container for colour disappeared, and pure colour expressed her world perception and the form of her work.

**COLOUR IN HER SKIN.**

In his interview for the Feminist Arts Journal with Fay Lasner in 1977 Arthur Cohen responds to Lasner’s questions regarding Sonia Delaunay’s knowledge of colour theory.

*Cohen*, She said on a number of occasions, Oh Robert read the theories of Chevreul! I have never read Chevreul’s, ‘De la Loi de la Contraste Simultané des Couleurs’.

*Lasner*, Did she ever read the Delacroix Journals?

*Cohen*, It’s very difficult to find out what Sonia has read. There are art books in the house, she constantly looks at art books and even to this day the house is filled with art books. Her entire life, her entire sensibility her colour is really in the skin. (Cohen 1977: 5-10)

With this statement Cohen places all of Sonia Delaunay’s knowledge of the world both sensory and aesthetic in her skin and body. As she says of herself,

She made the houses habitable, the living body mysterious and truly nude, she was the dresser of books, and the skin of objects, (Delaunay Sonia 1978: 45)
In discussing the body as an inscriptive surface Grosz elaborates the meaning of inscription beyond body incision and tattoos to include more subtle forms of signage that include coding by

(...) objects, categories, affiliations, lineages, which engender and make real the subjects social, sexual, familial, marital, or economic position or identity within a social hierarchy.

These signification's Grosz argues are more like 'a map correlating social positions with corporeal intensities'. The inscription of a woman's body with colour does more than create it as a decorative erogenous zone, it makes the flesh into a particular type of body, it becomes defined in a special and specific way that applies only to women and perceptions of the feminine. As Grosz argues

There is nothing natural or ahistorical about these modes of inscription. Through them, bodies are made amenable to the prevailing exigencies of power. (Grosz 1994: 140)

In this context Cohen's (1977) attribution of sensibility and colour 'in her skin' inscribes Sonia Delaunay with a colour that is more than skin deep since together with her sensibility it can only be located in her body. Colour is incised into her deepest being making of her a reservoir of colour that goes to the heart of her physicality and along with her gender becomes inseparable from the constitution of her body as erotic, coloured, femininity, an achromatised corporeal intensity of gender and symbiotic colour.

The inscription of colour 'in her skin' unclothes her body, for her skin is under any external robing of wool or cotton and as Grosz points out, the body's inscription is so powerful it projects through clothing put upon it

It is crucial to note that these different procedures of corporeal inscription do not simply adorn or add to a body that is basically given through biology they also create a body that is in no sense a natural body, for it is culturally, racially, sexually, and possibly
even as class distinctive as it would be if it were clothed. (Grosz 1994: 142)

The public disrobing of Sonia Delaunay by the critic Cohen is a doubtful privilege and one that is given to women who are culturally perceived as unaffected by stripping, or by their nudity in paintings. Indeed the removal of their clothes is seen as a titillating pleasure enjoyed by them and allowing them to express their naturally flirtatious and sexual propensities.

The image of Sonia Delaunay’s coloured skin acts as a gangway between the image of her as artist and her as instinctive feminine colourist. As le Doeuff says, ‘Such imaging is the means by which a philosophy can slide into straightforward dogmatism, at the same time creating a popular and infantile mode of consciousness’. (Le Doeuff 1989: 12)

The image of colour ‘in her skin’ places Sonia Delaunay in a framework of knowledge that Le Doeuff emphasises forges the two into a, ‘dialectically common system, where the discourse becomes a bricolage between what one would like to say and what it is permitted to say.’ (Le Doeuff 1989: 12) and what one is forced to recognise. Stripping Sonia Delaunay of her garments and dressing her in a colour that completely permeates her body strategically establishes for all time the corporeal nature of her work.

Constant references by critics to Sonia Delaunay’s work as covering the surface of objects, including her work with fabrics either for dressing bodies and covering skin, or rooms, forms an indelible association of surface, skin, body and colour in the mind of the observer that is a powerful sign of Sonia Delaunay’s corporeality permeating her work and life. Cohen (1977) is at pains to point out that Sonia Delaunay made no
distinction between the surfaces that she covered with colour and design, claiming that she said

The same preoccupation with colour, the same preoccupation with the constitution of the world through colour. Whether one applies that to a surface of a fabric, to a canvas, to a piece of paper, to a printed maquette, to the surface of furniture, to a metal surface of an automobile. (Cohen 1977: 5-10)

To reinforce his view of Sonia Delaunay as a woman who is colour Cohen offers us the picture of a woman whose preoccupation with colour is presented as an all-absorbing obsession. As Grosz argues, such an inscription creates the body, as sign, and it is not an indiscriminate space. It is a space inscribed by thought and language. The titles ‘body politic’, ‘body of knowledge’, ‘body of work’, all suggest large, comprehensive and knowable whole dimensions that contain a mass of information designated and appropriate to that body.

The ‘body of woman’ and the body of ‘woman as colour’ are subject to similar codes that lock them into cultural perceptions of colour as flesh and sex and the ‘Mother’ as the one who nurtures and cares and site of the life process of birth and because life is a continuum, of death. The pre inscribed foetal body and the infant’s body is as Kristeva argues subject to

[…] discrete quantities of energy that move through the body of the subject who is not yet constituted as such and in the case of its development they are arranged according to the various constraints imposed on this body-always already involved in a semiotic process-by family and social structures (Kristeva 1996: 93)

The woman's body is inscribed before birth and is a designated repository of all of the associative cultural perceptions of birth, death and motherhood that are the main source of her inscription. The rainbow colours of life and death enrobe woman who must then bear the brunt of the love hate that is part of the philosophical imagery.
She must also bear the massive overvaluation of the power of that which is feared and loved. This inscription resembles the kind of attraction and repulsion of a clown in motley, for the multi colours of his cloth conceal the death that lies beneath, just as woe lies under the arc of the rainbow. For as Batchelor (2000: 23-24) says ‘colour has always meant the less-than-true and the not-quite-real’, where colour is a suspicious dimension that may hide or conceal unpleasant truths like decay and death. The coloured body of woman like a clown’s motley is perceived somewhere just beyond the imagined real, concealing, birth, decay and death. A secret power feared and loved by the phallus and one that must be contained and subordinated. Woman’s achromatised body presents a threat that if allowed to be free could ruin the order of things and as Batchelor argues, colour like woman has to be contained and subordinated for

Colour is a permanent threat an ever present inner other which if unleashed would be the ruin of everything, the fall of culture, for as Batchelor continues For one, colour was coded in the feminine, for the other, it is coded in the primitive. For both, colour is a corruption, a lapse, and a fall. (Batchelor 2000: 23-24)

As Kristeva argues, even the thetic body, organised by the mother into symbolic law, still carries within it the uninscribed chora, or my chroma, a miasma of chaotic and disorganised colour, without law or theory. A colour close to Sonia Delaunay’s heart, a semiotic subjective noise that never quite goes away. The ability of colour to slip from all theorisations other than the apparently objective theorisations of the physical process of sight (also subject to acculturation) gives it a power beyond the phallus, This then is the dilemma, for the phallus; to deny the existence of an autonomous femininised colour or to destroy it completely, an act that would deny the very ‘free will’ and individuation that phallic symbolic order argues is its strength. So,
Sonia Delaunay wearing her simultaneous dress, 1913

Illustration 25
paradoxically, it must acknowledge that part of the gendered achromatised body that is not symbolised, and at the same time maintain power through constraint and force. It must construct a ‘Pale’ where women are constrained to accept their inscription and collude in its effects. Woman’s chromatic body ‘is’ philosophically and culturally perceived as life and death and as Bal argues,

 [...] by virtue of death’s signifying impact on life, it cannot be less gendered than the latter. Subverting the order of events and the distinction between state and events, the end, death-recasts the beginning of life-birth. And birth is the painful moment where the relevance of gender is magnified by the might of the mother. (Bal 1991: 397)

The poet Blaise Cendrars described Sonia Delaunay’s *Simultaneous dress* (1912-13) (illustration 25) by saying ‘on her dress she wears a body’ (Duchting 1994: 40) a body used as a support of the work and so present it seems that it absorbed the collage of fabric and colour to its corporeality. In her discussion of the symbiotic relationship of clothes and the body for dandyism Florence (1997) suggests that this kind of inside out projection of body clothes interaction taken to its extreme achieves a state where ‘clothing and body are interchangeable’. A state where such a slippage can project a form of, ‘resistance to the monolithic masculinity defined in (the case of the male to) opposition to the female.’ (Florence 199: 153-266)

In the case of Sonia Delaunay and Cendrars, a state that was in opposition to male ideography of the female as under and titillatingly concealed beneath her clothing.

‘Everything with bumps leaps into the abyss
The stars hollow out the sky
The colours take off their clothes through contrast
On her dress she has a body.’
Cendrars evocation of Delaunay's body as her clothing creates a sign of her that allies her with what Florence (199: 253-266) describes as 'kinds of frontier subjectivities' that are in the case of Sonia Delaunay an aesthetic that is bravely, 'on a collision course with establishment'. What may have been in that semiotic moment a brave and strategic onslaught on establishment values of the feminine and art, an opposition to what constituted art as opposed to craft and an opposition to perceptions of the feminine, were before that time, and so did not affect her categorisation as a woman artist whose colour and art was instinctive and embodied. On the contrary, critics have reinforced the view of Sonia Delaunay as one that works with surface, and who is perhaps only on the surface of art, concerned as she is with colour to the detriment of form. From that 'simultaneous dress' moment in 1912, Sonia Delaunay's body became for critics, a representation of conventional perceptions of woman, her body and her colour, and of the woman artist who is obsessed with colour and makes no distinction between the surface of the world, and the surface of a canvas. Grosz's re-theorisation of surface is symptomatic of a change in how this signifies.

Sonia Delaunay's critics recuperated the dress as emblematic of her work and colour, missing completely any protest or problematic for conventional ideology that Sonia Delaunay's simultaneous dress proposed. When the painter is a woman she is in a double jeopardy because the paintings surface is the flesh of the painting and the pigment the cosmetic, and as Batchelor (2000: 54) argues 'colour is a dangerous cosmetic, not a quiet and patient lady in waiting.' Colour is a seductive cosmetic covering; a skin modelled by a gendered hand that connects to and conceals what
Sonia Delaunay: Prism Electric, 1914

Illustration 26
Frantisek Kupka: Etude pour disque de Newton, 1911-1912.

Illustration 27
Sonia Delaunay: Composition Rhythm 1955-58.
Illustration 30
Batchelor (2000: 52) argues is thought of as 'decayed or even dead'. If the painting thus gendered is death coloured and a projection of the threat that the disorder of birth, death and colour are, then the exploitation of Sonia Delaunay's given and colluded instinctive feminised colour that was in her skin, atavistic and beyond her control, was a double bind from which there was no escape then.
court factors and court agents and were used to manage and control the finances of their country or state. Gilbert's research shows that the only country using court Jews was Germany from 1500-1800 after which the practice was discontinued.

Shtetle' is the East European word for a small Jewish settlement.

On a Military Map of Poland and Russia 18th century, Gradysk is situated on the river Dnieper/Nieper; its location in relation to the river is the one consistent feature of its location through all maps from 1632 to 19th century. Gradysk is also documented in a gazetteer held in the Map room of the British Library in London.

YAD VASHEM is the Holocaust Martyrs' and Heroes' Remembrance Authority that keeps a comprehensive data base of all the Jewish shtetle's or villages in Russia and Poland etc, some of which were completely eradicated during the second world war. They also have data of the inhabitants and Holocaust survivors in the shtetle's. Yad Vashem P.O.B. 3477, JERUSALEM ISRAEL 91034 tel 02-6751611, fax 02-6433511

Sonia Delaunay mentions Gradysk only once at the beginning of her autobiography where she recalls her family and childhood, 'my father was a workman in Gradisck in the Ukraine'. (Sonia Delaunay 1978: 12) She does not claim Gradysk as her birthplace and by such oblique references she further mystifies the place of her birth as thought she too does not wish to be permanently fixed in that place of origin.

Sonia Delaunay's marriage to Wilhelm Uhde took place in Holborn, London on 5th December 1908, and witnessed by E Dusch and Geo. E. Collings. On the copy of the marriage certificate obtained from Summerset House in London, Wilhelm Uhde declares himself to be 34 years old, a bachelor and a Journalist. His father he declares as Johann Uhde a German Crown Prosecutor. Sonia Delaunay declares herself as Sarah Stern, 23 years old, Spinster no profession. And her father is declared as Elias Stern, Factory Proprietor. Cohen (1976) states that Uhde was a homosexual and therefore the marriage was never consummated making the assumption that homosexuals cannot have sex with members of the opposite sex. Delaunay describes the marriage as a "white marriage for the love of art and freedom". Strangely, Sonia Delaunay never mentions her marriage to Robert and without research in France I have to assume that she was divorced and did marry Robert although it is not clear when the marriage took place. The fact that Sarah Stern Declares her father to be the owner of the factory raises questions for me regarding her adoption for reasons of poverty by the so called rich Uncle Henri Terk. Perhaps there was no Uncle.

Sonia Delaunay reports Robert Delaunay as saying this of her also all her critics report the same statement.


Cohen claims to have been directed to Sonia Delaunay's studio by a Kupka dealer who lived nearby. The dealer is said by Cohen to have spoken of Sonia Delaunay as a lonely recluse, 'why don't you go see Sonia Delaunay; everybody's ignored her. She's sitting on work going back fifty years.' (Cohen 1977: 5-10) In the light of this reported relative obscurity, her collaboration in an institutionally acceptably feminised and ethnicised form of colour and partly mythologised biographical attribution is understandable if it promised sales and recognition.

Tuchman and Baron, eds (1989) David Hockney a retrospective, Los Angeles County Museum of Art, Thames and Hudson: 10

Sonia Delaunay often refers to herself in the first person.

Ibid


Most of this information was gleaned from the Atlas of Jewish History by Sir Martin Gilbert reprinted in 1995 by Routledge in Canada.


Martin Gilbert (1993) shows no evidence of Court Jews in Russia at any time. Court Jews were also known as court factors and court agents and were used to manage and control the finances of their country or state. Gilbert's research shows that the only country using court Jews was Germany from 1500-1800 after which the practice was discontinued.
Makart, Hans. 1840-84, was an Austrian painter who studied under Piloty in Munich the chief center of history Painting at that time. He was enormously successful and a leading social figure.


21 Where once we walked: a guide to the Jewish communities destroyed in the Holocaust, America, Abo Taynu.

22 Ibíd


24 Rendell, Clare. Sonia Delaunay and the Expanding Definition of Art, Womens Art Journal. No date for the publication.

25 Sonia Delaunay illustrated the first three covers of 'Der Sturm (The Storm) 1913 when the magazine was first published by Herwarth Walden in whose gallery Robert Delaunay had his first one man show in Germany.


27 Kirchner, leader of the group committed suicide in 1938 as a result of Nazi persecution.

28 See Mollon, J. D. and Jordan. (1993) A Study of Women Heterozygotes for Colour Deficiencies, Vision Research: 1495-1508. The study found that contrary to accepted theories that only men are colour blind, occasionally a mother of colour blind and normally sighted sons may herself exhibit colour blindness. The study also suggests that such women might be tetrachromatic enjoying an extra dimension of colour. The acculturation that argued for male only colour blindness is therefore challenged by the findings.

29 The simultaneous dress was made in 1913 from a collage of different coloured fabrics. She wore the dress to the Bal Bullier where she watched her friends of the avant-garde dance, although she never danced, just as she is said to have never joined in with the debates on colour and theory. See any critical text on Sonia Delaunay.
Section 2 BRIDGET RILEY: ‘Redding’/Reading between the lines

Introduction

This section is about the defeminisation of Bridget Riley’s colour. I will describe how the reconstruction of her colour allows its inclusion to art practice and orthodox institutions of art that uphold a phallic symbolic order that is metaphysically monochrome. The intent of the process of reconstruction is to defeminise Bridget Riley’s colour and place it beyond the pejorative female baggage that colour carries. As Batchelor (2000) has argued, the presence of colour in art is denied, and artists and critics alike must collude in the denial. For successful women artists like Bridget Riley, the constant problem is to avoid the kind of perception that unites women and colour and thus avoid the threat of trivialisation in serious critical perceptions of their work.

I discuss the crucial critical and discursive management of Bridget Riley’s work that avoids what Batchelor describes as a two edged sword where, to be called colourful is to be flattered and insulted at the same time’ and where to be colourful is ‘not quite safe’ and ‘to be colourful is to be made distinctive and equally, to be dismissed’. (Batchelor 2000: 67)

Bridget Riley’s discursive association to colour and her use of it in her work is disembodied by the discourse, placing it within an intellectual or spiritual dimension, one that is beyond the body and therefore beyond the patriarchal gaze. This disembodiment of colour in general is essential for its recuperation to the phallic canvas. The language used to frame or criticise art tends as I have shown in section 1
to speak of art as though colour is either not there or is only there to be mentioned in passing. In the case of Sonia Delaunay colour is posed as the central tenet of her work and her critics make its association to her senses and body clear. I have argued that this kind of association prohibits the inclusion of her art to the classic cannon of modern fine art, ensuring its marginalisation even though her contribution in terms of influence on abstraction and abstract design may have been as great if not greater than many of those who are included.

The kind of denial that uses a careful construct of language to mask reality is a common factor in the practice of denial in many contexts. The use of the term ‘collateral damage’ is an effective way of describing death, blood, screams, and the stink of damaged flesh that places them beyond our imaginations to a space that like the denial of colour makes the notion intellectual rather than chromatic, somatic and emotional. Elaborate constructs of denial require elaborate constructs of language held together by the collusion or consent (even if innocent) of participants in the game. A world without colour or one that denies colour requires the use of a heightened awareness of all the other factors involved in visual experience. The ability to create a world without colour even when it is as Batchelor (2000) states staring you in the face, calls for what Sacks describes as other visual cues,

> Without colour we must consciously or unconsciously, discover ways of deriving information from other aspects of the visual world, other visual cues which in the absence of colour may take on a heightened importance, attention to form and texture, to outlines and boundaries, to perspective, depth, and movements, even subtle ones.² (Sacks, O. 1994: 16)

In discussing the foundation of Bridget Riley’s artistic reputation I will deal specifically with two exhibitions, the Responsive Eye Exhibition of 1965-6, and the retrospective Bridget Riley Paintings and drawings 1951-71 held at the Hayward Gallery in 1971. These exhibitions occurred in the formative years of Bridget Riley’s
artistic career and were instrumental first through the *Responsive Eye* in her popularisation as a young hip artist, and second through the Hayward retrospective 1971 in the reframing that distanced her from her popular title of 'Queen of Op' and from chromatic contamination, moving her towards her position as one of the representatives of the canon of British art.

The main critics of Bridget Riley’s work referred to will be Robertson (1971), Bredin (1982) Buck, (1992), Bracewell (1972) and Dougary (1994), since these are concerned with specific criticisms of Riley’s exhibitions and books and articles on her work. I have referred to Batchelor (2000) for his insights into the art establishment’s refusal to see colour where it is most obvious and to Battersby (1989) for her brilliant analysis of the recurrent absorption of the feminine to phallic needs and usage. I use the analysis of Lichtenstein (1993) to underline the means whereby colour is framed as debased and female and to her exposition of the importance of the attachment of literary or lettered value to art as a way of demonstrating its right to be included in the intellectual and academic humanities.

**Riley: Queen Hermaphrodite**

[...] male and female psychological patterns are present in all of us

[...] the artist could almost be said to be a hermaphrodite

(Riley in Hess and Becker 1973: 82-83)

The fact is that the name Bridget Riley only registers for many of us when it is married to the words ‘Op Art’.5
Dougary (1994: 8-12) states that thirty years on from the ‘Responsive Eye’ exhibition in 1965, Bridget Riley is ‘still saddled with the title that op art spawned.’ Her title ‘Queen of Op’ was reserved for her alone since no other artist in the exhibition was given a similar title, there was no ‘King of Op’. In a sense she was its hermaphrodite monarch.

Ruled by a Queen, the ‘Op Art’ movement could be seen to have shifted into an area of feminine gender but its Royal title (associated as it is with the divine) turned the feminine into an hermaphrodite or an ‘Oroboros’, a creature that does not reproduce itself unlike the myths of ‘Great Mother Nature’, but is always represented as a rational being, pregnant only with the universe. Inscribed with this notion, Bridget Riley ‘Queen of Op’ became Haraway’s monstrous version of the (1991: 85) ‘phallic mother’ of in that instance the oeuvre that made her famous.

It was at about the same time in the 1960s that Bridget Riley stated as quoted above that, ‘male and female psychological patterns are present in all of us.’ She went on to develop this theory by adding that

[…] the richer the personality the more harmoniously present is this duality. The artist in particular, draws upon it quite naturally while working; the artist could almost be said to be a hermaphrodite at such times. (Riley in Hess and Becker 1973: 82-83)

In the same essay she also distances herself from the Women’s Liberation movement by saying,

Women’s liberation when applied to artists seems to me to be a naïve concept. At this particular point in time, artists who happen to be women need this particular form of hysteria like they need a hole in the head.
By giving up her specific gender and by establishing a special category for women artists beyond the need for liberation she flags a strategic move into what Battersby describes as the need of genius to be clear about ‘The distinction between creative (productive) and pseudo creative (reproductive) imagination’. (Battersby 1989: 144)

To be a hermaphrodite is to have both male and female genitalia able to recreate as an influx or a flowing in and in the case of artists to recreate themselves as works of art. Hermaphrodism does not imply equality since it carries within it implications of confusion and the rejection of an existing identity.

Women may adopt this sacrificial strategy to achieve success, a sacrifice that Bridget Riley certainly in the context of her work is clearly ready to make. The body within the inscription of hermaphrodism becomes in a sense disembodied, certainly from a specific gender, becoming instead in a metaphysical sense the Platonic ideal of a body without flesh uncontaminated by orthodox notions of gender. The hermaphrodite—or more correctly the androgyne is in patriarchal culture basically the male incorporation of the female, as Kari Weil (Weil, 1992: 3) has shown and where she outlines the fantasy of the phallic mother as a manifestation of the desire that says the sexes were originally the same that is the same as man, and that woman could only be separate by the result of a cut or castration of the female. The androgyne is the retention or keeping of the female to the original male, whereas the hermaphrodite is an amalgam of male and female where they are constantly at war, a definition that Riley seems to have over looked 9

Bridget Riley’s emergence as an artist of renown was made with her black and white paintings and these to can also be said to conform to the same Platonic notion since they are in a sense bodies without colour and therefore bodies without flesh. However
Bridget Riley: Current 1964, Black on white emulsion.

Illustration 3, 11
first impressions are misleading or only partial, as the paintings do have colour but it appears only by a kind of visual subversion or fibrillation, a glimpse of the persistence of the semiotic chroma but leaving an overarching perception of the paintings as black and white. Bridget Riley’s work is in this sense defined by colour yet in discursive expositions of her work it is never allowed to appear as structure and is never inscribed, as with Sonia Delaunay, on her body or her skin. Colour has been interpreted throughout her working life as an addition and product of the real form and meaning of her work, which is black and white form. The framing of her work in this way ensures that the recuperation of colour to her art is done without contamination from the material and without relinquishing black and white as the determinant.

Bridget Riley’s strategic association of herself with hermaphrodism and the richer personality needed to acquire this state, has enabled her to enter the male world of genius where ‘there are no women of genius; the women of genius are men.’ (Battersby 1989: 144).

So the black and white paintings of Bridget Riley, Queen of Op, became masculinised in a sexual discourse of art where the hegemony of men in its institutional practices and the language of art itself, determines which artists will become, ‘One of the Boys’. Women’s admission to phallogocentric institutions still depends on the recruit’s conformity to an organisation of ideas and actions that may require that she undergo a sex change, in spirit, if not in body-and above all in output.

The startling optical effects of Bridget Riley's black and white work (Illustration 31) and her attempts to sue an American dress manufacturer during the Responsive Eye (1965-66) exhibition, was what brought her to the attention of the popular press and
as a result made her a commodity for popular consumption. Yet despite this
popularisation of her Op Art debut, thirty years on Bracewell (1997) in his article

*Bridget Riley* discusses her as an artist well established within the Institution of
British Fine art. He maps her art history from her launch into media popularity in
Sixties Op Art as ‘Queen of Op’ to her lecture at the Slade in 1996, where she was the
23rd William Townsend Memorial Lecturer. During the course of the article, Bridget
Riley is methodically established as a classical painter in contrast to her earlier
‘Queen of Op’ image.

Riley however, belonged to no pop art gangs, was never seen
dancing on *Ready Steady Go!* -Unlike her contemporary Pauline
Boty- and had been working solely on the technical problems of
her artistic career, within the solitary application of the classic
painter. (Bracewell 1997: 4-21)

Reference to her early notoriety, as 'Queen of Op' is however a recurring theme in all
articles essays and brief monologues on Bridget Riley and her painting. This constant
memory jogging suggests that although we are to believe that she has joined the ranks
of male artistic genius, we are not to forget her basic culturally inscribed feminine
nature that she cannot of course ever be allowed to fully escape, since to do so would
mean becoming a man in all senses of the word. Therefore, her black and white work
will always carry the compulsory tiny traces of an acculturated residual Pink that
dilutes the structural red of the strong female. Within this structure, women's
recuperation to the phallic does not mean that she can ever truly fulfil the male role,
for as Battersby (1994) states quoting Weininger, 'A female genius is a contradiction
in terms, for genius is simply intensified, perfectly developed, universally conscious
maleness.' 11
Bridget Riley: Fall 1963. Black on white emulsion.

Illustration 3  2
Continuing the critical theme of orthodoxy, Bracewell (1997) frames Bridget Riley’s black-and-whites simply as the foundation of her work that led her along a gradual and natural development into her more important later work with colour, thus establishing a clear historical route to her current art practice that Battersby (1989) argues is the standard necessary construct for the establishment of artistic genius.

By discussing Bridget Riley’s early successes with the black-and-white paintings in terms of their facture, their reason for being and the effects they had on critics and public, Bracewell continues the work of stabilising the uncertainty of her Op Art image. He refers specifically to the *Responsive Eye (1965-66)* exhibition where the blaze of publicity first hit Bridget Riley. Bracewell explains that

> Her unique pictorial ideas were appropriated by the media to represent on a crudely commercial level, the swinging urbanity of a drug-friendly zeitgeist. (Bracewell 1997: 4-21)

In *The Responsive Eye*, Bridget Riley was singled out and surrounded by publicity, which Bracewell (1997: 4-21) says, ‘[…] most artists, for instance Warhol, would have given their right arm for.’

The publicity Bracewell states was not welcomed by Bridget Riley, her displeasure resulting from the use of her painting *Fall* (Illustration 32) as a textile design. The textile was made into dresses by a firm whose director owned the painting and her reaction was litigation.12 In this way Bridget Riley signalled to a popular consumerism that her work was not for exploitation, especially not within the feminised world of fashion. Bridget Riley also expressed her surprise when she learnt that, ‘[…] it was the greatest kick to go down and smoke (pot, my bracket) in front of my painting *Fall.*’ (Bracewell 1997: 4-21)
Sonia Delaunay: Textile design, 1933, Study of Optical effects.

Illustration 3  ☐
Bracewell states that whilst Bridget Riley agrees that some of her works such as 'Continuum' could be seen as a psychedelic stimulant or agent, he explains that the painting was done in response to a purchase by the National Gallery of a large Monet Water Lily painting that also 'seemed to envelop one'. (Bracewell 1997) The choice of Monet and his classic series as a source for her own optical disturbance work cleverly places both in a classic artistic canon and sidesteps conflation with sixties psychedelia and drugs.

By contrast a 1933 black and white textile design by Sonia Delaunay (Illustration 33) Study of Optical Effects did not result in the same furore or litigation and she was unable to enjoy the kind of value given to Bridget Riley's similar work on canvas fifty years later. The twenty years of Sonia Delaunay's design work that kept her family including her revolutionary use of geometric abstraction and brilliant use of colour on textiles was not given high artistic value as Cohen (1977) argues, because of the works placement within the lesser category of craft. Unlike Sonia Delaunay and due to her own actions Bridget Riley has not had to contend with the pejorative label of 'craftswoman' throughout her career. Her continuing vigilance, combined with that of the Tate Gallery, has ensured hers and the States sole ownership and trusteeship of her established Fine Art images.

Because of the Op Art furore Bridget Riley felt that the seriousness of her work had been ignored and buried under what she describes as, 'an explosion of commercialism, bandwagoning, and hysterical sensationalism.' (Bracewell 1977: 14-21) This was a state of affairs she claimed would take twenty years to remove, and has subsequently required an energetic and consistent reframing of her to control the persistent taints of her early popularisation.

Illustration 3 4

Illustration 35
The artists Albers and Vasarely are given a special place in the opening remarks of the catalogue to the *Responsive Eye* (1965-66) written by William C Seitz, who ascribes to them the title 'Master'.

Albers and Vasarely are the best-known masters of perceptual abstraction, and they are represented with a few more works than the other exhibitors. This attention does not imply, however, that they are the sole initiators of such a multiform and widely spread tendency. Many artists, from Balla, Malevich, and Mondrian to several of those here exhibited must also be seen as originators of some aspect of perceptualism. The various roots of optical and less pointedly ophthalmic painting and construction will be studied in detail in a book scheduled to appear after the exhibition. They branch in several directions, going beyond what we call 'art' into graphic design, technology, psychology and other sciences. (Seitz 1965: Introduction)

This erudite text is determined to place what could be seen as popular art in a category of classical discourse. Astonishingly, Seitz makes little mention of colour, although a great many of the works in the exhibition use colour within a geometric abstraction. (Illustration 34, 35) In the catalogue’s twelve pages of critical text, only three quarters of a page is given to a discourse of colour. Under the heading *The Colour Image* Seitz states that,

> The canvases share a dependence on original and striking colour juxtapositions and a reduction of shape-vocabulary to the simplest units and combinations.

This integration of colour to form or shape as a support for colour value is a requirement also reflected in Bauhaus colour philosophy that artists like Albers and Vasarely were either instrument in promoting or absorbing as a student. Seitz continues

> Because of the thinly applied or soaked pigment, areas of bare canvas, or the visual destruction of flatness by colour contrasts, the picture surface—so important to the abstract expressionists—is *dematerialised*. (Seitz 1965: Introduction)
Dorazio: Construction Eurasia. 1964
Illustration 3

Sedgley: Blue and green modulation, 1964
Illustration 36

Steel: Baroque experiment.
This same dematerialisation of colour is what in effect Robertson describes in the Hayward Catalogue when he speaks of Bridget Riley’s colour as being

[...] explored and summoned forth (where in essence it did not exist) transforming itself from light grey to dark through a series of transmutations barely visible to the eye. (Robertson 1971: 6)

The dematerialisation of colour and its endowment with a mysterious spiritual quality is exactly in keeping with a philosophy of colour that seeks to transcend the material and associations with flesh.

The following are examples from the Responsive eye exhibition of works that with the exception of Albers use visual distortion like Bridget Riley, to a lesser or greater extent. The Piece by Dorazio is of interest, since it resembles the lozenge works carried out by Bridget Riley thirty years later. 14 15

Jeffrey Steele, British, catalogue No 103, (1964), a Black-and-White Oil on canvas, Title, Baroque’ Experiment: Fred Maddox (Illustration 36)

Sedgley Peter, British, catalogue No 96, (1964), Black-and-White emulsion on composition board, Title, Blue and Green Modulation. (Illustration 37)

Vasarely Victor De, French, catalogue No 118, (1963), Black-and-White collage, Title, Orion MC.

Albers, Josef, American, catalogue No 21, (1958), Oil on composition board, Title, Far Off

Dorazio, Piero, Italian, catalogue No 35, (1964). Oil on canvas Title, Construction Eurasia (Illustration 38) 16

Riley’s own contribution to the show included a black-and-white emulsion on board entitled Current (1964) (Illustration 31) and Hesitate (1964). Ironically, the notorious painting Fall (Illustration 32) that was the cause of so much legal fuss was not one of the exhibits.
Cunningham: Equivocation 1964

Illustration 3  q
It is remarkable that although almost all of the paintings exhibited offered an optical challenge, for instance *Equivocation* 1964 by Benjamin Frazier Cunningham, (illustration 39) only the works of Bridget Riley were singled out as offering such a forceful one. Indeed they were considered so forceful they were later declared as ‘worrying and aggressive’ by art critics such as Andrew Graham Dixon (1997).

However, the optical effects on the observer of the two paintings by Riley and Cunningham are different in essential ways. Even though both works offer an optical illusion that puzzles both the eye and psychological perception the effects on stability of vision are different. To understand the difference it is helpful to look at the work of Gombrich who explains the complex effects of visual disturbance resulting from the *trompe l’œil* effects of Roman mosaics. Gombrich explains,

> The pattern of mosaic suggests a spatial reading in every detail but tends to resist the effort to complete it consistently so that we are driven round and round. (Gombrich 1980: 183-186)

Taking this explanation as a benchmark, Cunningham’s work can be said to be in the *trompe l’œil* tradition in that it resists the eyes needs to complete the figure consistently yet allows the viewer to settle for an image that is in consistent but visually acceptable and stationary. Riley’s *Current* is not in the *trompe l’œil* tradition since it does not conform to the mosaics suggestion of a spatial reading. Instead it does what Gombrich (1980: 183-186) describes as offering the viewer an ‘overt’ ambiguity from which there is no possible test by which we can decide which reading to adopt. There is no test of consistency that can be applied to the image making it impossible for the eye to rest and accept the inconsistencies as in the Cunningham work. Thus is produced in the viewer a feeling of unease, with a perceptual and optical problem that cannot be visually and perceptually solved. The effects of vertigo
when they occur from Bridget Riley’s work is a result of this insoluble ambiguity and for those prone to vertigo or motion sickness may lead them to describe the works as physically violent, a description that is arguably not inconsistent, with the physical effects felt. By the same token, the optical effects felt in a wide screen cinema and the effects of moiré silk can also produce feelings of unease that in some people may be beyond the normal range of discomfort.

Riley’s apparent understanding of the optical technicalities involved in her black and white work are what led Gombrich to ask her about her knowledge of optical theory, to which she responded with a denial of any such knowledge.\textsuperscript{18} In answer to a question by Bredin regarding accusations of being an optical illusionist Riley reportedly replied

\begin{quote}
The Black and White pictures have nothing at all to do with maths or optical distortion; over the years I’ve lost count of the people who’ve given me mathematical books and medical treatises—I never bother to open them. (Bredin 1982)\textsuperscript{19}
\end{quote}

Denial of the knowledge and use of the theoretical is common to the two women artists being discussed. Their declared non-participation in a phallic system of enquiry is as I have suggested in the section on Sonia Delaunay, part collusion in the received wisdom that women cannot be part of law, and part evasion strategy to avoid alienating those male institutions of power to which they would belong. For as Pollock states when discussing general cultural ideas of the nature of creativity and its implication as a masculine prerogative,

\begin{quote}
Creativity is naturalised as masculine through the circulation of woman as the beautiful, mysterious, desired and loved image for the desiring masculine gaze. (Pollock 1991: 20-22)
\end{quote}
Yvaral: Kalota 1963.

Illustration 40
Bridget Riley, photographed on Continuum 1960s

Illustration 41
Such a construct does not allow for woman to safely profess proficiency in phallic technical theories but rather applauds the acceptable use of the seemingly technical as an expression of their instinctual creativity.  

Bracewell’s (1997) use of the word violent in relation to Riley’s description of her work as ‘an extreme statement of something violent, something that definitely did disturb’ is made in reference to the reported physical effects felt by some visitors to the Responsive Eye (1965-66) exhibition. However, other works exhibited using similar techniques such as Acceleration Number 19 by Yvaral (Illustration 40) were not referred to in the same way, even though it is possible (because of the optical disturbance effects) that they may have produced similar responses in the viewer. The freedom felt by critics to refer to Riley’s work as violent can be read as part of the general way she and her work was treated by the popular press of that time prior to the tight control later exercised.

As part of the commercial popularisation Bridget Riley was photographed in an attempt to make her look like a model (Illustration 41) in the same way that Mary Quant was photographed at that time. However I feel that the attempt with regard to Riley failed since the tension in her pose belies any projections of sexiness or cuteness and instead offers another projection of the hermaphrodite or androgyne. In this framework the project is to construct Riley as a subject feminised and sexualised thereby defusing the strong impact and phallic nature of her work. The reframing of Riley ensured that images of her with her work (although still sometimes coy) no longer try to be sexually provocative
In response to questions regarding the genesis of her optical black-and-whites, Bridget Riley claims they arose as the result of an emotional crisis due to the collapse of her relationship with her former teacher, lover and mentor, Maurice de Sausmarez. The crisis is reported and discussed in many interviews with Bridget Riley and in press and magazine articles for instance by Dougary in 1994, Bredin in 1992 and Bracewell in 1997.

The most telling statement from this reportage is that the crisis pushed her into her own special brand of abstraction. In Graham Wood's Times interview with the artist he uses the word 'unleashed' to describe the emergence of her break with representation flagging a kind of 'mad dog' effect to her work,

Her first complete abstract painting was unleashed in 1961, it was an act of defiance as much as an artistic breakthrough. (Wood 1994: March 5th)

When questioned by Dougary (1994; 8-12) regarding the intended effect on Sausmarez of her new work she states that her message was 'Just See', and concerning her first abstract work Bridget Riley states

It was a totally black painting, which was slightly melodramatic of me. I can still remember the shock of it because I couldn't do it and I was used to being able to do things. It alerted me to the fact that I was going into a whole new area for myself, and that nothing could be borrowed or taken from my previous past experience as an artist. (Dougary, 1994: 8-12)

The importance of the totally black painting to modernism is completely missed by Riley's interviewers who do not question her regarding the paintings relationship to the expressionist work of Barnett Newman or the minimalism of Malevich for instance who in the last Futurist exhibition in Petrograd 1915 placed his Black Square on a white ground in the most important icon in the Russian house that of the red corner of the room so making this the most important corner of the exhibition-space symbolically black white and red. Her interviewers read Riley's leap into the dark of
her modernist black painting only as a representation of her distress at the break with de Sausmarez and not as an important step towards her establishment as a modernist painter of controversial abstract work. Dougary persists in the pattern of Riley interviews by confronting her with her earlier response to the de Sausmarez rejection:

A braver interviewer than me had asked you, several years ago, whether the message in those black and white paintings to Maurice de Sausmarez was 'sod off'.

To which Bridget Riley replies without hesitation

Very clearly, I knew that the message had reached Maurice, so to speak. (Dougary 1994: 8-12)
The message being not just an expletive but more importantly, I'll show you how I can succeed without you, see what I can do with black only.

In Kandinsky's (1977) theory of colour he states that black and white represents the two poles of a horizontal colour scale and that the geometry of square, triangle and circle can only be expressed in colour as triangle yellow, square red, and circle blue. In this way Platonic geometric abstraction can be coloured and at the same time robbed it of its attendant emotional associations by the primacy of line expressed as black on white. Colour is thus reduced to the value of Aristotelian character only present to illuminate Plot. In her black-and-whites Bridget Riley had in fact paradoxically created from her depiction of classic fleshless works of the drawn in black and white, a rhetorical and emotional comment of such force, (subversive in its concealment within orthodoxy) it reportedly stopped people in their tracks and wrought a kind of physical and violent havoc.
The Platonic classic philosophic view of the drawn as the acceptable face of art unadorned, black-and-white, rational and true, was in this way blown to pieces by the aggressive, impact of an abstraction that at one and the same time conformed to and rejected the rules. Bridget Riley’s black and whites have a double effect since they appear to conform to the normal construction of Op art images, but by pushing the effects beyond the normal, she creates images that subvert the acceptable structure of the genre. This can be construed as a demonstration of ‘double voicedness’ as theorised by Suleiman (1990: 162-163) and of a Kristevan (1984) breaching of the thetic. That is, a taking of the norm and subverting it by the inclusion of an undisclosed content thus transgressing artistic grammatical rules and thereby not

[...] suppressing the semiotic chora but instead raising the chora to the status of a signifier, which may or may not obey the norms of grammatical locution. (Kristeva 1984: 109)

Bridget Riley’s professed anger can be read as the drive that took those works to the limit, allowing her semiotic ‘chroma’ free rein inside a symbolic order displaced by the enunciation. As Bracewell states regarding the complexity of the black and white paintings

the complex patterning, displaces one’s accustomed sense of spatial gravity and ultimately refocuses the gaze to the essence of an emotion. (Bracewell 1997: 14-21)

It was this subversion of the norm that gave the black and white works their power to attract and repel, making them different and therefore highly desirable to the art institution. Bridget Riley’s apparent lack of awareness of the effects of the work on the viewer in general does not alter my reading of them, since she does acknowledge her subversive intent with regard to the effect on de Sausmarez.
The anger contained in those images, and their apparent ability to project the emotional content to the observer certainly exonerates these particular abstractions from a critical description of ‘meaningless daubs’. Even thirty years after the Responsive Eye, the physical discomfort reportedly experienced by critics such as Sewell (1992) led them to express their disapproval to as they saw it, an undeserved affront, by describing the early black and white work as a ‘black and white attack on physiological perception’.

In Sewell’s critical comments on the Hayward Gallery’s exhibition of Bridget Riley’s work 1982-1992 he speaks with some empathy of the collection, devoting time to the aspects of landscape in the work and to the immaculate nature of its facture. But in conclusion he seems unable to avoid referring to her work in terms of its Op Art origins, in a most disparaging way,

Op Art is now seen as a brief (and tiresome) flicker of the sixties, most Op Artists long (and rightly) forgotten, But Miss Riley survives, and with diligent endeavour pursues still its little tricks and fancies, whilst at the same time seeking to persuade us that we see real light and landscape. (Sewell 1992: 41)

Sewell seems to be unaware that in the Hayward exhibition, Bridget Riley’s colour underwent a transition from the embellishment of form, to its use as a more prominent element of structure and effect, an important development that remains unremarked in the article.

Bridget Riley’s stated intention as to the aim of those early black-and-white paintings was the effect they would have on Maurice de Sausmarez, an effect that she surely achieved and one that reached a wider public and enabled her entry to the art establishment and ultimately the canon of British art.
Violent Specific

When violence is done to representations of the female body by fragmentation, dismemberment or fetishisation as in the works of De Kooning, or even Picasso, critics, apart from feminist theoreticians and critics, such as Griselda Pollock rarely refer to them as violence. Instead as with colour, denial leads to a generation of critical language such as ‘grotesque and frenzied brushwork’ in reference to de Koonings Women series (Chilvers 1993: 132) to describe female distortion and mutilation. The violence is transferred to deny the reality.

When Pollock discusses sexuality and representation in de Kooning’s work, she argues that the viewer is invited to gaze at the violence done, adopting what she calls the ‘mastering gaze’ that subjects and projects the image of woman as, [...] ‘fragmented or dismembered, fetishised and above all silenced.’ (Pollock 1991: 159)

Pollock argues that the, ‘mastering gaze’ is a general organising principle of phallic order that allows such paintings as Demoiselles D’Avignon and De Kooning’s Woman series to play around with and ‘debase and dismember the body of woman’. (Pollock 1991: 159) Or again as Carol Duncan says of the silent and surreptitious use of the female image in museums and galleries, [...] ‘how often the female image speaks of male fears and fantasies,’ where many of the works feature, [...] ‘distorted or dangerous looking creatures, potentially overpowering devouring or castrating,’ Where women ‘[...] confront the viewer with the savage portrayals of their biology and their power to seduce and devour.’ As Duncan says, they represent the deeply felt phallic compulsion to flee and or punish the ‘[...] entire realm of spiritless matter that she, woman, is made to represent.’ (Duncan 1995: 113-114)
By contrast Riley’s work is accused of violence done to the viewer, because of the adverse reactions of the few to her use of black and white lines that offer nothing more than a clever distortion of visual perception. To restructure and defend the early works of Bridget Riley, Andrew Graham Dixon’s comment on her early works as ‘worrying and disturbing and aggressive’ has led her to state,

I think they were beautifully aggressive. Contrast is the clash of symbols, the exclamation mark, the strongest possible means. (Dougary 1994: 8-12)

This is a discursive construct designed to lift the accusation of violence into the realm of the beautiful and sublime. Bridget Riley’s celebration of her work is twofold in that she is celebrating works that both startled and arrested the viewer, and moved her into an artistic symbolic order that like all exclusive clubs make entry especially difficult for those that are othered.

The suppression of colour in an institutional frame

I will now look at the institutional frame of Riley’s masculinisation, and of course there is no female equivalent. Torchbearers of this discourse have included the French Academy, other national academies of art, and in the 20th century the Bauhaus and its offshoots. The Bauhaus and especially the basic Art and Design course designed by Johannes Itten was instrumental in informing and influencing 20th century western art practice and teaching.

The entire Bauhaus teaching methods were based on the idea of this course, doubts about the importance of this institution within the Bauhaus itself and the fall of the institute coincided. But the idea of the course survived! It penetrated into art instruction at the secondary schools. Art Academies and even the Technical Colleges. Through Itten it was introduced in Switzerland and through Gropius, Albers, Moholy-nagy, Peter Hans and German
Bridget Riley: plate 60 in Maurice De Sausmarez, Basic design: the Dynamics of Visual Form.

Illustration 4 2
Visiting Professors (Kurt Kranz) to America. In England and even Japan one can encounter offshoots. (Bauhaus Catalogue: 46)

Those who were instrumental in the foundation of basic art and design courses in Britain were Harry Thubron, Victor Passmore, Richard Hamilton, Tom Hudson, in association with Terry Frost, Alan Davie and Hubert Dalwood. Also associated were Lawrence Gowing, and Eric Taylor, Principal of Leeds College of Art.

The influence of the Bauhaus basic art and design course and Thubron and de Sausmarez as teachers in the late 1950s, 60s and early 70s should not be underestimated. Many art teachers who came through the system in the 50s and 60s were influenced by the methods advocated by Thubron and de Sausmarez. De Sausmarez book Basic Design: the dynamics of visual form, 1964 was published when he was a teacher at Hornsey College of Art and Design and demonstrates very clearly the types of exercises advocated by art teachers at that time. Such exercises were used particularly with A level art students, foundation students and those on basic art and design courses. (Illustration 42, an exercise by Bridget Riley)

De Sausmarez and Harry Thubron were friends and colleagues for many years, both were involved in teaching practice at Leeds College of Art. De Sausmarez was head of department in Basic Art and Design, whilst Harry Thubron was principal lecturer in the department of Painting and Research. An offshoot of the Bauhaus art and design philosophy was the summer schools run by Thubron assisted by de Sausmarez. It was at one of the summer schools run by de Sausmarez that Bridget Riley re-engaged with the teaching and philosophy of the Bauhaus. Robertson describes this time,

Bridget Riley left the advertising agency and attended Thubron's famous summer school at Norfolk. (It was actually in Suffolk. My bracket) Here, she met Maurice de Sausmarez and Norbert Lynton. She found a new atmosphere of consolidation of what she
had been struggling toward, and an inspired totally ideal approach from everyone. This was her first contact with an appropriately stimulating intellectual level of thought and conjecture. (Robertson 1971: 22)

In her own words Bridget Riley describes that time as a revolutionary experience.

I found out that a man called Harry Thubron was running summer schools about the evolution of abstraction. So I immediately went to one of these schools in a large country house in Suffolk. Harry taught us in a way that was absolutely inspired: what sort of mind Klee had, and what Mondrian was really doing...It was an eye opener and terrifically exciting. 14

The summer school used the ideas of basic art and design including Kandinsky’s philosophy that colour was acceptable when dematerialised by subjecting it to the thesis of ‘triangle, yellow, square red and circle, blue’ 25 thus controlling the appearance of colour within the universal ideals of geometric space.

Johannes Itten’s use of the sphere as the most suitable form for the presentation of colour came from his belief that the

elementary symmetrical form which is most suitable for the presentation of the characteristic and manifold properties of the world of colour is the sphere. (Itten 1963: 42)

Again this enclosure of colour within form is arguably another example of the way that dematerialised colour could be recuperated to the phallic canvas. The surface thus unsullied by a dematerialised colour becomes virgin in a spiritual sense and thus unsulliable.

At the Weimar Bauhaus after Itten’s departure in 1923 Kandinsky taught colour for a mere hour a week compared to fourteen hours of form drawing and four hours of analytical drawing. 26 The lack of emphasis on colour may have been difficult for Kandinsky to adapt to since his Russian cultural background regarded colour as a
metaphor for reality, an acculturation he shared with Sonia Delaunay and it was this very chromatic perception of reality that influenced their work.

Following the Bauhaus move to Dessau, Gage (1999) states that colour appears to have been dropped from the curriculum entirely until it was later reintroduced as part of the general art and design courses that grew directly from it. In 1933, Albers took the colour theories of the Bauhaus to America and in 1963 published his *Interaction of colour* where he developed his own colour theory. Gage (1999) argues that, ‘[...] it is certainly questionable how far he (Albers) had a coherent conception of colour-theory at all.’ (Gage 1999: 50) because as he states, Albers relegated ‘theory’ to the last stage of practice, thereby marginalizing the very theories of colour that he, Albers was writing about. In criticising Albers, Gage proceeds on the premises that colour theories are founded in a kind of natural law and are therefore open to the kind of critical analysis applied by physics or chemistry, when the acculturation of colour precludes such analysis.

The whole debate surrounding colour in abstraction would benefit from a clean slate attitude as far as colour theories are concerned. Colour, as I think I have shown is so immersed in internalised perceptions and acculturation it is not possible to adopt a coherent colour theory that is not subjective or uninfluenced by normalised perceptions of colour value.

Kandinsky’s attempts to spiritualise colour went some way to removing artistic colour perception from the material, but did not remove it from a rigid emotional value system dependent on such notions as warmth, jubilance, sorrow and roguishness. Indeed he went so far as to say that, ‘[...] some colours lie on the palette as if already exhausted.’ (Kandinsky 1997) This probably explains why
Albers: preliminary course 1923-1933.

Illustration 4 3
de Suasmarez: plate 5 Dynamics of Basic Design

Illustration 4
Bridget Riley; Blaze 1 1962.

Illustration 4 5
under Kandinsky colour teaching was reduced to one hour per week, as his imbuing of colour with emotions was at some variance with Bauhaus colour philosophy.

The Bauhaus was the first educational establishment where eye and vision became a central focus for preliminary exercises in the whole process of art training. Anni Albers certainly used techniques that resonate with Bridget Riley's most recent works, as do the works of Vasarely who is well known for his own black-and-whites and who attended Sandor Bortnik's Budapest Bauhaus founded in 1928 under the name Muhely (the workshop). The Budapest Bauhaus functioned until 1938 and had a total of 120 students including Victor Vasarely who attended classes in painting, graphics and applied graphics.

The strength of the association of the Graphic Arts to Fine Art in the Bauhaus and later in basic art and design courses in Britain can be read as being extremely influential in the development of what came to be known later as Op art and its adjuncts. The attempt by the Bauhaus and other educational institutions which followed their lead, to integrate Graphic design and the Fine Arts produced for a brief period an art that contained all of the elements of these two practices, successfully ignoring crude demarcations between disciplines.

Bridget Riley's early training was at Goldsmiths College in London, where she attended a two plus two years basic art and design course. The following three illustrations demonstrate the links between the Bauhaus, de Sausmarez, basic art and design and Bridget Riley. (Illustrations 43,44,45)

It is interesting to note that discussions of colour are placed at the end of the Bauhaus and the de Sausmarez texts. There are ninety-six pages in The Dynamics of Visual Form by de Sausmarez, sixteen of which discuss colour theory and its practical application.
de Sausmarez: plate 1 Dynamic of Basic Design

Illustration 46
The main thrust of the text argues that the individuality of the practitioner be balanced by established ideas and rules of art practice including those that apply to colour. Such ideas and rules as the theoretical constructs of primary and tertiary hue value, complementarities and simultaneous contrast de Sausmarez states, must be given primacy over instinct. This tension between subjective expression and the application of universal law is the theme of de Sausmarez text and his description of the opening plate (illustration 46) as, ‘[...] a print, which utilises a balance of intentional and accidental processes in its making.’ (Sausmarez 1964: plate 1) is an exemplar of this tension. This tense dichotomy informed desirable practice in Art Colleges during the 60’s and is exemplified in de Sausmarez text in the section on colour. In discussing the value of complementarity de Sausmarez uses the ubiquitous experiment of the brilliant red Square. He explains that a focused stare at a bright red Square produces in closed eyes a green after image.

The unaverted power of the red calls for the balanced relief of the complementary green. This is known as ‘successive contrast. (Sausmarez 1964: 83)

This is a theorisation lifted almost directly from Goethe’s Theory of Colours, and an older echo of the work of al Hazan and the alchemical tenet of opposites uniting to bring forth harmony and concord.

De Sausmarez use of the red/green complementarity theory is one more example of the erroneous theorisation of the eye’s natural tendency to pacify its over saturation by red with the complimentary green. The fallacy of red/green complementarity is discussed at length in Chapter One of this thesis, but I refer to it again in this section to highlight the persistence of fallacious ideas in an established and institutionalised culture in this case the culture of colour theory and art education.
De Sausmarez' text demonstrates the impossibility of arguing for a regime of colour that is subjective and expressive and balancing that argument against fallacious ‘natural laws’ such as ‘complementarity’.

De Sausmarez most precisely expresses the Bauhaus notion of colour as a descriptive essence that form may employ when he states that,

[...] colour, which vibrates just like music is able to attain what is most general and yet most elusive in nature-namely its inner force. (Sausmarez 1964: 83)

This statement is an interesting precursor of Bridget Riley’s own connection of music and colour that I refer to later in this section.

The development of art and design courses in Britain, embracing as they did the Bauhaus principles ensured that the established acculturated pattern of the primacy of the drawn would continue. Art and Design courses maintained that primary forms are geometric, and in this hierarchy of creativity form always dictates colour.

Riley Reframed

As I have already argued, Bridget Riley’s notoriety of the sixties required an urgent distancing and reframing of her from the effects, if she was to be elected to the canon of British Art.

The recuperation of her work into what was still an essentially modernist art establishment, that at the Tate not only required a reconstruction of her identity as an artist immersed in modernist intellectual creative processes, but also required distancing her from all the possible contaminating effects of Psychedelia, drugs, colour, sex and the body. All these had to be either denied marginalised or
recuperated to the phallus in order that her painting and her colour could continue to promote her extraordinary art as suitable for consumption.

At the time of Bridget Riley’s reconstruction from Queen of Op, the art establishment still embraced the artistic values of the Bauhaus and modernism and was thus able to validate the Op Art oeuvre, and recruit it to the art establishment stable. Follin, (2002) on the other hand suggests that Op Art was a rejection of modernism and an assertion of older more humane values. This appears to be an interesting notion and one that does not make the connection between modernism and the influence of Platonic notions of ‘universals’ and ‘ideal form’ on the genesis of modern formalist ideas and ideals in the Bauhaus and its offshoots, a modern neo-Platonism that I believe informed the genesis of Op art.

The adoption of an archaic Platonic Ideal to be attained is a modernist value and the very value that post-modernism strove to undermine. The recuperation of Riley’s work required the reconstruction of her artistic identity as an artist immersed in a modernist intellectual creative process, striving for an ideal work.

The Hayward exhibition of (1971) was the first retrospective of Bridget Riley's work and although mainly concerned with her black-and whites, it also showed works in colour done in the four years leading up to the exhibition. The show came to the Hayward after a European tour that took in Hanover, Bern, Dusseldorf and Turin, and was scheduled to move on to Prague, in this way consolidating Bridget Riley’s reputation as an acclaimed international artist. The travelling exhibition followed Bridget Riley’s triumph in 1968 when she was the first British painter and woman
artist to win the international prize for painting at the Venice Biennale, an award that critic Edward Lucie Smith\textsuperscript{31} compared to the Nobel Prize.

The Arts Council of Great Britain funded the Hayward exhibition and Bryan Robertson who also wrote the biographical notes introduced the catalogue.

Part of Riley’s reconstruction involved a biographical map in the Hayward Catalogue giving an overview of her life and work up to 1971 and Robertson concludes his critical overview with a subtle shift of emphasis to the historical continuity of her work and its place within the classical tradition. It is also arguably an alchemical tradition that valued above everything the reconciliation of opposites.

Bridget Riley is a true artist and not a programmed research worker making plans for paintings. She creates works of art that continue a great tradition through the way in which she seeks to reconcile opposites and create harmony from discord, repose from tension. The act of reconciliation, at once existential and constant, beyond all vagaries, becomes part of the living present through the re-discovery of what has always been there by classical intelligence intent upon visual truth and order. (Robertson 1971: 18)

This foregrounding in a classical frame moves her from the transience of Op art into the greater permanence of an art canon based on classic antecedents

A later reflection of the Hayward reconstruction was taken up by Kudielka (1995) in Bridget Riley: Dialogues on Art where she takes up the 17\textsuperscript{th} century French art Academies refrain of the artists need of literary skills. Kudielka’s text establishes Bridget Riley as a literate and articulate painter, one for whom discourse forms part of her artistic paradigm.

The dialogues engage with her knowledge of painting as history and with her opinions and knowledge of perception and abstraction. Time is also given to Bridget Riley's attitudes to her reputation and to what pleases her in particular what pleases, her in an artistic sense, such as a final perfect rendition of an original thought or
concept. Kudielka (1992) also discusses the notion of colour as the sole subject of a painting and argues that such a notion is constantly under threat from western attitudes that claim that such an idea is untenable. The point is emphasised through references to colourists such as Titian, Rubens, Delacroix and Turner who Kudielka argues, did not pursue the idea of colour as form, since for them the plot or subject matter of a painting came essentially from a literary tradition. This last claim is intentional in the sense that it reinforces the idea that real painters are rooted in intellect and a literary tradition, and links Bridget Riley to that tradition.

In the dialogues Bridget Riley demonstrates her extensive knowledge of the Classic canon of work held by the National Gallery and uses a reference to Stravinsky’s music to link her own philosophy of working to his within self-imposed constraints that she likens to her own establishment of ‘limits’. Bridget Riley quotes from the Stravinsky Harvard lectures (1939-40) called *The Poetics of Music*,

> My freedom thus consists in my moving about within the narrow frame that I have assigned myself for each one of my undertakings, I shall go even further, my freedom will be so much the greater and more meaningful, the more narrowly I limit my field of action and the more I surround myself with obstacles. Whatever diminishes constraint diminishes strength.

In conclusion, Riley makes her admiration for the idea of limits very clear,

> I think that’s a very beautiful piece, and it became a guiding principle in my work. (Kudielka 1992: 8)

A brief discussion of Riley’s interest in the idea of limits will help to illustrate her own need to be taken seriously and the depth of her desire to be understood as an artist who is more than just the paint on her canvas. The attraction of working within limits first attracted Bridget Riley when working as a teacher at the Convent of the Sacred Heart in Harrow in 1957-8. This period of teaching followed a four-year
uncreative gap after her time at Royal College and a period of hospitalisation following the death of her father. The teaching practice re-aroused Bridget Riley’s interest in the whole process of limited repetitive rhythms and the inventive potential contained in working within such strict limitations. Riley began again to explore the effects of limited sequences of line and colour in a way that could be understood by the children she taught in the same way that the preliminary exercises of the Bauhaus taught at Goldsmiths had revealed the possibilities of repetitious effects for Bridget Riley. The use of restraint and the importance of the play that can be made within a limited set of patterns or painterly comments has remained the ground source of Bridget Riley’s *mode d'emploi*, in stark contrast to expression through spontaneous instinct or random response.

Kudielka’s dialogues continue to extol Bridget Riley’s classic artistic connections with references to Poussin, Seurat, James Joyce and Mondrian and in this way is further established as a learned, knowledgeable and discursive artist prepared to theorise art within self imposed ‘Limits’ as a source of liberation rather than containment. An artist able to reason about art and reflect on paintings, an artist who is to be taken seriously. This was a significant factor, one that Lichtenstein (1993) argues was the main driving force of the French Academy’s attempt to split art from the artisanal.

Kudielka confirms that Bridget Riley had become what Lichtenstein (1993) states was the desired objective for artists of the French Academy to be, ‘The humanist ideal of a scholarly and lettered artist’, and ‘the artist theoretician.’ (Lichtenstein 1993: 142) The importance to philosophies of art that academisation achieves is not only the establishment of the artist as a serious proponent of the humanities, but also a
furthering of the process of the defeminisation and disembodiment of colour and its placement outside the remit of the artist as a sole tenet of their work.

Lichtenstein (1993: 142) argues that the foundation of the French Academy in 1648 was a major step in ending what was seen as a degrading situation for practising artists. It lifted painting from the mechanical arts where it had been situated since ‘The so called Gothic age’, to a position where art would be given the same serious consideration as poetry and literature. Lichtenstein argues, that it was hoped that the establishment of the French Academy would remove the last pre Renaissance tinctures of master daubers and dyers. The argument is developed by emphasising the recurrent need for artists to be taken seriously, by recalling previous attempts to raise art to a higher level,

Twice in Western history, practitioners of the visual arts have passed from the level of artisan to that of artist. Thus it is not surprising that French writings on Painting always begin with a celebration of the two ages that recognised this art in all its glory and dignity, uniting antiquity and the Renaissance in one nostalgic tribute.

The pedagogic desire of the French Academy to establish the connection between painting and discourse was intended to created a new cultural perception of the artist as articulate and lettered,

A scholarly and lettered artist who refers to the language arts and thus to whom the language arts can refer. (Lichtenstein 1993: 164)

For women artists such as Bridget Riley the need to be taken seriously is an additional hurdle to jump adjacent to the continuing institutional need for art in general to be taken seriously. When the French Academy was about its business of establishing the serious nature of art; it was on behalf of male art practitioners, not females.
The need to be taken 'seriously' arising in part from her earlier notoriety drove Bridget Riley to claim that following that experience she adopted the advice of James Joyce,

I came across something that James Joyce said. He said there are certain times when there's only one proper defence for an artist, and that is to choose silence, exile and cunning. (Dixon 1992)

This quote further explains the policy of careful vetting of interviews and articles that Bridget Riley adopted after the furore of the 1960s. The threat of all the as she saw it adverse publicity surrounding her work made her indeed retreat behind a carefully constructed screen of privacy that has never been breached. I would suggest that the price she has paid is that she is now relatively unknown amongst a younger generation apart from those who are informed in the art world. Certainly popular knowledge of Riley is limited and still tends to be connected to her notorious black and whites.

The accepted understanding that it is the combination of the cultural codes of the reader and the message writer that determine perceptions of the message content is useful when applied to the choice of colour codes for the experiment sheets (chapter two). The sheets use tested preconceptions of basic colour terms to discover the colour value orientation of specific signifiers. The exchange of an a priori knowledge between sheets and subjects arguably enabled the participants to organise their perceptual response into a hierarchy of chromatic value, expressed in analysis as a collective perception. Such an interactive perceptual process relies upon an exchange of an agreed perceptual understanding of the signifiers.

The establishment of signifiers that through usage become agreed is begun by Robertson's (1971) detailed description in the Hayward exhibition catalogue of 263
Bridget Riley’s middle class origins combined with allusions to the philanthropic and upper class literacy of her family thus establishing a persona for all subsequent critical writing. Robertson (1971: 5) also deals deftly with any blame that might still attach to the artist from the effects of her black and white visual disturbance works by describing their ‘immaculate execution’ painted as they were (and are) by assistants. The establishment of distance and the validation of other hands also placed Bridget Riley within the atelier category of the renaissance artist with colourist assistants. This not only distances her from the facture giving her a serious thoughtful stature as a creative but not a manufacturing artist, but also distances her from the contamination of colour and craft and strangely adds a divine dimension by the use of the word ‘immaculate’. Such a word subliminally connects her to the virgin, once again establishing her place as a ‘phallic mother’. Robertson deals with the paradox of her identity as the artist of the works and her distance from them by stating that,

> Although the work is plainly her own, and nobody else’s there is one aspect of all her painting which defies identity in the conventional sense of surface. The surface of these paintings is anonymous. (Robertson 1971: 5)

With one stroke the artist is separated from the effects of her work and like a scientist she is not to be held responsible, moreover like a scientist Riley is acknowledge as a serious and objective practitioner. The constant repetition internal to the biographical detail of Bridget Riley establishes and reconfirms with every publication a serious framework of cultural and biographical reference within which we expect to find her.

When the body of the artist is removed from the work, it is placed within a modernist neo Platonic philosophy where the body is not necessary or specific to the content.

Eagleton’s opening remarks on the question of the subject of the body in post modernism by contrast quotes the heavy-handed emphasis of the body when he says,
From Bakhtin to the body shop, Lyotard to lyotards, the body has become one of the most recurrent preoccupations of post-modern thought. (Eagleton 1997: 69)

Post-modernism was therefore not the philosophical space allocated to Bridget Riley.

The Masculine Imperative

The black and white works of Bridget Riley present a masculine surface, indeed it is impossible to categorise them as anything but masculine since their very black and whiteness places them in a philosophical category that denies the colour of femininity. Based on my research and the episteme of colour philosophy, black is perceived as masculine, therefore to place black next to white is to create the Platonic philosophical condition for the creation of colour that is by the same cultural imperative perceived as feminine. The absence of overt colour in the early works brings them into conformity with the true meaning of art that is devoid of colour in a metaphysical sense and beyond the body.

In the Poetics Aristotle ([c384-322] 1987) speaks of colour as the lesser art, or as a useful tool in the depicting of character, useful in relation to the greater art of the creation of Plot,

The plot therefore is the principle or one might say the principle of life, 'in tragedy' while the mimesis of character comes second in importance, a relation similar to one we find in painting, where the most beautiful colours, if smeared on at random, would give less pleasure than an uncoloured outline. (Aristotle [387-322BC] Halliwell 1987: 545)

Character or colour in the Aristotelian sense, is not the main support of the play or canvas, only structure or plot can stand-alone and complete. Riley’s Black and whites perform absolutely the role of defining a clear plot in black and white, at the same
Bridget Riley: Serenissima 1981.

Illustration 4-7
time allowing the two poles to produce covert colour that in the Aristotelian sense add character in a subtle and erudite way.

So, for Bridget Riley, her debut as an international artist was ostensibly colourless and masculine, made with her black and white work (1958 to 1968) which at one and the same time projected from the canvas images that distorted visual perception, and produced in some works a chimera or chora of colour. As Follin (2001: 58) suggests, they magically produced disembodied, iridescent colours, 'like St Elmo's fires' that played around the areas of maximum visual distortion and tension, the marginal space where incidentally you would most expect to find unexpected outcomes, such as revolution, or a breaching of the thetic.

In terms of line, Riley's curves and horizontals are employed to create the form of her work, a masculine architecture especially overt in the black and white paintings of the sixties. These paintings rely upon the use of the classic form of a mediating line to expound the whole form of the painting. (Illustration 47) This traditional mode d'emploi is one that has grown out of a classical tradition that as I have argued insists that line, form and ideation, are primary and masculine, whilst sensation, texture and colour are secondary and feminine. A tradition that also grew from the Platonic and Aristotelian belief that drawing is a given skill, that which cannot be taught, a skill that provides proof of a real artist and as Lichtenstein states,

> Drawing is always defined as an abstract representation, a form of a spiritual nature, whose origin resides solely in thought, the mark of an intellectual activity that proves to those who condemn painting that the latter always follows a 'design' or project. (Lichtenstein 1993: 149)
Whereas colour, on the other hand can be taught and should in most cases be left, 'by the master to his apprentices, (Brusatin 1991: 61) a recommendation followed by Bridget Riley and commented on by all her critics.

In his book *A History of Colour*, Brusatin addresses the establishment of this traditional view of the primacy of the drawn. I quote the whole passage because it explains the connecting thread from Plato and Aristotle to contemporary belief in the primacy of the drawn.

Perhaps because of an increasing distance from the workshop formularies, the distinction between form and colour in artistic production gathered support from the classical philosophy and was broadened further by the neoplatonist theoretical developments of the renaissance. The classical juxtaposition of drawing and colour, in itself already a rather academic notion that was to become popular in the late Renaissance, seemed to gain credibility from a passage in ‘Poetics’ 2 (Aristotle [387-322BC Poetics Halliwell 1987 1450: 1-3.) and not just from the perceptual relativism of Pseudo-Aristotle in a work on the substance of colour published in 1497. This passage unmistakably accords the drawn form primacy over colour. For the very same reason that in tragedy the ‘mythos’ being the totality of events, must be considered more important than “character”. Which is simply the element by which we judge the various motivations of the characters of the play. (Brusatin 1991: 61)

The use of line therefore represents the traditional view of art, one that is dependent upon a phallocratic philosophical view of the ideation of line, architecture and geometry, generally speaking, a masculinisation of line.

The ideation of form in conjunction with mathematics and philosophy is in the tradition of phallocratic written thought, and the epistemology of ideas. This formulation established institutionalised markers to be followed by Academia to the present day. Even when the modern became the new, the formula for constructive
thought remained the same; a philosophical stasis and logical constructivism that relied upon the definition of universal ideals defined in mathematics and art as the line the quadrant and the geometric.

Framed within this philosophical ethos, Riley’s use of line masculinises her work as a result of the primary function of her basic design either to create a structure where colour is produced by optical interaction, or to use colour as an extension of her mind and imagination thereby making colour, dependent on the primary use of line and plan.

It is helpful to look at Lichtenstein’s argument that philosophies of art and colour have an epistemology from the Platonic and explain that discourse from pre-Socratic obsessions with explanations of externally observed realities moved to the internalised conception of the ideation of forms and moral concepts.

‘Since the time of Plato, painting has experienced the philosophical fluctuations surrounding the more general question of the image to which its destiny has been bound. Banished from the realm of metaphysics, deprived of any real position, the image ended up being reduced by the very act that made possible the constitution of philosophical discourse, to a simulacrum on the walls of a cavern, a mere shadow. Yet it was never effectively suppressed, for it has haunted philosophy ever since. She continues. ‘Philosophy could, under certain conditions, tolerate this image that was but a shadow of itself, the image of an image’. (Lichtenstein 1993: 6)

Those certain conditions became in art practice the primacy of the phallic drawn and architectural over feminine colour and the senses.

It can be argued that Riley’s work complies exactly with the philosophic requirement since it has indeed done away with the image thus complying with notions of the internalised image destined to be (unlike a recalcitrant child) heard, but not seen.
The image in Riley’s abstraction has become satisfactorily, an inhabitant of phallic discourse.

Modern philosophical and theoretical readings of colour maintain established philosophic perceptions of it as a by-product and in so doing continue to validate and reinforce its problematic value.

At the end of his life Wittgenstein discussed the problematic of colour and declared that to philosophise about it was to ‘finally see red’. His philosophical theorisation of the intangibility of colour stated,

How do I know that this colour is red? It would be an answer to say: I have learnt English. (Wittgenstein 1989: 117)

Colour is thus banished to a non-existence, reliant entirely upon language for its visibility and reality.

Lichtenstein (1993) argues that painting, or the ‘institution’ of art endeavoured to find a place within the legitimacy of the philosophical debate or be forever doomed to remain in the world of crafts, artisanal, with feet of clay [literally in the case of pots]. Therefore the fine arts of painting and sculpture she argues recuperated the classic ideation of ‘image’ and established a hierarchy of expression. Lichtenstein states,

As Rhetoric wished to control its eloquence within regulated discourse; so painting, to inscribed the rules of discourse within its images. The one attempted to limit the place of the body in rhetoric by insisting on figures of speech and thought that owed nothing to elocutionary artifice; the other, to reduce the importance of the specifically visible dimension of painting. (Lichtenstein 1993: 7)

The idea that phallic black and white is not colour is essential to a philosophically based notion of feminine colour as product of the former two colourless theorisations. Although Riley addresses the difference between her black and whites and colour, both are for her the means to the production of a sensation of something not
materially present, a pictorial *Oroboros* or hermaphrodite. The difference made by critics between her black and white work and her use of colour is important and does not reflect her own attitude that is less clear-cut. As she herself states in conversation with Isabel Carlisle,

> My black and white work is based on a contrast between stability and instability. It has a firm structure, which is momentarily dissolved in perception. Colour relationships are susceptible to change right from the beginning, although these changes are certainly not abrupt or dramatic. My new colour structure is a kind of shifting ground.

She continues the debate on difference by admitting that in paintings such as *Late Morning*,

> [...] those paintings do combine both aspects in that the particular characteristics of each are reduced to their absolute essentials.

(Carlisle 1999: 10)

Riley never argues for closure around the notion of difference in her black and white and coloured work and in her most recent works of the late 1990s particularly the wall painting of black and white circles 1997 she declares that both lines of ‘enquiry’ are closely linked. Despite the seeming impossibility of combining black white and colour in a philosophic sense, Bridget Riley’s paintings have become by subversion a combination of everything, of male and female, of line and colour, a dysfunctional and harmonious combination of opposites that have produced lodestones of art.

The apparently colourless works of Bridget Riley share with the *Parthenon* what Batchelor (2000: 18) suggests is an ability to absorb colour, ‘in its classical power and Glory. The work of Bridget Riley conforms to a classic black and whiteism that Bachelor claims:

> [...] to this day, remains a belief, often unspoken perhaps but equally unquestioned, that seriousness in art and culture is a black and white issue, that depth is measured only in shades of grey.
Colour in this philosophy is either attached to the word as mind, or to the body as sense and as Batchelor states,

Colour is made out to be the property of some foreign body-usually the feminine” he continues “Colour is either dangerous, or it is trivial, or it is both. Either way colour is routinely excluded from the higher concerns of the mind. (Batchelor 2000: 23)

The guardedness of critical chromate debate about Bridget Riley’s working relation to colour is a demonstration of what Batchelor describes as the phallic state of chromatic denial resulting from a high art Chromophobia. In this sense Bridget Riley’s work arguably can be said to bridge time and visual distance between the phallic power of a classical then and a modernist now, expressed in a critical sense as stereotyped and institutional expectations of a masculine artistic past and present.

Fleeting Memory, Perception and Instanteity

Bridget Riley’s connection to Cornwall is made in all monographs and catalogues of her work partly because she spent the war years as a child there and perhaps to connect her by association with a British modernist school of art originating in St Ives. I shall connect the dislocation of memory with the speeded up perceptual moment.

The artist’s perception of Cornwall is framed as an essence and a reflective surface, rather than the traditional view of Cornwall as a source of light special to artists. In reply to Robertson’s (1971) description of Cornwall as a source of clear light and sharp bright colours, Bridget Riley responds:

To me, the colours always seemed to be soft. One is very aware of greys- there is a wide range of subtle shades of greys, warm and cold-coloured greys in the slate of the rocks and stone walls, the
colours of the sea, the sky, and the mists that are never far away. There is also a sense of fine detail of texture in the lichens, mosses, streams, pools and little trees. (Robertson 1971: 77-78)

In response Bridget Riley’s transposes Robertson’s bright Cornish colours with her soft colours, mostly grey’s, that are subtle, warm, cold, and of the sea, sky and mists, detaching her colour from the common view of Cornish colour held by Robertson. This diffusion of Riley’s colour gives it an elusive nature that is taken into the works it inhabits. Riley’s insistence on the insubstantial quality of her colour demonstrates her own understanding of the need to avoid what Batchelor states as the danger of being called colourful, when:

[...] colour, is not only low down in the hierarchy of a painter’s skills and resources, as it has been in academic training from the start; it is down there because that position corresponds to colours lowly place in the moral hierarchy of the universe. (Batchelor 2000: 25)

Bridget Riley seems to understand that for a woman artist’s use of colour to be described as a metaphor for brightness, gaiety, uncertainty, sex, or excess, will condemn her work to the sobriquet ‘feminine’ and for feminine read trivial. Colour stated as the other remains just that an, ‘other’ that offers no means of integration or reconciliation of two realities. Its minority status and marginal value is reinforced and safely contained with every use of the metaphor of materiality.

The reframing of Bridget Riley and her colour makes good use of her stated perception of Cornish colour as a thing to be caught but not held. The nature of Bridget Riley's perception of colour and Cornwall is seminal to an explanation of her philosophy of perception. A philosophy of colour wherein it does not belong to a fixed form or entity but exists only by the effect of its intellectual residence elsewhere. It does not reside in a place, but rather is an essence that can be recalled in any
temporality or spatiality, without recourse to a material or corporeal substance, or location.

I have argued that the Responsive Eye and the Hayward exhibition of the 1970s made respectable Bridget Riley's art in an œuvre that used optical illusion as an acceptable and established modernist image of representation. Modernist arguments that the mechanical and scientifically 'new' along with the speed of communication and travel required a new kind of looking, aided the acceptance and rendering as respectable, Bridget Riley's optical disturbance work, as a modernist high art genre.

Using the eye of the observer as part of the technical process in the production of the painted image is however not new. This technique can be traced to antiquity, where the mosaic makers of Antioch and Rome may have been as eager to confront accepted spatial readings, as abstractionists such as Bridget Riley still are two thousand years later. Mosaics were seen and appreciated as clever tricks and popular art critic, Brian Sewell (1992: 41) has described Bridget Riley's work in the same terms as 'clever tricks'. Bridget Riley's paintings, in particular the early works, do startle the viewer with their optical interference patterns in a restricted palette of black-and-white but they are not artefacts to be walked over, to be amused by, or to be forgotten. They are serious works designed to impress, to be remembered and to be revered as examples of Fine Art.

Krauss (1994) discusses illusion as a product of the operations of the unconscious in vision, and takes its acceptance in art as a marker of modernist techniques of painting. The illusions of colour or three dimensional form produced by the physiological ground of perception is what Krauss argues is recuperated into art form by artists such as Duchamp with his spinning discs and by extension I include Bridget
Riley with her illusion of colour and colour change and instability. Krauss (1994: 7) argues in her book *The Optical Unconscious* that modernism and the development of abstraction led to what she describes as a 'paring away of vision' where presentness became the all-embracing experience in the observation of the visual object. Krauss (1994: 7) continues her argument by introducing the element of 'instanteity' as a prerequisite for modern perception, 'Vision had, as it were, been pared away into a dazzle of pure instanteity, into an abstract condition with no before and no after'. Krauss's argument explores the idea that vision or the look, or more precisely the glance, placed modernism and abstraction within the classical canon of art. Seeing so fast and so abstractly that a 'white smudge could be exploded into pure contact, pure simultaneity, pure optical pattern' gave to this heightened vision Krauss argues, those aspirations that fitted Greenberg's outline for modernist paintings, '[...]' a self critical dimension' uncovering and showing the '[...]' conditions of vision itself, as these were understood abstractly.' (Krauss 1994: 7)

The modernist text of painting became in the context of visual speed an object not to be read through the lingering gaze, as previously prescribed by the formal representations of discourse in painting. Abstraction moved the interaction between author, text, and observer into a new relationship; one that displaced classical notions of looking at length.

Yet, the modernist endorsement of the glance ironically has its foundation in the classics and is a continuation of phallic philosophic discourse where Cicero [106 B C] said of the difference between discourse and rhetoric that,

An art of discourse is to be judged at a glance. The intelligent critic, not by patient sitting and attentive listening, but by a single glance in passing can often form a correct judgement of an orator.35
With the acceptance of Illusion (that is the presence of something that is not materially there, inclusive of optical interference) as part of an artist’s œuvre, the eye of the spectator took on a new important meaning when confronted by works that relied upon optics to contribute to that work’s effect. Modernist abstraction called for the liberation of vision from the context of the object. However as Gombrich (1980) points out, the eye is so closely linked to psychological perception and cultural imperatives that as he argues,

[...] a familiar shape will induce the expected colour; if we offer the shapes of a leaf and a donkey from the same fabric and ask observers to match the cut-outs to a colour wheel they will tend to select a greener one for the leaf and a grey for the donkey. (Gombrich 1980: 87)

Such colour selections are based on chromatic cultural assumptions of a leaf’s greenness and a donkey’s greyness, even though leaves and donkeys enjoy a wide range of colour reality, the simple cultural choice is basic on a consensual code of cultural chromatic perception. Such perceptual and cultural inputs may influence the colours seen even in abstraction, for as has been shown in the colour acculturation experiment, colours do not travel alone, their historical and cultural baggage always goes with them. The pinks and pale greys of Riley’s work may be abstracted in the sense that they do not depict character or objects, but they do carry with them preconceptions of meaning separate from the canvas surface. As Kristeva (1980) has argued in Giotto’s Joy, the triple register of colour, like the triple register of painting, has layers of meaning from perceptions that are not just particular to the work or the colour.

The modernist recuperation of illusion to the canvas surface meant for painting the uncovering and display of the condition of vision itself and dependent upon the interaction with the abstract display of structure and colour upon the facture and
composition of the work. As Krauss argues, 'The heightened sensitivity of the picture plane may no longer permit sculptural illusion or trompe l'oeil, but it does and must permit optical illusion.' The abstract image inevitably did away with the necessity for figure-ground tensions and by removing this requirement the picture plane was able to place figure and ground in the same temporality and spatial context, whilst at the same time maintaining the illusion of dimension or as Krauss explains,

The first mark made on the surface destroys its virtual flatness, and the configurations of a Mondrian still suggest a kind of illusion of a kind of third dimension. Only now it is strictly pictorial, strictly optical third dimension....Only one into which we can look, can travel through, only with the eye. (Krauss 1994: 7)

The establishment of the eye as the organ of engagement in the new context of eye and illusion allowed the art of abstraction to become a field that no longer depended upon the recognition of objects. Instead, it relied upon the collusion of the observer that there was indeed something to observe something articulate and innately cognisant upon the picture plane. The two dimensional surface of the painting became a site for the expression of the artist's own reality, as I have argued was the case for Sonia Delaunay. The artist or orator, the author of the text, became a translator of the invisible into imagery and imagination, the invisible being the feelings that are present and observable to the spectator even when they are not able to read the text in the classically prescribed formula of an academic script.

Bridget Riley's claim that sight or observation is best served by the glance, confirms her modernist credentials coinciding as they do with the views of Krauss (1994) regarding the visual and to some extent those of Nochlin (1991: 172) when she argues that modernism or the idea of the 'pure painting' instated 'pure visibility and the flat surface as synonymous with the modern' Bridget Riley argues that the brief
impression is what matters, not the lingering gaze that does not hold the image, but merely clouds it because of the inherent unreliability of the field of vision.

Glare, dazzle or the feelings of vertigo are all by-products of Riley’s obsession to stimulate imagination through optical reception and knowledge of nature gained from a glance. Whilst sitting at a table in the Hofgarten in Munich, Bridget Riley accompanied by Kudielka is reported to have said,

Look at it, just look at it! No don’t look at it, just glance!

Kudielka explains,

Bridget Riley believes that true appearance is best revealed through the casual glance and then only momentarily. (Kudielka 1992: 8)

As a visual phenomenon the physiology of the glance does not give enough optical time to imprint a single colour on the retina, it allows only a fleeting memory of colour that can in some circumstances become blurred into an overall greyness, an effect of low light exposure on the retinal cones and rods. The glance or flash of an image will rely on the physical clues of the objects glanced at to provide the achromatisation of the image. In this way, the chromatic hypothesis may or may not be correct and this may be the attraction to Bridget Riley of the fleeting glance whereby it is the hypothesis of the image and colour that determines the final perceptual outcome, the memory or glance of Cornwall defines the final perception of the painting.

Colour Reframed; Beyond the Body

The Italian word ‘Morbidezza’, is a feminine noun meaning suppleness, softness, tenderness, limpness and blurriness, and it is this ‘Morbidezza’ that is the feminine
formless matter present in bodies in the guise of flesh as opposed to the muscular flesh of masculinity. In painting, Lichtenstein argues that it is colour that renders the ‘Morbidezza’ of flesh as matter.

Colour is to painting what flesh is to the body, the trace of an origin that philosophy cannot name but whose paradoxical power still shows. Whether real or painted, the tangible qualities of flesh or flesh tone always reveal formless matters persistence at the heart of informed matter. (Lichtenstein 1993: 63)

The implication of connecting colour and flesh and flesh and colour to painting is that they are implicit in the production of pleasure where colour is a marker of the illicit, the self indulgent, produced from seduction and the silent secret masturbatory frisson implicitly enjoyed in the case of paintings in public places without detection. Lichtenstein (1993: 63) argues that colour and flesh do not produce the Platonic ‘good pleasure’ a pleasure seeking only knowledge, where ‘knowledge’ in the Socratic sense is the premier virtue since it contains when properly practised all the virtues. Like flesh, colour’s materiality places it in categories of the ephemeral and the random where it cannot observe the philosophical orthopaedics necessary for it to follow a plan or law, or to be the ‘dessein’ that precedes the materiality of flesh or colour. As Lichtenstein explains,

The formless matter present in bodies in the guise of flesh is the very matter manifest in painting in the guise of colour. (Lichtenstein 1993: 63)

And because philosophic acculturation has allied colour to the body feminine, and the feminine to the debased, colour in painting carries all the baggage of a whore.

The recuperation of Bridget Riley’s work to high phallic culture necessitated conflating both denial of the feminine body and feminised colour, an acceptance not
confined to her work since accepting the unacceptable; that is colour in art, applies to all paintings since all have colour to a lesser or greater extent. The main strategies used for the acceptance of colour is Batchelor (2000) argues, to live in denial, and do so by not addressing the chroma of paint even when it is staring us, or critics, in the face. Or, when colour is addressed to speak of it in terms that are confined to the theoretical or spiritual, but not the somatic.

For women artists the presence of the female body is even more problematic to the absorption of their colour to art, unless they are as Battersby describes, recognised as ‘Male spirits, confined by mistake in female frames’. (Battersby 1989: 141) An extension of this logic to colour allows its recuperation to the canvas when it is recognised as an expression of the divine ‘she’, the great creator or phallic mother, trapped in material form. Red must be spiritual not menstrual.

I have argued that Bridget Riley’s use of black and white in her early paintings signifies the masculine rather than the feminine in stereotyped cultural perceptions of colour. From the beginning of her abstraction, black-and-white was used as a surrogacy or as Robertson (1971: 22) quotes the artist as saying ‘as surrogates for colours.’ Bridget Riley uses the word surrogate in a universal chromatic sense and includes the non-colours of black-and-white in its remit. ‘Black and white from the beginning are used as surrogates, as surrogates for colour.’ (Robertson 1971: 15) In dialogue with Bridget Riley, Robertson (1971) suggests that every colour in the early paintings is a surrogate influencing and extending beyond it, to invade and modify adjacent colours in the production of chromatic effects.
If a surrogate is one who gives birth to that which the mother cannot or is unable to do, then colour including black-and-white as surrogates, (an interesting feminisation) give birth to chromatic sensations that material structure alone cannot do. In this sense colour, including black-and-white take on the creative meaning of the She of Platonic cosmology, the She of soul, but not of body.

Colour as surrogate in painting reproduces in Bridget Riley’s case, an immaculate canvas, unsullied by the uterus. A surrogate colour is in this sense a chimera of the concept of colour. Colour as chimera is like a fire breathing monster with the head of a lion, body of a goat, and tail of a serpent, a beast made as a result of a mutation with no resemblance to a real animal or a real colour. Paradoxically, surrogate colour like material colour, is also in a philosophical sense without meaning, since it is inescapably still a product, a result of a creative power, active beyond it. The paradigm of surrogacy distances colour even further from its materiality into an infinite insubstantiality that has no graspable existence at all. Bridget Riley has succeeded, in words at least, in pushing colour beyond the body to a Platonic state of the body beyond flesh.

In dialogue with Andrew Graham-Dixon (1993) in A Reputation Reviewed, Bridget Riley engages with vision and the evolution of an abstract art whose vocabulary was independent of traditional cultural associations and demonstrates the way that colour can be included in a discourse on art that controls its sensuality and materiality.

But the point about a visual language is that it must be expressive, that these elements-squares, circles, triangles, contrasts, harmonies, etc-could express something when they were released from the burden of having to serve as agents for other meanings.
The separation of the form of her visual language from the experience of the real, gives a Platonic value of *universals* to the geometry of her work. In response to the question of how this interpretation would affect her use of colour she replies,

My black and white paintings had been about states of being, states of composure and disturbance, but when I introduced colour in 1967 this began to change. Colour inevitably leads you to the world outside; in 'Late Morning' and other paintings I made in the late 1960s I was beginning to find my way with a whole host of sensations to do with Colour. But to start from these as I have in my work since the early 1980s is quite a different thing. Sensations-visual sensations-defy attention, the moment they are focused upon they evaporate; they are extremely elusive things. (Dixon 1993: 71)

In this dialogue, colour and sensation have become synonymous and apart from the abstraction of her form, but paradoxically, the intangibility of them as 'elusive things' or abstractions is also established. Colour's very intangibility is what Bridget Riley states is her concern to work with, her concern not only with the first impression that her colour makes, in stripes or bands, but as she says in what seems like a contradiction of her view of the glance as the primary value of vision:

> The colours in my paintings should engage the eye, give you something to look at and in time, through structured looking, you may become involved in an experience that is not just visual.  

Colour in this sense becomes like music, that is not just the immediate sound, but also the resonance of all the sounds heard together and apart. Or as Bridget Riley says of music,

> it occupies your ear with sounds and rhythms which hold your attention and in listening to this structure you hear something more something between and around the notes.

This is the Kristevan 'chora', or the Mallarméen song beneath the text.
Understanding Riley's philosophical perception of colour as quality, as an insubstantial 'something more' beyond what is stereotypically perceived as the feminine somatic and material and beyond in a sense the initial vision, leads us toward an understanding of how colour is institutionalised and conditioned for recuperation to high art. The process of detachment from the visual sense reaction removes colour to a plane of consciousness beyond the immediate and the sensory. Riley states that colour and sensation are 'to the world outside' (Farquharson 1994) thus avoiding the connection of colour to the body, in favour of a perception of colour external to the body, or outside, arguably placing her colour alongside thought, memory, and idea. When pressed by Farquharson regarding the influence of the material world on her use of colour in the post 1960s works Bridget Riley she responds by saying that qualities like the feelings of sand or sun warmed stones or the coldness of metal or golden straw may appear on her canvas as forgotten occasions and the colours of these memories will become the point of contact to them. Riley does not explain how this subjective knowledge conveys to the observer, but what is significant is that though the colours used are initially somatic responses to a material world, the abstraction of them to the canvas is a product of the intellectual process of memory and thought.

This subtle shift of the perception of colour from the eye and the sensation of seeing, to the head, exactly mirrors the Platonic notion of the head as the 'divinest part of us, which controls all the rest'. (Plato, [358-348 BC] Radice 1977: 61) As Battersby argues when discussing the Christian distaste for the body, 'The greatest Genius of all is up in the highest point of the heavens. In the male body the equivalent house of genius is the head,' so abolishing pollution of the body and enabling the head to,
‘send messages to male hands to mimic the greatest genius of all and draw or paint things into existence.’ (Battersby 1989: 96)

By confining colour to the ephemerality of thought Bridget Riley seems to understand my argument in chapter 1 that, the colour ‘pink’ does not seem to offer a threat to my well being, but my compliance in adopting it or allowing it to act as a symbol of my being does. In Bridget Riley’s paintings her use of colour and the pinks that she uses as often as any other colour is defused by their recuperation to works that are primarily deemed by critics and herself as intellectual and abstract.

The pink femaleness of colour is deemed by received wisdom to be a residual essence that the female body cannot escape, whether it is hanging on the rails of girl children’s clothes in Marks and Spencer’s, or in Kristevan texts on Proust, or in the large pink sports cars of Nigerian Barbie dolls, or perceptual psychology experiments to discover chromatic perceptions of gender.

Colour laid in general upon the flesh of women is as inescapable as the elusive but immovable essence of femininity also laid upon them, but colour carries a special danger for women artists who wish to be taken seriously. The colour and chromatic essence of the female, of feminine flesh, must not be perceived to reside within the frame of a painting that is located within patriarchal institutions of art. Bridget Riley is truly, in her use of an Aristotelian chromatic rhetoric in her work, relinquishing her feminine attributions of colour in favour of classic phallic academic credentials.

The surface of Bridget Riley’s works are not incised by painterly brush marks indicating an extension of the body to the canvas, they have instead the smooth
appearance of Quattrocento glazing thereby achieving the appearance of works laid
down by spirit rather than flesh. Critically, colour and Bridget Riley are always
referred to in an extrinsic way, spoken of as something that in effect comes to her
work. Her colour is perceived as having been absorbed into her genre, gradually and
with rigorous discipline and not absorbed from her body. Riley’s colour occurs in the
Aristotelian sense only to improve the overarching perception that she intends in her
painting, or as Robertson states that, ‘Riley’s art is primarily perceptual, both in its
driving force and in its physical realisation,’ and he continues,

Riley discovers visual relationships and their offspring as a natural
sequence of events in her strict adherence to perception prompted by
induction. (Robertson 1971: 8)

Robertson argues that her colour is a product of an energy released by the
convergence of lines and the invasion of one colour by another or as Bridget Riley
herself states, ‘I saw that the basis of colour is its instability, Instead of searching for
a firm foundation, I realised I had one in the very opposite.’ (Carlisle 1999: 9)

The very susceptibility of colour to change is claimed by Riley to be basis of her work
with it. Her exploitation of this very ability of colour to be affected by ‘interaction’
(Carlisle 1999: 9) is what she claims is the strength of her work. She has taken the
very act of instability and made it work to her advantage, producing from this
unlikely and unstable foundation, images that always confront the observer with
perceptual ambiguities.

Bridget Riley’s ‘surrogate’ (Robertson 1971: 15) colour gives birth to the fugitive and
insubstantial quality that Riley claims it is. In the early works in particular her
unstable colour is present only when the observer perceives them, when they occur as
if by accident. However, accidental is not what they are, they are designed to occur by
the deliberate interaction of light and visual disturbance, and paradoxically produce, what in philosophical discourse would represent an insubstantial truth, and therefore no truth at all. This is a clever use of structure to create an instantiated colour that fulfils both Bridget Riley’s and phallic philosophic criteria.

Lichtenstein argues that for colour to be present in the text at all it must in Platonic terms avoid the temptations of ‘Flattery, cosmetics, artifice and appearance’ which as she argues qualifies the effects of colour as effects of ‘seduction’. (Lichtenstein 1993: 63)

For the observer of a painting to be seduced by colour it is arguably necessary for the observer to be drawn into the work in a way that employs a kind of deceit of intention by the painting. Colour as the seductress of the work can be said to dupe the observer with a flattering metaphorical chromatic smile that leads them on to the acceptance of a situation that is not what it seems. Whilst Riley’s work can arguably be said to be not what it seems, in that the effect on the eye may be unexpected, the work cannot be said to seduce since it is claimed by many to have the opposite effect, leading as it does more often to rejection. When colour is perceived as a device to deceive, and as Lichtenstein argues by its nature to leads us

 [...] from the straight and narrow path of legitimate love into adultery, and leads the viewer, falling for charms that are decidedly too adulterated, to his ruin, (Lichtenstein 1993: 190)

it can only be acceptable in a painting as a Platonic metaphor for restraint or limits.

Riley’s claim that her work is concerned with the neutralisation of bright colours is another example of her discourse justifying the classical intention of the work. She describes to Carlisle the neutralising effect of her colour,
I placed the colours in contrasts – turquoise surrounding red, blue surrounding yellow, and vice versa. In this way the brilliance of the hues is subdued, neutralised, and a collective soft coloured grey emerges.

It would be tempting to say here, 'I rest my case', but it is interesting to note that the product of an overall effect of grey not only demonstrates Riley’s intention to show the interactive effects of colours on each other but also deliberately if unconsciously pushes the work into a chromatic plane of masculinity.

Even in works of the 1990s where colour can be said to dominate, Riley points out the unreliability of colour definition when she says with regards to colour and Kandinsky:

He seems to have believed that colours in themselves are expressive of certain feelings. But I think this is not so, not even in his work. Take red, for instance: it can be warm and comforting or it can be harsh and aggressive. It always depends on the precise shade and context. (Carlisle 1999: 10)

Although Riley does not go so far as to acknowledge the acculturation of colour, by using the word context, she goes some way to embracing a meaning for colour that is not fixed to feelings, but whose meaning is dependent on its general context, in her sense, the general context.

In the reframing of Bridget Riley she is represented first and foremost as a perceptual artist who uses colour to excite and surprise the observer with a visual perception of a greater insubstantial truth that lies within the text. Bridget Riley’s own words in the catalogue ‘Bridget Riley 1982-1992,’ state emphatically that,

The pleasures of sight have one characteristic in common they take you by surprise. They are sudden, swift and unexpected. If one tries to prolong them, recapture them or bring them about wilfully their purity and freshness is lost. They are essentially enigmatic and elusive. (Kudielka and Shone 1993: 81)
For Bridget Riley sight, as a site of pleasure, does not rely on materiality or the world of flesh, it relies upon the intangible inherent quality present in the energy of light. Light and sight within this paradigm have no substance, acting only as a conduit for those effects that present to our subjectivity as glimpses and instantiations of life, mysterious and ambiguous. Bridget Riley's exclusion of colour from the pleasures of sight restrict its presence and power, allowing it to intrude only at the will of the painter, who is thus enabled to keep the material, colour, and flesh, firmly at the boundaries of perception.

In discussing the work of Bridget Riley, Robert Cumming's deals at length with an epistemology of colour within the visual arts. He states that great colourists such as Titian, Rubens, and Delacroix,

\[
\text{[...]} \text{could not pursue the idea that colour alone can be a proper and serious subject for painting, (Cumming 1984 Colour as Subject)}
\]

once again raising the contentious issue of colour versus form. Cumming makes the case also made by Lichtenstein that historically painting meant something with essentially literary connections, linking this assumption to the work of Riley. Cumming also links Riley to one of the leading figures of the canon of art by claiming that Bridget Riley still turns to Matisse for inspiration as a painter whose work she admires. Riley is said by Cumming (1984) to admire Matisse's abstract use of colour 'Particularly in his Fauve work and his later paper cut outs'. In the final paragraph of the section Cumming discusses Bridget Riley's use of colour as a means to,

\[
\text{[...]} \text{explore human feeling which words can never fully express. (Cumming 1984 Colour as Subject)}
\]

Such 'feelings' are those elusive feelings that are an abstraction of more basic emotions such as fear, love, jealousy, hate etc all of somatic origin and closely
identified within the body. The feelings referred to by Bridget Riley are beyond the body and its reactions to emotion and are of the "good pleasure" of Platonic philosophy, felt as a cerebral jouissance, occurring from a sudden event, a glance, a thought or a modernist moment.

Bridget Riley is framed as a perceptual artist whose purpose is to serve as an imaginative catalyst for unknown elements, (Robertson 1971: 18) and at no time is her work contaminated by feminine and essential 'colour', that is 'Morbidezza' or an exemplification of the feminine, the desirable, or the seductress. Her works do not seduce; they confront, invade, or excite, but they do not seduce. Colour as an artifice of female seduction is metaphorically excluded from her oeuvre.

In The Flesh

My discussion of Bridget Riley and her paintings has focused on text as primary source material and my visual experience of her paintings was limited to printed reproductions of the work. That visually disturbing effects are still evident even in reproduction are, I would suggest, a result of Bridget Riley's early work in Commercial Art and Graphic Design. Her meticulous attention to finish and detail must have been learned and perfected when preparing camera-ready artwork for print. She has ironically, despite her repudiation of commercialism, created work that reproduces exactly under the camera, ensuring that the visual effects are not lost between the wall, the camera and the eye.

My first physical encounter with the paintings of Bridget Riley was at the 1997 St Ives Tate exhibition *A Quality of light*. Previous experience had not prepared me for the powerful impact of the work on my sensory reactions, reactions that were
Bridget Riley: Cataract 1967.
Illustration: 48
confirmed by the exclamations of other people confronted by the paintings. Many
turned away with distorted faces and closed eyes, and left the room declaring that
they could not bear the encounter, confirmation I felt of the feeling of, ‘violence
done’, so often referred to in critical appraisals of her work. Confirmation also of the
certain involvement of the spectator’s body to the interactive process of the specific
disturbance works and the exclusion of the artist’s body since the power of the works
lay in just their ability to defy ownership. The power of an inanimate object to
subvert and disturb in a physical sense gives it a meaning beyond the body of the
artist since it has in effect taken on a life of its own. Like an African fetish, they
contain an energy and power to affect the observer that is surely beyond the apparent
inert material of the object. Like Van Gogh’s insanity that lives in his work the anger
of Riley lives on in the effects. In Quality of Light this ‘lovely violence’, so overtly
intended and stated by Bridget Riley, as a pictorially powerful expression of her 1960s
anger was still very potent in 1997.

Bridget Riley selected the five pieces in the exhibition and on entering the gallery
from the main staircase the first picture to confront the eye was Cataract 3,
(Illustration 48) a study of interference patterns in white, red, blue, grey and ivory,
painted in 1967 and exhibited at the Responsive eye exhibition in New York. This is
an example of the kind of work most associated with Bridget Riley’s confrontational
optical disturbance works, and was the most confrontational of all five works shown
at the Tate. Riley’s choice of the word cataract for its title may contain more than
one meaning. To have cataracts means the loss of colour vision and a view of the
world clouded by diffusion, whilst a water cataract produces spectral colours in the
tumbled flow of the torrent. Both meanings refer to a colour that is not really there in
the truest sense.

Illustration 49
Anni Albers: Weaving, wall hanging
Bauhaus 1923-1933.

Illustration 50
Three works arranged left to right the first *Cantus Furmis*' 1967 verticals in black-and-white with cerulean blue, green, pink, and grey, fine lines of colour, used as compliments. The second was *Banner 11*, (1968), converging horizontals predominantly white with fine orange and green adjacent lines. Third was *Blithe* (1980), undulating verticals in pink, pale blue, lime green and emerald green still optically disturbing but only in the sense of pattern and flowing movement on a fixed plane. (Illustration 49) The colour in these works is not dominant, since the visual disturbance although diminished still disturbs to the point where the chromatic effect becomes subsumed to the optical one.

The most recent work *Untitled* (1996) (illustration of *Sapphire* a similar work as untitled was unavailable) was composed of coloured lozenge shapes that resonate with the facets of a jewel or the pixels of colour on television screen. At first glance the work appears straightforward, the lozenge shapes create pattern and structure with a palette of pinks, oranges and creams. A glance is not enough for this work, as it demands full attention, an optical contact that reverses the contact created by the other paintings exemplifying Bridget Riley's stated belief in the power of colour to transmit an essence or memory of sense.

The more I observed the work the more intriguing it became. What at first appeared to be a straightforward pattern of colours and shapes was nothing of the sort. The lozenges do not form correspondences, although not random, they do not follow a pattern. At this point I reflected on the work of Anni Albers at the Bauhaus, (Illustration 50) in particular a wall hanging produced in the weaving shops in the 1920s. It also is made from blocks of colour that are integrated but not corresponding. The surface of the work is constantly disrupted by its inconsistencies. There was, I
felt, a powerful resemblance between psychological signifiers in both works that could signal feminine strategies of refusal and challenge. Along the bottom of the lozenge painting a closed line of triangles gradually appear to the concentrated gaze, the top of the painting however is open with only one triangle intruding. Paradoxically in this work unequivocal colour has become the architecture of the painting, structure is no longer formulated by line. Only the solid areas of colour give any stability to the painting and these are not represented in any kind of reliable pattern therefore, feminine chromatic instability is fore-grounded as a positive quality, able to function independent from structure, plan and line. Colour alone was stable.

The painting was framed on two sides by verticals of two-inch oblongs of mixed colours, again without reflectivity. The effect produced by this painting is one of departure. Structural containment is gone, the top is open and movement through the work is in the diagonal, apart from the central square diamond. Everything looks as though it is about to fly away from the central point and into the surrounding space. The whole painting looks as though it is straining to escape from the pivotal centre of the diamond Square.

Next to Riley’s Untitled is a painting by Mondrian, selected by Bridget Riley. The work was painted sometime between 1937-42, a composition of black grid on white with primaries, red, blue and yellow contained as three flat planes within the frame of the grid. On a close inspection of the canvas I discover that Mondrian’s yellow overflowed its containing grid onto the frame of the canvas, escaping to the back of the work. This leaking yellow is so untypical of Mondrian’s grids I am forced to consider that these two works are expressing the same energetic disruption of structure. Was this work the beginning of Mondrian’s move away from his obsession with order into the ‘Boogie Woogie’ series so expressive of his move into another
perceptual space, a space where structure is challenged by the materiality and disorder of colour? The choice of this late Mondrian with escaping yellow is deliberate, I am sure; Bridget Riley does nothing carelessly.

The architectural graphic construct of line with the addition or product of colour is precisely what is required of an art Patriarchally defined through a phallic discourse and text. In painting as text Bridget Riley claims to have inscribed her anger in the early black and white works and has pushed clichés of formal construction to their limits. Arguably it follows that the anger diminishes in later paintings as the visual disturbance subsides until we are now offered the Lozenge series where colour predominates but does not disrupt vision. Hanging the Lozenge painting next to the Mondrian where yellow escapes around the frame, raises a question in my mind. Is it a good or bad yellow, is it entering or leaving, is what is represented here in the disruption of both works a new dimension of choice? In the Kudielka (1992) dialogues, Bridget Riley expresses her admiration for Mondrian’s courage and risk-taking in painting the Boogie-Woogie series, thus going against the spiritual and pictorial equilibrium that he had striven for all of his life.

The placing of the Mondrian grid with escaping yellow next to her Lozenge painting could be read as a statement or identification with Mondrian’s commitment to his thematic, but also to his break with it. The question is, is the text in the lozenge painting revealing a disruption of structure that indicates a complete change of direction? Perhaps the Lozenge indicates an acute state of colour awareness, where colour is no longer surrogate, but is the defining force. This displacement of structure by the materiality of colour suggests that perhaps the feminine has moved into the
foreground of Bridget Riley’s paintings, signalling the uncertainty of feminised colour as her new driving principle.

In *Chromophobia* Batchelor (2000) recalls a moment in the film *Pleasantville* where the mother figure having reached a complete and joyful awareness of colour in a black and white world is suddenly confronted with the prospect of facing her husband, the father, the law, with this new awareness. Afraid of the consequences of her knowledge, her son covers her pink cheeks and red lips with a layer of grey make up. Batchelor reads this act as symbolic of the power of colour to always re-emerge

> Colour, again, is shown as permanent and irresistible; it cannot be rubbed out, only hidden beneath a monochrome mask, and only for a while. (Batchelor 2000: 70)

and does not address the as I see it bleakness of this vision when.

Smearing the lips and cheeks of a woman with grey paint in order to maintain the illusion of a black and white reality is an obscene act and should be seen as such. Defiling colour and women in this way does not speak of the strength of colour it speaks of the weakness of black and whiteism and its need to use any means to keep at bay the colours of flesh and blood.

The strength of colour is its ability to mutate and adapt, to survive all the smearing and attempts to push it into one theory or another. Smearing colour and women is like smearing life itself, we do it at our peril and at the horrible risk of believing and repeating our dangerous illusions.

**Coda**

**Christies Auction House St James 22.4.98**

Two lots painted by Bridget Riley are in the sale.

Lot 107, Gouache on board, a study in colour, 36”by 36” Estimate £3,500/£4,500

Sold with difficulty for £4,500.
Bridget Riley: Wall painting: Composition with Circles 1997.

Illustration 51
Lot 108, black-and-white study, Gouache on white emulsion on board. Estimate £20-30,000, sold easily for £62,000.

The old critical obsession with Riley’s black-and-whites calls the tune of value for her work, a financial value that also sets the seal on the critical value. As a result the return to black-and white work such as Composition with Circles 1997, Wall painting, emulsion, Black-and-white, 5x9 metres, may signal the completion of a cycle back to her beginnings.

The latest book on her work Bridget Riley works 1961-1998,' illustrates a transition from clear black and white study Movement in Squares through a gradual transmutation of colours that are vibratory and juxtaposed to flat lozenges of colour without line, to a finale of Composition with circles, (Illustration 51) in black and white. Flicking through the book’s illustrations, it seems that colour emerges between the black and white of beginning and end.
politics

self-reproduction, as with the hermaphrodite. However the Oroboros is never portrayed as biting its own tail and is symbolic of reproducing nature but always as pregnant with the universe, bring in it closer to the Platonic notion of the divine ‘She’ or reproductive universal essence.

Congenital chromatopia is common on the island of Pingelap and the Caroline Islands, where a large proportion of the population do indeed have only black and white vision.

The Oroboros or dragon like creature is always portrayed as biting its own tail and is symbolic of the divine 'She' or reproductive universal essence.

1 My pun on redding/reading between the lines indicates the underlying role of colour in Bridget in Riley's work, a suppressed force.

2 As yet there is no major study, biography or autobiography of Bridget Riley. Information on the artist is available only through catalogues such as the Hayward gallery catalogues. A recent publication is the Bridget Riley dialogues on art based on transcripts of the BBC radio 3 series’ Bridget Riley: five dialogues on art, produced by Judith Bumpus first transmitted on radio 3 1992. Interviewers of the artist are given written biographical notes for reference and Bridget Riley has the right to deny publication and controls all interview material

3 Sacks book is about a visual condition called ‘chromatopia’ where the eye is completely lacking in cone or detail and colour perceptions. The vision then becomes like a black and white photograph. Congenital chromatopia is common on the island of Pingelap and the Caroline Islands, where a large proportion of the population do indeed have only black and white vision.

4 Buck, Louisa. Orderly Passion along colour lines, in The Sunday Times, September 20th 1992

5 Dougray, G. (1994) Between the Lines, The times Magazine, March 5th: 8-12

6 The ‘Oroboros’ or dragon like creature is always portrayed as biting its own tail and is symbolic of reproducing nature but always as pregnant with the universe, bring in it closer to the Platonic notion of the divine ‘She’ or reproductive universal essence.


The book is a collection of essays on the subject of women in art practice, the two most interesting by Louise Nevelson, Do your work, and Lee Hall, In the university,

9 Riley’s use of the word hermaphrodite to mean a perfect union of the sexes is interesting when we look at the true meaning of the word. In Webster’s third international dictionary the definition of hermaphrodite refers to the myth of Hermaphroditus and the physical joining of two bodies. The myth presents the union of male and female as forever incomplete, two bodies competing with each other rather than complementing. In ancient Greece the birth of a hermaphrodite was seen as a sign of the Gods fury and anger that could be appeased only by the killing of the monster.

10 As Battersby (1989) states regarding the perception of the biological construction of genius, 'The genius was a Male-full of virile energy-who transcended his biology: if the male genius was feminine this merely proved his cultural superiority'. For women Battersby argues, to be creative is to be faced with a double bind, [...] either to surrender her sexuality (becoming not masculine, but a surrogate male or to be feminine and female, and hence to fail to count as a genius.


12 With the help of Barret Newman's lawyer Bridget Riley tried unsuccessfully to litigate against misuse of her work. Paradoxically it was her litigation that later led to legislation for the protection of American artists copyright of their work. Legislation nicknamed 'Riley’s Bill' Following this first attempt Bridget Riley has pursued successful litigation Miss Riley won redress from the food giant Nestle and the advertising agency Ogilvy and Mather following an advertisement that showed a jar of Sun Pat Peanut Butter against a Black and White stripy background which reminded her of one of her more celebrated paintings @Fall' 1963 a work currently owned by the Tate Gallery. Information from Herbert, S. Arts Correspondent Daily Telegraph April 8th 1994. Quote


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Of the 110 artists shown at the Responsive Eye exhibition, only seven were women. The works of Anni Albers, wife of Joseph Albers and a teacher of weaving and painting at the Bauhaus, were excluded from a show in which the work of her husband was extensively shown.


A reference made to Andrew Graham Dixon's charge regarding the early works in a Radio interview referred to by Bracewell (1997)


My research into the history of colour theory has discovered only one-woman colour theorist, Christine Ladd Franklin, (1929) whose theoretical arguments were based upon Darwinian theories of evolution and informed by imperial attitudes that held that primitive beings were less chromatically developed than evolved civilised man.


I refer to the Article interview by Bracewell (1997)

I recommend the archive at Leeds College of Art to any students interested in the development of art and design practice in Britain following the Second World War.


Kandinsky based his colour seminars at the Bauhaus on this thesis arguing that the geometric shapes dictated colour and were the lawful forces in given objects and not their outward appearance. Kandinsky Punkt und Linie zu Flache, Bauhaus books no 9 Munchen, 1926


Catalogue (1968) 50 years of The Bauhaus, Royal Academy of Arts, London: 329 Moholy-Nagy was one of Vassarely’s teachers at the Budapest Bauhaus.

Platonism or neo-Platonism is the theory that ‘universals such as mathematical forms are the only true measure of existence since they are unaffected by material insubstantiality. The Bauhaus emphasis on the importance of form expressed as the square circle triangle etc as the foundation for all expressions in art or architecture is a continuation of the Platonist idea of universal ideals.

The Times, October 29th 1968


My own very limited vox-pop research amongst students and friends found that Bridget Riley did not mean anything to them until the interviewee was reminded of her black and white work of the 1960s.


Cicero, Brutus, 84. 290: 258


There is a subtle slippage of meaning between what we call Knowledge and Wisdom in the Socratic sense probably due to a difficulty in the translation from the ancient Greek. Wisdom for Socrates is the prime virtue because to have wisdom is to be unaware of the fact and therefore to be free of false pride and therefore to be truly virtuous. See, The apology, in Plato, (1972) The last days of Socrates, London, Penguin Books: 49 or any good translation.

I have attempted to open a dialogue with Bridget Riley on the meaning of her use of the word ‘surrogate’ in relation to colour. The dialogue was one sided with no reply to my letters. Bridget Riley does not correspond freely with unsolicited people and restricts her opinions and theorisations to interviews etc. I have therefore explicated the word in the way I think is appropriate to Riley’s use of the word.
Bridget Riley in conversation with Alex Farquharson, in Bridget Riley, Recent Works: Paintings and Gouaches 1981-1995. Published by Spacex Gallery, in association with Karsten Schubert. Introduction essay 'Something to look at'
Conclusion

I have argued in this thesis that our perception of colour is acculturated, and through acculturation, gendered. To support my argument I have analysed how philosophical, metaphysical and cultural beliefs have informed our chromatic perception and thus have used colour as a dynamic in the production of meaning.

As part of my argument I have questioned the validity of colour theory basing my skepticism on the repeated and misleading use of an analysis of colour predicated on a value hierarchy inherited from a catachresis of theory manifested as alchemy. I have applied this skepticism to moral theorisations and assumptions of colour that produce virtual absurdities such as ‘women are colour’ and yellow contaminates easily and therefore is subsequently the colour of Jews and bankrupts. I have argued that such perceptions are normalised racist perversions that have aided the persecution of women and men for centuries leading to their abasement and death. I have brought into the foreground the importance of recognizing that what may appear to be a benign cultural perception such as the colour pink for girls or colour for women can in the ‘right’ cultural context and belief system result in dire consequences for the women and girls affected by such a perceptual aberration.

I have argued that the values given to colour in colour theories attribute to them with primary and secondary values that are without substance since I have also argued that the physical world is colourless and that all chromatic meaning is a product of cultural pertinancies validated through language, ideation and culture. To claim that colour art theory is subject to natural laws similar to gravity is without any kind of physical or scientific veracity.
I acknowledge that it is difficult to accept and believe in a colorless world when all around I see nothing but colour. The blue of the cushion I sit on is given its visual substantial quality and depth by the variations in density of the blue that I see. This blue is produced between me and the world I live in, and is a result of the interaction of the physiology of my eyes and light. This blue can be said to be a spontaneous act over which I have no control and for this reason alone colour is unacceptable to patriarchy since it cannot be controlled either by desire or theory.

It seems that the three dimensionalality of the cushion is dependent on the ability of this blue that I see to map the changes in form that this cushion is. And yet, if I photograph this blue cushion in black and white film or draw it in black charcoal on white paper I can still read its form by the changes in tone and density, thus the cushion retains its three dimensional form in what is seen in this sense as a chromatically two-dimensional world. So, my perceptual assumption that my knowledge of the three dimensional qualities of blue cushions are being assisted by colour is fallacious since I can read the world and its changing surface dimensions without its aid.

If I were a Hanunoo then the colour of the world would be of such little importance I would have few terms to describe it, nor would I care. Indeed, if I were from Pingelap island and in the ten percent of the population who are achromatopes (lacking cones) I would see the world in black, white and tones of gray, seeing all colours and tones of gray only as differing luminances. I would be unaware of my chromatic lack unless confronted by a majority view of the world as coloured and the chromatised’s judgment of my condition as a disablement. I would be othered because of my inability to see colour by people who have already othered colour because of its association to
the feminine. The complications of otherness are multifaceted, but retain at their core
classical, stereotyped visions of difference that are appropriate to the cultural and power needs
of those that are not included in that particular category of other. The insubstantial
and colourless physical world of fine matter is the foundation of all form and between
it and our assumptions of its chromatic meaning something fundamental occurs and
the need to understand that event is the main drive of this thesis and the main drive of
my need to know.

An acculturated perception that says firstly that colour is a product of the power of
the phallus and symbolic of a debasement of it and that woman and colour are
synonymous, must lead as sure as night follows day to a defining of what is and what is
not institutionally acceptable of women in art practice. Qualifying to become one of the
boys within this paradigm necessitates a subsuming of the feminine to an overriding
phallic order that only accepts recruits to its establishment when they have embraced
the rules. Women art practitioners should beware of taking their knitting to the gallery
space particularly knitting that is rainbow coloured unless of course the knitting and
colour are defined within a critical structure that speaks of both in language that is in
denial of craft and of course and most importantly of colour.

The statistical results of the three-year perceptual psychology experiment have
substantially validated my arguments. My reasons for including such an empirical
study is not because I have an implicit faith in the absolute certainty of statistical
analysis, but because I wished to know as certainly as possible what perceptions of
colour with regard to gender was amongst a group of people at a specific moment in
time. My feminist philosophy has always led me to look for the edge or the alternative
view and this led me to hope that I would find a differentiated and various view of the signifiers of the experiment particularly as the subjects were all engaged in visual studies. The artistic area of visual expression has been traditionally characterized and perceived as a source of the idiosyncratic and subversive and not as I discovered subject to overwhelmingly stereotyped chromatic perceptions of the signifiers that also surprisingly presented as a general patterned response to all the colours offered. The data analysis revealed deeply held ideations of colour in relation to all the common signifiers including those of gender. To eliminate as far as possible subjectivity and error the statistical evidence was analysed in three different ways and was finally analysed independently at Plymouth University and the results have I believe substantiated my argument that our perceptions of colour are acculturated and act as a dynamic in the production of meaning. Our deeply held epistemes do colour our ways of thinking and as a result produce our chromatic perception of gender.

The results of the experiment have also demonstrated to an alarming degree the major extent of patterning present in chromatic perceptions in general and in gendered perceptions in particular. These results alongside my philosophical and historical analysis have raised more questions than they answer, in particular with regard to questions of free will and subjectivity in the light of such cultural patterning and its apparent normalisation.

The underlying patterns revealed and discussed in this thesis are I suggest significant areas for further research whose intention should be to discover the extent, intransigence, and reason for the continuance of established ideations of cultural and philosophical meaning. The danger to survival of an intransigent pattern of belief was
discussed on a recent BBC Television series Called ‘Blood of the Vikings’ (BBC 2: 6th Nov -4th Dec 2001 repeated in 2002) The presenter historian Julian Richardson discussed the complete disappearance of Viking settlements on Greenland during the second ice age between 983 AD and 1100 AD. Richardson stated that orthodox explanations of the event blamed the Viking demise on worsening weather conditions and the resulting inability to cultivate and grow food. Whilst this analysis is correct as the Vikings certainly died of starvation, Richardson has offered an alternative interpretation of the event.

During that historical period the Inuit were indigenous to the island and unlike the Vikings they did not die out but continued to live on Greenland until 1721 when they were Christianised and their numbers rapidly decreased. Unlike the pagan Inuit the Vikings were already Christianised in 983AD and Richardson’s hypothesis regarding their demise is premised on the Vikings Christian indoctrination by the Bishops of that time who insisted that the Vikings should not adopt the ways of the pagan but must live in a civilized Christian fashion in small settlements with rigid hierarchies of dominant priests and male farmers with women as subservient house wives, gleaners and mothers. Richardson pointed out that the evidence of various archeological sites show that as the weather worsened the Vikings did continue to survive by cultivation but as the winters and ice extended, they began to die off. The first to die were the very young and old then finally the remaining adults starved to death or succumbed to fatal illnesses brought on by malnutrition.

At the same time and close to the Viking settlement sites the Inuit continued to hunt seal etc and to live in very close proximity sharing body heat and eating seal fat, liver, meat and fish. In conclusion, Richardson offered the argument that this instance of human tragedy raises the question of the danger of intransigent belief systems where
the beliefs are so dominant they may lead to the collapse of a civilization and the death of its people. Richardson's hypothesis is fascinating since it presents us with an actual effect of an inappropriate belief held in the face of possible human extinction.

Richardson's hypothesis raises the question does the survival of the Inuit make them in Darwinian terms the fittest and if so can the factor of a so-called civilizing belief be read in some contexts as detrimental to human survival? In the same way the belief that women are colour and therefore less than men may contain within it the same kind of self-destruction that the Viking's succumbed to, a kind of dinosaur effect in the face of changing technology and feeding habits that no longer require the old life support systems. The institutional support of rigid power structures highly resistant to change and based on value hierarchy's may offer the same eventual outcome that befell the Vikings.

That colour acts as a dynamic in the production of meaning and that the meaning produced supports power structures based on the normalisation of cultural patterns has been the subject of discussion in this thesis and will continue to be my ongoing research project.
BIBLIOGRAPHY.

COLOUR


DIETRICE, FR. DR. (1872) *Die Lehre von der Weltseele, bei den Arabern im X. Jahrhundert.* Heinricks. S. Buchhandlung.


MELVILLE, S. eds BRUNET and WILLS *Colour Has Not Yet Been Named, Objectivity in Deconstruction*, op. cit.


ALCHEMY.


SARTON, GEORGE. (1954) Ancient Alchemy and Abstract Art, Journal of the History of Medicine, 1X.


DELAUNAY, RILEY.


*Telegraph magazine.*


**FEMINIST CRITIQUE**


DELMAR, R. (1975) Psychoanalysis and Feminism, in Red Rag, No 8, February.


GROSZ, ELIZABETH. (1994) Volatile Bodies, Toward a Corporeal Feminism, Bloomington and Indianapolis, Indiana University Press.


**LIGHT, OPTICS AND SCIENCE.**


**PHILOSOPHY, SOCIOLOGICAL THEORY (Sociology and Anthropology) AND HISTORY**


DIETERICI, Fr. (1872) *Die Lehre Von Der Weltseele bei den Araben im X Jahrhundert*, Leipzig, J.C. Heinrichsche Buchhandlung.


STRAUS, RAPHAEL. (1942) *The Jewish Hat as an aspect of Social History*, Jewish social studies vol 1V. For the Conference on Jewish Relations, New York City.


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ART HISTORY


BARON and TUCHMAN eds (1989) *David Hockney a Retrospective*, Los Angeles County Museum of Art, Thames and Hudson.

Catalogue *50 years of the Bauhaus*, German Exhibition sponsored by the Federal German Republic and the Royal Academy of Arts, London


LEVEY, MICHELLE. (1968) From Giotto to Cezanne, A concise History of Painting, London, Thames and Hudson.


(1979) Post-Impressionism Cross-Currents in European Painting, London, Royal Academy of Arts in association with Weidenfield and Nicholson,


TUCHMAN and BARON, eds, (1989) David Hockney, a retrospective, Los Angeles County Museum of Art, Thames and Hudson.

YASHIRO, YUKIO. (1958) 2,000 years of Japanese Art, London, Thames and Hudson.
EXPERIMENTAL PSYCHOLOGY AND PSYCHOANALYSIS


**ART AND COMMERCE**


**DICTIONARY’S**


Appendix 1, Chapter two, Colour acculturation experiment

Helen V Andrew, for PhD research

List of contents

1] 1 experiment sheet, uncompleted

2] 2 completed experiment sheets

3] 1st conversion from written response to number

4] 2nd conversion to number for analysis at Plymouth University in the Faculty of Human Science, Dept of Psychology, Supervised by Dr J Edworthy.

5] Statistical results of analysis using Pearson methodology including top and bottom choice, that is first choice or [is] and last choice or [is not]

5] Flow chart selection, black, pink, yellow, violet, flow chart results calculated by H V Andrew from number analysis and approved by Dr J Edworthy.
In **Columns 1 - 6** please write the colours that you think represent the column headings. First choice at the top, the others in descending order.

In **Column 7** please write the one colour which represents Nature.

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In **Column 7** please write the one colour which represents Nature.

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How would you describe your ethnic origin? White (please describe), Irish, Black Caribbean, Black African, Black Other (please describe), Indian, Pakistani, Bangladeshi, Chinese, Other (please describe)

**Gender** Female

**Age** 20
Initial handwritten response on question sheet
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In **Column 7** please write the one colour which represents Nature.

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Graphic communications Summer term 1998 main study sub 3 years

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g.u.=gender unknown
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[ ] 15 [ ]
Bivariate Distribution: STUDYYEA x MASC

Top choice distributions.

"IS"
Bivariate Distribution: STUDY + COLD

No. of obs

STUDY

COLD

fig 35
Bivariate Distribution: GENDER x FEMIN
Bivariate Distribution: GENDER x MASC

- Gender: Male, Female, Unknown
- MASC: Various categories

Graph showing distribution with categories on the x-axis and counts on the y-axis.
Bivariate Distribution: GENDER x DANGER

- Unknown
- Female
- Male

- 25% up
- 50% up
- 75% up
- 95% up
- 100% up

- Danger
Bivariate Distribution: GENDER x HOT
Bivariate Distribution: GENDER x SAFETY
Bivariate Distribution: GENDER x COLD
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FA = Fine Art  
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<thead>
<tr>
<th>GENDER</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>250</td>
</tr>
<tr>
<td>female</td>
<td>204</td>
</tr>
<tr>
<td>unknown</td>
<td>36</td>
</tr>
<tr>
<td>All Grps</td>
<td>490</td>
</tr>
</tbody>
</table>

no real difference. overwhelmingly color red.
Summary Table: Expected Frequencies (book 3 new formula.sta)

Pearson Chi-square: 11.9027, df=1, p= .000561

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC black</th>
<th>MASC blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>89.4679</td>
<td>94.5321</td>
<td>184.0000</td>
</tr>
<tr>
<td>female</td>
<td>69.5321</td>
<td>73.4679</td>
<td>143.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>159.0000</td>
<td>168.0000</td>
<td>327.0000</td>
</tr>
</tbody>
</table>

Black and blue are top 2 choices for word masc. But are significant differences between men and women on choosing blue 2 colors.
<table>
<thead>
<tr>
<th>Statistic</th>
<th>Chi-square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-square</td>
<td>11.90269</td>
<td>df=1</td>
<td>p=.00056</td>
</tr>
<tr>
<td>M-L Chi-square</td>
<td>11.97001</td>
<td>df=1</td>
<td>p=.00054</td>
</tr>
<tr>
<td>Yates Chi-square</td>
<td>11.14562</td>
<td>df=1</td>
<td>p=.00084</td>
</tr>
<tr>
<td>Fisher exact, one-tailed</td>
<td>11.97001</td>
<td>df=1</td>
<td>p=.00084</td>
</tr>
<tr>
<td>Fisher exact, two-tailed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNemar Chi-square (A/D)</td>
<td>1.704545</td>
<td>df=1</td>
<td>p=.19170</td>
</tr>
<tr>
<td>McNemar Chi-square (B/C)</td>
<td>2.953846</td>
<td>df=1</td>
<td>p=.08568</td>
</tr>
</tbody>
</table>

There is sign. diff. whichever $\chi^2$ test used.
**Summary Frequency Table (book 3 new formula.sta)**

**Table: GENDER(2) x FEMIN(3)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN red</th>
<th>FEMIN pink</th>
<th>FEMIN white</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>12</td>
<td>165</td>
<td>22</td>
<td>199</td>
</tr>
<tr>
<td>Total %</td>
<td>3.49%</td>
<td>47.97%</td>
<td>6.40%</td>
<td>57.85%</td>
</tr>
<tr>
<td>female</td>
<td>28</td>
<td>95</td>
<td>22</td>
<td>145</td>
</tr>
<tr>
<td>Total %</td>
<td>8.14%</td>
<td>27.62%</td>
<td>6.40%</td>
<td>42.15%</td>
</tr>
<tr>
<td>All Grps</td>
<td>40</td>
<td>260</td>
<td>44</td>
<td>344</td>
</tr>
<tr>
<td>Total %</td>
<td>11.63%</td>
<td>75.58%</td>
<td>12.79%</td>
<td></td>
</tr>
</tbody>
</table>

**Summary Table: Expected Frequencies (book 3 new formula.sta)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN red</th>
<th>FEMIN pink</th>
<th>FEMIN white</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>23.13953</td>
<td>150.4070</td>
<td>25.45349</td>
<td>199.0000</td>
</tr>
<tr>
<td>female</td>
<td>16.86047</td>
<td>109.5930</td>
<td>18.54651</td>
<td>145.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>40.0000</td>
<td>260.0000</td>
<td>44.00000</td>
<td>344.0000</td>
</tr>
</tbody>
</table>

**Statistics: GENDER(2) x FEMIN(3) (book 3 new formula.sta)**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Chi-square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-square</td>
<td>17.19308</td>
<td>df=2</td>
<td>p=.00018</td>
</tr>
<tr>
<td>M-L Chi-square</td>
<td>17.15143</td>
<td>df=2</td>
<td>p=.00019</td>
</tr>
<tr>
<td>Phi</td>
<td>.2235618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.2181761</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cramér's V</td>
<td>.2235618</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are significant differences between males and females for colors selected to represent feminine.

- Red, pink, and white to 3 colors for feminine.
### Summary Table: Expected Frequencies (book 3 new formula.sta)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COLD grey</th>
<th>COLD white</th>
<th>COLD blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>30.82126</td>
<td>76.2126</td>
<td>124.9662</td>
<td>232.0000</td>
</tr>
<tr>
<td>female</td>
<td>24.17874</td>
<td>59.7874</td>
<td>98.0338</td>
<td>182.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>55.00000</td>
<td>136.0000</td>
<td>223.0000</td>
<td>414.0000</td>
</tr>
</tbody>
</table>

Pearson Chi-square: .493704, df=2, p=.781257

### Summary Frequency Table (book 3 new formula.sta)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COLD grey</th>
<th>COLD white</th>
<th>COLD blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>29</td>
<td>79</td>
<td>124</td>
<td>232</td>
</tr>
<tr>
<td>female</td>
<td>26</td>
<td>57</td>
<td>99</td>
<td>182</td>
</tr>
<tr>
<td>All Grps</td>
<td>55</td>
<td>136</td>
<td>223</td>
<td>414</td>
</tr>
</tbody>
</table>

### Summary Table: Expected Frequencies (book 3 new formula.sta)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COLD grey</th>
<th>COLD white</th>
<th>COLD blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>30.82126</td>
<td>76.2126</td>
<td>124.9662</td>
<td>232.0000</td>
</tr>
<tr>
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<td>59.7874</td>
<td>98.0338</td>
<td>182.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>55.00000</td>
<td>136.0000</td>
<td>223.0000</td>
<td>414.0000</td>
</tr>
</tbody>
</table>

### Statistics: GENDER(2) x COLD(3) (book 3 new formula.sta)

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Chi-square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-square</td>
<td>.4937043</td>
<td>df=2</td>
<td>p=.78126</td>
</tr>
<tr>
<td>M-L Chi-square</td>
<td>.4934044</td>
<td>df=2</td>
<td>p=.78137</td>
</tr>
<tr>
<td>Phi</td>
<td>.0345329</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.0345123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cramér's V</td>
<td>.0345329</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No sign. differe.

For dimension of cold.
Interaction Plot: GENDER x COLD

- Grey
- White
- Blue

Frequencies

- GENDER male
- GENDER female

Fig 18
<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY green</th>
<th>SAFETY white</th>
<th>SAFETY blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>109.2263</td>
<td>37.17125</td>
<td>40.60245</td>
<td>187.0000</td>
</tr>
<tr>
<td>female</td>
<td>81.7737</td>
<td>27.82875</td>
<td>30.39755</td>
<td>140.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>191.0000</td>
<td>65.00000</td>
<td>71.00000</td>
<td>327.0000</td>
</tr>
</tbody>
</table>

Summary Table: Expected Frequencies (book 3 new formula.sta)

Pearson Chi-square: 3.57284, df=2, p=.167564

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY green</th>
<th>SAFETY white</th>
<th>SAFETY blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>109.2263</td>
<td>37.17125</td>
<td>40.60245</td>
<td>187.0000</td>
</tr>
<tr>
<td>female</td>
<td>81.7737</td>
<td>27.82875</td>
<td>30.39755</td>
<td>140.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>191.0000</td>
<td>65.00000</td>
<td>71.00000</td>
<td>327.0000</td>
</tr>
</tbody>
</table>

Summary Table: Percentages of Total N=327

Table: GENDER(2) x SAFETY(3)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY green</th>
<th>SAFETY white</th>
<th>SAFETY blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>33.94</td>
<td>9.48</td>
<td>13.76</td>
<td>57.19</td>
</tr>
<tr>
<td>female</td>
<td>24.46</td>
<td>10.40</td>
<td>7.95</td>
<td>42.81</td>
</tr>
<tr>
<td>All Grps</td>
<td>58.41</td>
<td>19.88</td>
<td>21.71</td>
<td></td>
</tr>
</tbody>
</table>

Summary Table: Expected Frequencies (book 3 new formula.sta)

Pearson Chi-square: 3.57284, df=2, p=.167564

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY green</th>
<th>SAFETY white</th>
<th>SAFETY blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>109.2263</td>
<td>37.17125</td>
<td>40.60245</td>
<td>187.0000</td>
</tr>
<tr>
<td>female</td>
<td>81.7737</td>
<td>27.82875</td>
<td>30.39755</td>
<td>140.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>191.0000</td>
<td>65.00000</td>
<td>71.00000</td>
<td>327.0000</td>
</tr>
</tbody>
</table>

not significant difference between M+F

looking for gender difference
Interaction Plot: GENDER x SAFETY

- GENDER male
- GENDER female

SAFETY: green, white, blue

Frequencies: 120, 100, 80, 60, 40, 20, 0
<table>
<thead>
<tr>
<th>Statistic</th>
<th>Chi-square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-square</td>
<td>.5956286</td>
<td>df=1</td>
<td>p=.44025</td>
</tr>
<tr>
<td>M-L Chi-square</td>
<td>.5999760</td>
<td>df=1</td>
<td>p=.43859</td>
</tr>
<tr>
<td>Yates Chi-square</td>
<td>.3971149</td>
<td>df=1</td>
<td>p=.52858</td>
</tr>
<tr>
<td>Fisher exact, one-tailed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>two-tailed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNemar Chi-square (A/D)</td>
<td>51.50365</td>
<td>df=1</td>
<td>p=.00000</td>
</tr>
<tr>
<td>(B/C)</td>
<td>9.248000</td>
<td>df=1</td>
<td>p=.00236</td>
</tr>
<tr>
<td>Phi for 2 x 2 tables</td>
<td>-.047680</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetrachoric correlation</td>
<td>-.081476</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.0476260</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

checked again for green + blue only
still no sig. difference.
## Summary Table: Expected Frequencies (book 3 new formula.sta)

**Pearson Chi-square: .493704, df=2, p=.781257**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COLD grey</th>
<th>COLD white</th>
<th>COLD blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>30.82126</td>
<td>76.2126</td>
<td>124.9662</td>
<td>232.0000</td>
</tr>
<tr>
<td>female</td>
<td>24.17874</td>
<td>59.7874</td>
<td>98.0338</td>
<td>182.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>55.00000</td>
<td>136.0000</td>
<td>223.0000</td>
<td>414.0000</td>
</tr>
</tbody>
</table>

## Summary Frequency Table (book 3 new formula.sta)

**Table: GENDER(2) x COLD(3)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COLD grey</th>
<th>COLD white</th>
<th>COLD blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>29</td>
<td>79</td>
<td>124</td>
<td>232</td>
</tr>
<tr>
<td>female</td>
<td>26</td>
<td>57</td>
<td>99</td>
<td>182</td>
</tr>
<tr>
<td>All Grps</td>
<td>55</td>
<td>136</td>
<td>223</td>
<td>414</td>
</tr>
</tbody>
</table>

## Summary Table: Expected Frequencies (book 3 new formula.sta)

**Pearson Chi-square: .493704, df=2, p=.781257**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>COLD grey</th>
<th>COLD white</th>
<th>COLD blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>30.82126</td>
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</tr>
<tr>
<td>All Grps</td>
<td>55.00000</td>
<td>136.0000</td>
<td>223.0000</td>
<td>414.0000</td>
</tr>
</tbody>
</table>

## Statistics: GENDER(2) x COLD(3) (book 3 new formula.sta)

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Chi-square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-square</td>
<td>.4937043</td>
<td>df=2</td>
<td>p=.78126</td>
</tr>
<tr>
<td>M-L Chi-square</td>
<td>.4934044</td>
<td>df=2</td>
<td>p=.78137</td>
</tr>
<tr>
<td>Phi</td>
<td>.0345329</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency coefficient</td>
<td>.0345123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cramér's V</td>
<td>.0345329</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No sign. differe.

For dimension of cold.

fig 17
Interaction Plot: GENDER x COLD

- ○ GENDER male
- □ GENDER female

COLD

 Frequencies

grey white blue
<table>
<thead>
<tr>
<th>COURSE</th>
<th>SAFETY green</th>
<th>SAFETY white</th>
<th>SAFETY grey</th>
<th>SAFETY yellow</th>
<th>SAFETY violet</th>
<th>SAFETY orange</th>
<th>SAFETY pink</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA</td>
<td>65*</td>
<td>22*</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>16*</td>
</tr>
<tr>
<td>ILL</td>
<td>42*</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>GRAPH</td>
<td>101*</td>
<td>38*</td>
<td>2</td>
<td>17*</td>
<td>8</td>
<td>6</td>
<td>15*</td>
</tr>
<tr>
<td>All Grps</td>
<td>208</td>
<td>69</td>
<td>14</td>
<td>28</td>
<td>14</td>
<td>13</td>
<td>41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE</th>
<th>SAFETY blue</th>
<th>SAFETY red</th>
<th>SAFETY black</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA</td>
<td>19*</td>
<td>5</td>
<td>2</td>
<td>151</td>
</tr>
<tr>
<td>ILL</td>
<td>12*</td>
<td>8</td>
<td>1</td>
<td>96</td>
</tr>
<tr>
<td>GRAPH</td>
<td>43*</td>
<td>11*</td>
<td>1</td>
<td>242</td>
</tr>
<tr>
<td>All Grps</td>
<td>74</td>
<td>24</td>
<td>4</td>
<td>489</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDY YEAR</th>
<th>HOT yellow</th>
<th>HOT pink</th>
<th>HOT red</th>
<th>HOT orange</th>
<th>HOT white</th>
<th>HOT violet</th>
<th>HOT black</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 1:1</td>
<td>3</td>
<td>1</td>
<td>115*</td>
<td>14*</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>G 2:2</td>
<td>10</td>
<td>0</td>
<td>139*</td>
<td>10</td>
<td>13*</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>G 3:3</td>
<td>7</td>
<td>0</td>
<td>141*</td>
<td>17*</td>
<td>9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>All Grps</td>
<td>20</td>
<td>1</td>
<td>395</td>
<td>41</td>
<td>27</td>
<td>4</td>
<td>2</td>
</tr>
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### STAT. Summary Frequency Table (book 3 new formula.sta)

#### BASIC
Marked cells have counts > 10

#### STATS
(Marginal summaries are not marked)

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<td>SAFETY VIOLET</td>
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<td>G 2:2</td>
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</tr>
<tr>
<td>G 3:3</td>
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* Marked cells have counts > 10. (Marginal summaries are not marked)
### Top Choice Distributions

**Dimensions by year of study**

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<th><strong>FEMIN yellow</strong></th>
<th><strong>FEMIN pink</strong></th>
<th><strong>FEMIN violet</strong></th>
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<td>22*</td>
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<tr>
<td>All Grps</td>
<td>44</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>489</td>
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<th><strong>DANGER yellow</strong></th>
<th><strong>DANGER orange</strong></th>
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<tr>
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**Figure 1**

Choices do not appear to change significantly by year of study.
Final stat analysis from number

There are all bottom choice results

[IS NOT]
Bottom choice results

"IS NOT"
Bivariate Distribution: GENDER x COLD

fig 49
Bivariate Distribution: GENDER x DANGER

fig 48
Bivariate Distribution: GENDER x FEMIN
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<th>COLD orange</th>
<th>COLD yellow</th>
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<td>.21</td>
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<th>COLD grey</th>
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<td>17.00000</td>
<td>3.000000</td>
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<td>480.0000</td>
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### STAT. Summary

**Table: Expected Frequencies (book 3 new formula.sta)**

<table>
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<tr>
<th>GENDER</th>
<th>HOT white</th>
<th>HOT grey</th>
<th>HOT green</th>
<th>HOT blue</th>
<th>HOT black</th>
<th>HOT yellow</th>
<th>HOT pink</th>
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**BASIC STATS**

Pears on Chi-square: 29.5873, df=18, p=.041679

### HOT HOT HOT HOT HOT HOT HOT

<table>
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<tr>
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<td>1.550000</td>
<td>248.0000</td>
</tr>
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<td>1.237500</td>
<td>1.237500</td>
<td>198.0000</td>
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<tr>
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<td>3.000000</td>
<td>3.000000</td>
<td>480.0000</td>
</tr>
</tbody>
</table>

**STAT. Summary**

**Table: Expected Frequencies (book 3 new formula.sta)**

**BASIC STATS**

Pears on Chi-square: 29.5873, df=18, p=.041679

### HOT HOT HOT HOT HOT HOT HOT

<table>
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<tr>
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<th>GENDER(3)</th>
<th>COLD(12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOT violet</td>
<td>HOT red</td>
<td>HOT orange</td>
</tr>
<tr>
<td>male</td>
<td>1.550000</td>
<td>1.550000</td>
</tr>
<tr>
<td>female</td>
<td>1.237500</td>
<td>1.237500</td>
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<tr>
<td>unknown</td>
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<td>.212500</td>
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<tr>
<td>All Grps</td>
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<td>3.000000</td>
</tr>
</tbody>
</table>

**STAT. Summary**

**Table: Expected Frequencies (book 3 new formula.sta)**

**BASIC STATS**

Pears on Chi-square: 29.5873, df=18, p=.041679

### HOT HOT HOT HOT HOT HOT HOT

<table>
<thead>
<tr>
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<th>GENDER(3)</th>
<th>COLD(12)</th>
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<tr>
<td>male</td>
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<td>10</td>
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</tr>
<tr>
<td>All Grps</td>
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<td>17</td>
</tr>
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**fig 44**
### Summary Frequency Table (book 3 new formula.sta)
**Table: GENDER(3) x HOT(10)**

<table>
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<th>HOT grey</th>
<th>HOT green</th>
<th>HOT blue</th>
<th>HOT black</th>
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<th>HOT pink</th>
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<tbody>
<tr>
<td>male</td>
<td>84</td>
<td>18</td>
<td>13</td>
<td>66</td>
<td>51</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>female</td>
<td>63</td>
<td>28</td>
<td>10</td>
<td>41</td>
<td>49</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>unknown</td>
<td>8</td>
<td>9</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>All Grps</td>
<td>155</td>
<td>55</td>
<td>24</td>
<td>114</td>
<td>105</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

### Summary Frequency Table (book 3 new formula.sta)
**Table: GENDER(3) x HOT(10)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>HOT violet</th>
<th>HOT red</th>
<th>HOT orange</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>248</td>
</tr>
<tr>
<td>female</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>198</td>
</tr>
<tr>
<td>unknown</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>All Grps</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>480</td>
</tr>
</tbody>
</table>

### Summary Table: Percentages of Total N=480
**Table: GENDER(3) x HOT(10)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>HOT white</th>
<th>HOT grey</th>
<th>HOT green</th>
<th>HOT blue</th>
<th>HOT black</th>
<th>HOT yellow</th>
<th>HOT pink</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>17.50</td>
<td>3.75</td>
<td>2.71</td>
<td>13.75</td>
<td>10.63</td>
<td>.63</td>
<td>1.46</td>
</tr>
<tr>
<td>female</td>
<td>13.13</td>
<td>5.83</td>
<td>2.08</td>
<td>8.54</td>
<td>10.21</td>
<td>0.00</td>
<td>1.04</td>
</tr>
<tr>
<td>unknown</td>
<td>1.67</td>
<td>1.88</td>
<td>.21</td>
<td>1.46</td>
<td>1.04</td>
<td>0.00</td>
<td>.63</td>
</tr>
<tr>
<td>All Grps</td>
<td>32.29</td>
<td>11.46</td>
<td>5.00</td>
<td>23.75</td>
<td>21.88</td>
<td>.63</td>
<td>3.13</td>
</tr>
</tbody>
</table>

### Summary Table: Percentages of Total N=480
**Table: GENDER(3) x HOT(10)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>HOT violet</th>
<th>HOT red</th>
<th>HOT orange</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>.42</td>
<td>.21</td>
<td>.63</td>
<td>51.67</td>
</tr>
<tr>
<td>female</td>
<td>.21</td>
<td>.21</td>
<td>0.00</td>
<td>41.25</td>
</tr>
<tr>
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<td>0.00</td>
<td>.21</td>
<td>0.00</td>
<td>7.08</td>
</tr>
<tr>
<td>All Grps</td>
<td>.63</td>
<td>.63</td>
<td>.63</td>
<td></td>
</tr>
</tbody>
</table>

---

*lowest choice results by gender*

![Figure 43](image-url)
<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY white</th>
<th>SAFETY grey</th>
<th>SAFETY red</th>
<th>SAFETY violet</th>
<th>SAFETY black</th>
<th>SAFETY blue</th>
<th>SAFETY orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>2.53</td>
<td>.63</td>
<td>32.21</td>
<td>1.47</td>
<td>10.11</td>
<td>1.05</td>
<td>.63</td>
</tr>
<tr>
<td>female</td>
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<td>1.47</td>
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<td>.84</td>
<td>12.63</td>
<td>.84</td>
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<td>0.00</td>
<td>.42</td>
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<td>2.32</td>
<td>55.59</td>
<td>2.32</td>
<td>24.84</td>
<td>1.89</td>
<td>2.11</td>
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<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY pink</th>
<th>SAFETY yellow</th>
<th>SAFETY green</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>1.47</td>
<td>1.47</td>
<td>.21</td>
<td>51.79</td>
</tr>
<tr>
<td>female</td>
<td>2.74</td>
<td>.63</td>
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<td>41.47</td>
</tr>
<tr>
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<tr>
<td>All Grps</td>
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<td>2.11</td>
<td>.21</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY white</th>
<th>SAFETY grey</th>
<th>SAFETY red</th>
<th>SAFETY violet</th>
<th>SAFETY black</th>
<th>SAFETY blue</th>
<th>SAFETY orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>9.840000</td>
<td>5.69684</td>
<td>136.7242</td>
<td>5.69684</td>
<td>61.1116</td>
<td>4.661053</td>
<td>5.17895</td>
</tr>
<tr>
<td>unknown</td>
<td>1.280000</td>
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<td>17.7853</td>
<td>.74105</td>
<td>7.9495</td>
<td>.606316</td>
<td>.67368</td>
</tr>
<tr>
<td>All Grps</td>
<td>19.000000</td>
<td>11.000000</td>
<td>264.0000</td>
<td>11.00000</td>
<td>118.0000</td>
<td>9.000000</td>
<td>10.00000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY pink</th>
<th>SAFETY yellow</th>
<th>SAFETY green</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>11.39368</td>
<td>5.17895</td>
<td>.517895</td>
<td>246.0000</td>
</tr>
<tr>
<td>female</td>
<td>9.12421</td>
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<td>197.0000</td>
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<tr>
<td>unknown</td>
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<td>.067368</td>
<td>32.0000</td>
</tr>
<tr>
<td>All Grps</td>
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<td>10.000000</td>
<td>1.000000</td>
<td>475.0000</td>
</tr>
<tr>
<td>STAT. BASIC STATS</td>
<td>Summary Table: Expected Frequencies (book 3 new formula.sta)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Chi-square: 27.9997, df=20, p=.109440</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>DANGER white</th>
<th>DANGER pink</th>
<th>DANGER grey</th>
<th>DANGER violet</th>
<th>DANGER green</th>
<th>DANGER black</th>
<th>DANGER yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>64.2283</td>
<td>65.7822</td>
<td>13.46723</td>
<td>7.76956</td>
<td>48.17125</td>
<td>8.80550</td>
<td>12.94926</td>
</tr>
<tr>
<td>female</td>
<td>51.3827</td>
<td>52.6258</td>
<td>10.7378</td>
<td>6.21564</td>
<td>38.53700</td>
<td>7.04440</td>
<td>10.35941</td>
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<tr>
<td>unknown</td>
<td>8.3890</td>
<td>8.5920</td>
<td>1.75899</td>
<td>1.01480</td>
<td>6.29175</td>
<td>1.15011</td>
<td>1.69133</td>
</tr>
<tr>
<td>All Grps</td>
<td>124.0000</td>
<td>127.0000</td>
<td>26.000000</td>
<td>15.000000</td>
<td>93.000000</td>
<td>17.000000</td>
<td>25.000000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STAT. BASIC STATS</th>
<th>Summary Table: Expected Frequencies (book 3 new formula.sta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-square: 27.9997, df=20, p=.109440</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>DANGER blue</th>
<th>DANGER orange</th>
<th>DANGER red</th>
<th>DANGER green</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
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<td>1.553911</td>
<td>.517970</td>
<td>245.0000</td>
</tr>
<tr>
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<td>1.243129</td>
<td>.414376</td>
<td>196.0000</td>
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<tr>
<td>unknown</td>
<td>2.36786</td>
<td>.473573</td>
<td>.202960</td>
<td>.067653</td>
<td>32.0000</td>
</tr>
<tr>
<td>All Grps</td>
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<td>7.00000000</td>
<td>3.000000</td>
<td>1.00000000</td>
<td>473.0000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STAT. BASIC STATS</th>
<th>Summary Frequency Table (book 3 new formula.sta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table: GENDER(3) x SAFETY(10)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY white</th>
<th>SAFETY grey</th>
<th>SAFETY red</th>
<th>SAFETY violet</th>
<th>SAFETY black</th>
<th>SAFETY blue</th>
<th>SAFETY orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>12</td>
<td>3</td>
<td>153</td>
<td>7</td>
<td>48</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>female</td>
<td>6</td>
<td>7</td>
<td>95</td>
<td>4</td>
<td>60</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>unknown</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>All Grps</td>
<td>19</td>
<td>11</td>
<td>264</td>
<td>11</td>
<td>118</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STAT. BASIC STATS</th>
<th>Summary Frequency Table (book 3 new formula.sta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table: GENDER(3) x SAFETY(10)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>SAFETY pink</th>
<th>SAFETY yellow</th>
<th>SAFETY green</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>246</td>
</tr>
<tr>
<td>female</td>
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<td>197</td>
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</tr>
<tr>
<td>All Grps</td>
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<td>10</td>
<td>1</td>
<td>475</td>
</tr>
</tbody>
</table>

f1941
### STAT. BASIC STATS

**Summary Frequency Table (book 3 new formula.sta)**

Table: GENDER(3) x DANGER(11)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>DANGER</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>white</td>
<td>pink</td>
<td>grey</td>
<td>violet</td>
<td>green</td>
<td>black</td>
<td>yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>68</td>
<td>55</td>
<td>13</td>
<td>9</td>
<td>56</td>
<td>7</td>
<td>11</td>
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<td></td>
</tr>
<tr>
<td>female</td>
<td>52</td>
<td>63</td>
<td>12</td>
<td>5</td>
<td>31</td>
<td>5</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unknown</td>
<td>4</td>
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<td>1</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Grps</td>
<td>124</td>
<td>127</td>
<td>26</td>
<td>15</td>
<td>93</td>
<td>17</td>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### STAT. BASIC STATS

**Summary Frequency Table (book 3 new formula.sta)**

Table: GENDER(3) x DANGER(11)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>DANGER</th>
<th>row totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>blue</td>
<td>orange</td>
</tr>
<tr>
<td>male</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>female</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>unknown</td>
<td>3</td>
<td>0</td>
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<tr>
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<td>7</td>
</tr>
</tbody>
</table>

### STAT. BASIC STATS

**Summary Table: Percentages of Total N=473**

Table: GENDER(3) x DANGER(11)

<table>
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<tr>
<th>GENDER</th>
<th>DANGER</th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>white</td>
<td>pink</td>
<td>grey</td>
<td>violet</td>
<td>green</td>
<td>black</td>
<td>yellow</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>11.63</td>
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<td>1.90</td>
<td>11.84</td>
<td>1.48</td>
<td>2.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>10.99</td>
<td>13.32</td>
<td>2.54</td>
<td>1.06</td>
<td>6.55</td>
<td>1.06</td>
<td>2.33</td>
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<td></td>
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<tr>
<td>unknown</td>
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<td>.21</td>
<td>.21</td>
<td>1.27</td>
<td>1.06</td>
<td>.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Grps</td>
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<td>19.66</td>
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<td>5.29</td>
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</tbody>
</table>

### STAT. BASIC STATS

**Summary Table: Percentages of Total N=473**

Table: GENDER(3) x DANGER(11)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>DANGER</th>
<th>row totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>blue</td>
<td>orange</td>
</tr>
<tr>
<td>male</td>
<td>.38</td>
<td>1.06</td>
</tr>
<tr>
<td>female</td>
<td>2.96</td>
<td>.42</td>
</tr>
<tr>
<td>unknown</td>
<td>.63</td>
<td>0.00</td>
</tr>
<tr>
<td>All Grps</td>
<td>7.40</td>
<td>1.48</td>
</tr>
<tr>
<td>GENDER</td>
<td>FEMIN white</td>
<td>FEMIN red</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>male</td>
<td>1.88</td>
<td>3.96</td>
</tr>
<tr>
<td>female</td>
<td>1.88</td>
<td>1.67</td>
</tr>
<tr>
<td>unknown</td>
<td>.63</td>
<td>.21</td>
</tr>
<tr>
<td>All Grps</td>
<td>4.38</td>
<td>5.83</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN black</th>
<th>FEMIN violet</th>
<th>FEMIN yellow</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>21.25</td>
<td>1.25</td>
<td>.63</td>
<td>51.67</td>
</tr>
<tr>
<td>female</td>
<td>17.92</td>
<td>3.63</td>
<td>1.25</td>
<td>41.25</td>
</tr>
<tr>
<td>unknown</td>
<td>3.54</td>
<td>0.00</td>
<td>0.00</td>
<td>7.08</td>
</tr>
<tr>
<td>All Grps</td>
<td>42.71</td>
<td>1.88</td>
<td>1.25</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN white</th>
<th>FEMIN red</th>
<th>FEMIN orange</th>
<th>FEMIN pink</th>
<th>FEMIN green</th>
<th>FEMIN grey</th>
<th>FEMIN blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>10.850000</td>
<td>14.46667</td>
<td>11.88333</td>
<td>4.650000</td>
<td>10.33333</td>
<td>41.33333</td>
<td>40.81667</td>
</tr>
<tr>
<td>female</td>
<td>8.56250</td>
<td>11.55000</td>
<td>9.47500</td>
<td>3.71250</td>
<td>8.25000</td>
<td>33.00000</td>
<td>32.58750</td>
</tr>
<tr>
<td>unknown</td>
<td>1.48750</td>
<td>1.98333</td>
<td>1.62917</td>
<td>.637500</td>
<td>1.41667</td>
<td>5.66667</td>
<td>5.59583</td>
</tr>
<tr>
<td>All Grps</td>
<td>20.0000</td>
<td>28.0000</td>
<td>23.0000</td>
<td>9.000000</td>
<td>20.0000</td>
<td>80.0000</td>
<td>79.00000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN black</th>
<th>FEMIN violet</th>
<th>FEMIN yellow</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>105.9167</td>
<td>4.650000</td>
<td>3.100000</td>
<td>248.0000</td>
</tr>
<tr>
<td>female</td>
<td>84.5625</td>
<td>3.712500</td>
<td>2.475000</td>
<td>198.0000</td>
</tr>
<tr>
<td>unknown</td>
<td>14.5208</td>
<td>.637500</td>
<td>.425000</td>
<td>34.0000</td>
</tr>
<tr>
<td>All Grps</td>
<td>205.0000</td>
<td>9.000000</td>
<td>6.000000</td>
<td>480.0000</td>
</tr>
</tbody>
</table>

**fig 39**
## STAT. Summary
**Table: Expected Frequencies (book 3 new formula.sta)**

Pearson Chi-square: 10.7851, df=18, p=0.903239

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC white</th>
<th>MASC green</th>
<th>MASC black</th>
<th>MASC pink</th>
<th>MASC yellow</th>
<th>MASC red</th>
<th>MASC orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>24.75472</td>
<td>7.22013</td>
<td>3.094340</td>
<td>175.3459</td>
<td>9.28302</td>
<td>5.67296</td>
<td>2.062893</td>
</tr>
<tr>
<td>female</td>
<td>19.82390</td>
<td>5.78197</td>
<td>2.477987</td>
<td>140.4193</td>
<td>7.43396</td>
<td>4.54298</td>
<td>1.651992</td>
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<td>unknown</td>
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<td>0.427673</td>
<td>24.2348</td>
<td>1.28302</td>
<td>0.78407</td>
<td>0.285115</td>
</tr>
</tbody>
</table>

## STAT. Summary
**Table: Expected Frequencies (book 3 new formula.sta)**

Pearson Chi-square: 10.7851, df=18, p=0.903239

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC violet</th>
<th>MASC grey</th>
<th>MASC blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>14.44025</td>
<td>2.578616</td>
<td>1.547170</td>
<td>246.0000</td>
</tr>
<tr>
<td>female</td>
<td>11.56394</td>
<td>2.064990</td>
<td>1.238994</td>
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<tr>
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<td>1.99581</td>
<td>0.356394</td>
<td>0.213836</td>
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</tr>
<tr>
<td>All Grps</td>
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<td>5.000000</td>
<td>3.000000</td>
<td>477.0000</td>
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</tbody>
</table>

## STAT. Summary
**Summary Frequency Table (book 3 new formula.sta)**
**Table: GENDER(3) x FEMIN(10)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN white</th>
<th>FEMIN red</th>
<th>FEMIN orange</th>
<th>FEMIN pink</th>
<th>FEMIN green</th>
<th>FEMIN grey</th>
<th>FEMIN blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>9</td>
<td>19</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>41</td>
<td>50</td>
</tr>
<tr>
<td>female</td>
<td>9</td>
<td>8</td>
<td>13</td>
<td>4</td>
<td>12</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td>unknown</td>
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<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>All Grps</td>
<td>21</td>
<td>28</td>
<td>23</td>
<td>9</td>
<td>20</td>
<td>80</td>
<td>79</td>
</tr>
</tbody>
</table>

## STAT. Summary
**Summary Frequency Table (book 3 new formula.sta)**
**Table: GENDER(3) x FEMIN(10)**

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FEMIN black</th>
<th>FEMIN violet</th>
<th>FEMIN yellow</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>102</td>
<td>6</td>
<td>3</td>
<td>248</td>
</tr>
<tr>
<td>female</td>
<td>86</td>
<td>3</td>
<td>3</td>
<td>198</td>
</tr>
<tr>
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<td>17</td>
<td>0</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>All Grps</td>
<td>205</td>
<td>9</td>
<td>6</td>
<td>480</td>
</tr>
</tbody>
</table>
### Summary Frequency Table (book 3 new formula.sta)
#### Table: GENDER(3) x MASC(10)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC white</th>
<th>MASC green</th>
<th>MASC black</th>
<th>MASC pink</th>
<th>MASC yellow</th>
<th>MASC red</th>
<th>MASC orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>27</td>
<td>7</td>
<td>3</td>
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<td>9</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>female</td>
<td>17</td>
<td>6</td>
<td>3</td>
<td>144</td>
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<td>5</td>
<td>1</td>
</tr>
<tr>
<td>unknown</td>
<td>4</td>
<td>1</td>
<td>0</td>
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<td>2</td>
<td>1</td>
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<td>18</td>
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</table>

### STAT. BASIC STATS
#### Summary Frequency Table (book 3 new formula.sta)
#### Table: GENDER(3) x MASC(10)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC violet</th>
<th>MASC grey</th>
<th>MASC blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>14</td>
<td>3</td>
<td>3</td>
<td>246</td>
</tr>
<tr>
<td>female</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>197</td>
</tr>
<tr>
<td>unknown</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>All Grps</td>
<td>28</td>
<td>5</td>
<td>3</td>
<td>477</td>
</tr>
</tbody>
</table>

### STAT. BASIC STATS
#### Summary Table: Percentages of Total N=477
#### Table: GENDER(3) x MASC(10)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC white</th>
<th>MASC green</th>
<th>MASC black</th>
<th>MASC pink</th>
<th>MASC yellow</th>
<th>MASC red</th>
<th>MASC orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>5.66</td>
<td>1.47</td>
<td>.63</td>
<td>36.48</td>
<td>1.89</td>
<td>.84</td>
<td>.42</td>
</tr>
<tr>
<td>female</td>
<td>3.56</td>
<td>1.26</td>
<td>.63</td>
<td>30.19</td>
<td>1.68</td>
<td>1.05</td>
<td>.21</td>
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<tr>
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<td>.21</td>
<td>0.00</td>
<td>4.61</td>
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<td>.42</td>
<td>.21</td>
</tr>
<tr>
<td>All Grps</td>
<td>10.06</td>
<td>2.94</td>
<td>1.26</td>
<td>71.28</td>
<td>3.77</td>
<td>2.31</td>
<td>.84</td>
</tr>
</tbody>
</table>

### STAT. BASIC STATS
#### Summary Table: Percentages of Total N=477
#### Table: GENDER(3) x MASC(10)

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MASC violet</th>
<th>MASC grey</th>
<th>MASC blue</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>2.94</td>
<td>.63</td>
<td>.63</td>
<td>51.57</td>
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<td>.21</td>
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<tr>
<td>All Grps</td>
<td>5.87</td>
<td>1.05</td>
<td>.63</td>
<td></td>
</tr>
</tbody>
</table>

---

Least likely for MASC - over-whelmingly 
no significant difference.

---

fig 37


Hot Cold Masc Fem Danger Safety


Hot Cold Masc Fem Danger Safety


Fig 8072

Yellow Flow Chart, Graphic Communications B.A. Falmouth College of Arts. Year 1, 58 Subjects. Longitudinal Study, Pattern analysis, Perceptual Psychology. 1996-99.

Fig 88 80

Chart 1 Graphics F.C.A yr 1

Yellow Flow Chart. Illustration B.A. Falmouth College of Arts.
Year 9. 90 Subjects. Longitudinal Study, Pattern Analysis,

Yellow Flow Chart. Illustration H.N.D. Falmouth College of Arts.
Year 2. 19 Subjects. Cross Sectional Study, Pattern Analysis,
Perceptual Psychology. 1997.


Fig 97 87