

Description of Proposed Research

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'Colour and consciousness: the transcendental metaphysics of European modernism, c.1900-1939'

I am writing to apply for the Postdoctoral Fellowship at the Zvi Yavetz School of Historical Studies, Tel Aviv University, starting in October 2016. I recently completed my Ph.D. in modern cultural history at the University of Cambridge supervised by Professors Chris Clark and Peter Mandler, and I am currently applying to postdoctoral fellowships as I would like to pursue a career in academia.

My Ph.D. dissertation, entitled 'Split temporalities and conceptions of time in Western Europe and America, c.1890-1940', investigated how alternatives to linear 'clock-time' were a central focus of European modernism and how conceptions of this subjective, multi-dimensional time were culturally expressed. I illustrated how time became a central category of inquiry across a range of conceptual fields, including psychology, philosophy, visual art, cinema, science fiction, and music, drawing upon source material in American, British, French, German, and Italian history. The lack of ontological distinctions between past, present, and future endlessly intimated in these sources affirmed the 'congealing' or 'thickening' of time central to Henri Bergson's notion of *durée*. Bergson's challenge to 'clock-time' instead suggested modalities of 'momentary', 'planar', 'fluidic', or 'palimpsestic' time(s) consequently developed by experimental psychologists and philosophers.

Starting from this philosophical discourse, subsequent chapters explored how psychiatrists defined depression, schizophrenia, and other mental disorders according to 'abnormal' temporal orientations, linking Freudian ideas of time in psychoanalysis with applied psychiatry; the response of early twentieth-century French classical composers to time and temporality, paralleling a broader discourse about the role of music and the essence of time that refracted contemporary trends in physics (Einsteinian relativity), philosophy (Bergsonism), and visual art; and theories of time and time-travel in early science fiction pulp magazines and novels, which combined relativity's 'space-time' and Bergsonian temporal subjectivity with a popular understanding of four-dimensional geometry, Victorian spiritualism, and the 'luminiferous aether'. I concluded that 'time' from 1890 to 1940 was a distinctly unstable concept or entity, one that might have any number of 'definitions' depending on point of view or belief about its 'true' nature. Challenging the hegemonic view of modernity as characterised by temporal 'simultaneity' or 'acceleration', the modalities of crumpled, layered, ethereal and four-dimensional time that I uncovered instead suggested that the 'time problem' contemporaries identified was not only a project that framed multiple temporalities in order to highlight divergences in time perceptions—rather, it framed the experience of modernity itself.

In my last chapter I examined how avant-garde dramatists (including French surrealists, Dadas, Italian futurists, post-impressionists, and Russian constructivists) disrupted the linear progression of clock-time by means of synaesthetic and multisensory performances that provoked spectators, producing novel stage temporalities in the process. During my research, I became fascinated by a recurrent discourse of colour, light, and sound that I found in dramatic treatises, lighting technique, art theory, memoirs, stage notations, schools of dance, and musical scores. This inspired my new project on 'colour consciousness'.

My new research project probes the meanings and beliefs attached to what I call ‘colour consciousness’ in European modernism. Inspired by an emphasis on colour theory, synaesthesia, and perception from the mid-nineteenth to early twentieth centuries that I discovered whilst researching the final chapter of my dissertation, it seeks to explore how, liberated from the need to mimic or resemble the objective world in traditional art forms, colour became representative of the phenomenological universe. Linking contemporary understandings of light and colour in the physical and psychological sciences to techniques and theories in avant-garde painting, theatre, and music, it will present a history of the visualisation of colour and the use of visual technologies, practices, and artworks to express a metaphysical cosmology that manifested a search for stabilising beliefs or the divine in the visual culture of late nineteenth- and early twentieth-century Europe.

In 1927, 1930, 1933, and again in 1936, the University of Hamburg hosted a ‘Colour-Music Congress’ (*Kongresse zur Farbe-Ton-Forschung*) bringing together artists, psychologists, and critics from around the world. Attendees discussed topics including synaesthesia and multimedia art forms, and were treated to ‘colour organ’ performances as well as lectures by Hans Stoltenberg on ‘pure colour’ in space and time and by dance critic Fritz Böhme on ‘The unity of light, music, and dance on the stage’.¹ The Congress’ emphasis on colour theory, synaesthesia and perception highlights a particular moment in European history when new understandings of colour and light in the physical sciences prompted novel experimentations with the same in painting, theatre, and music.

My project will explore the meanings and beliefs attached to ‘colour consciousness’ in European modernism from roughly 1900 to 1939. It seeks to answer why, liberated from the need to mimic or resemble the objective world in traditional art forms, colour became representative of the phenomenological universe. For avant-garde artists, experiencing colour was metaphysical, even transcendental: both an expression of and a vector for the psyche’s communion with the universal or the divine, probing the depths of human nature and the subconscious. In this sense, colour was not limited to the vibrant palettes of abstract artists but combined in a multisensory performance with light and music, like the Congress’s colour-organ concerts, in which colour’s specific meaning (i.e., Wassily Kandinsky’s ‘colour-form’ correspondences) could be *communicated* to an audience that subsequently *communed* in a participatory performance of colour, and thus experienced a *communion* with the divine or some higher spirituality—connecting theosophists, spiritualists, and other occultists with musicians, psychologists, philosophers, lighting technicians, and medical practitioners, in a search for what Dyane Sherwood has called ‘inner cosmologies’.²

Existing scholarship on the period 1800 to 1945 has thoroughly traced the history of colour in relation to cinema and photography, new discoveries in optics, the introduction of new paint colours and dye through developments in the European chemical industry, and competing colour theories in physics from Newton to Goethe, or Chevreul to Hering, and how these influenced period art.³ Acutely aware of how changes in colour technique influenced or signified transitions in style, art historians have long been sensitive to colour

¹ Derived from Stoltenberg’s earlier publication, *Reine Farbkunst in Raum und Zeit* (1920).

² D. Sherwood, ‘Inner cosmologies: Exhibits of Works by C. G. Jung and Wassily Kandinsky, New York 2009’, *Jung journal* 4.1 (Winter 2010), pp.11-18.

³ For example: S. Street, S. Brown, & L. Watkins, *Colour and the moving image: history, theory, aesthetics, archive* (2012); R. Misk, *Chromatic cinema: a history of screen colour* (2010); J. Yumibe, *Moving color: early film, mass culture, modernism* (2012); S. Peacock, *Colour* (2010); M.V. Orna, *The chemical history of colour* (2013); R.L. Blaszczyk, *The colour revolution* (2012); F. Burwick, *Quellen und Forschungen zur Sprach- und Kulturgeschichte der germanischen Völker* (1986); S.F. Johnston, *A history of light and colour measurement: science in the shadows* (2001).

and its uses. A significant body of literature regarding the newfound intensity and textural pigmentation of the modernist palette endures, and recently scholars such as James Fox, Laura Knight, and Carole Biggam have also explored the meaning of colour in specific epochs.⁴ Nonetheless, these studies continue to frame colour in its own right.⁵ Much less has been written about the particularly *metaphysical* nature of modernist colour theories and how this was tied to experiments in colour perception by Helmholtz (1852), Fechner (1860), Bleuler and Lehmann (1881), Suarez de Mendoza (1890), and Flournoy (1893) among others. Colour in modernism was not one-dimensional but multisensory, reflecting French philosopher Henri Bergson's interpenetrating states of being. The Hamburg Congress, for example, was organised by Dr Georg Anschütz, 'Professor of Music, Art, and Synaesthesia', developing from his 'psychological-aesthetic' working group at the University. The multisensory works produced by Sonia and Robert Delaunay, van Doesburg, Klee, and Kandinsky among others cannot be isolated from a scientific milieu wherein theories of colour vision and synaesthesia had circulated since the mid-nineteenth century.⁶

My project seeks to address this lacuna in our historical understanding of modernism, colour, and the relationship between the arts and sciences by relating the history of psychological colour perception to the *meanings* of colour articulated by the avant-garde—not just the *use* of colour in avant-garde art integrated with the history of technology, which has hitherto framed the debate. Modernist ideas regarding colour were not only related to advances in optics or chemistry, but also to the holistic flux of Bergsonian philosophy and a culture of experimental psychology that emphasised the discrete unpredictability and ephemerality of human perception.⁷ The colour organs devised by Danish inventor Thomas Wilfred (America), A.B. Hector (Australia), Beau and Bertrand-Taillet (Paris), Z. Pašánek (Czechoslovakia), H. Schröder (Germany), and A.B. Klein (England) speak to a widespread interest in the purity of colour abstraction and its association with metaphysical or mystical qualities.⁸ It is no coincidence that Wilfred's Clavilux was encouraged by Claude Bragdon, an advocate of the fourth dimension, Theosophist, and fellow 'colour-music' visionary. As another contemporary, Leonid Sabaneiev, wrote of the synthesis of sound, colour, and music in a performance of Scriabin's *Prometheus* in New York in 1915:

⁴ For example, J. Fox's three-part series 'A history of art in three colours' for the Royal Television Society in 2012; L. Knight, *Reading green in early modern England* (2014); P. Ball, *Bright earth: art and the invention of colour* (2001); J. Balfour-Paul, *Indigo* (1998); Bruce R. Smith, *The key of green: passion and perception in Renaissance culture* (2009); C.P. Biggam, *The semantics of colour: a historical approach* (2012).

⁵ J. Lichtenstein, *The eloquence of colour* (1993); J. Gage, *Colour and meaning* (1999); D. Batchelor, *Chromophobia* (2000); M. Pastoureau, *Blue* (2001) and *Black* (2008).

⁶ Psychologists contemporary with Anschütz who worked on synaesthesia include Argelander (1927), Wallaschek (1930), Wellek (1930), and Werner (published 1966).

⁷ G. Allen, *The colour-sense: its origin and development; an essay in comparative psychology* (1879); C.S. Myers, 'Some observations on the development of the colour-sense', *British journal of psychology* 2.4 (Oct. 1908), p.353; W. McDougall, 'An investigation of the colour-sense of two infants', *British journal of psychology* 2.4 (Oct. 1908), p.338; M.P. Rossi, 'The rules of perception: American color science, 1831-1931', Ph.D. Dissertation, MIT (2011). See also W. Jaeger, 'Die Geschichte der Farbensinnforschung als Schlüssel zur Kenntnis der verschiedenen Formen angeborener Rot-Grün-Sinnstörungen', *Klinische Monatsblätter für Augenheilkunde* 205 (Nov. 1994), p.251-4 and T.W. Allen Whitfield & J. Whelton, 'The arcane roots of colour psychology, chromotherapy, and colour forecasting', *Colour research and application* 40.1 (Feb. 2015), pp.99-106.

⁸ Contemporary works include: W. Voss, *Das Farbenhören bei Erblindeten* (1930); O. Rainer, *Musikalische Graphik* (1925); A. László, *Die Farblichtmusik* (1925), A.B. Klein, *Colour music: the art of light* (1926). For an extended discussion of colour organs, see 'Precursors of the absolute cinema: the colour organ and the Lichtspiel', in R. Bruce Elder, *Harmony and dissent: film and avant-garde art movements in the early twentieth century* (Wilfred Laurier, 2008), esp. pp.49-70.

...of late the arts of movement and of the pure play of light—the symphony of colours—have begun to develop... The methods of many innovations in painting can be called only an approach in painting to the pure play of colours. ...All the arts...must be united in one work, whose ambience conveys...an authentic ecstasy, an authentic vision of higher realities.⁹

Taking colour as a nexus for exploring fields of knowledge in modernism, my research will therefore connect contemporary scientific discourses with transcendental and multisensory conceptions of colour, linking the history of modern art with the history of physics, psychology, and performance theory. It will not only ask how changes in scientific perspectives on the physics of light and colour, cognition, and sensation informed cultural understandings of colour, but also how the modernist intervention in this ‘colour consciousness’ presents a different story of the history of colour perception, elucidating how a ‘visual’ definition of colour changes when viewed through a multisensory phenomenon like synaesthesia. It will moreover seek to connect this metaphysical understanding of colour to a hitherto unexplored dimension of colour investigation during this period: the mystical ideas of Theosophists and occultists, who were particularly interested in the spiritual qualities of colour, as well as their medical counterparts, who advocated colour therapy (‘chromotherapy’) as a means of corporeal healing, the physiological complement to spiritual renewal.

My methodology will draw upon a close reading of primary source texts as well as a visual or art historical analysis of paintings and performances. In other words, it will investigate the meanings and functions associated with ‘colour’ in both practice and theory: in texts designed to explain artistic technique or the science of human perception, as well as in works of art or performance that sought to express colour combinations in novel ways. It will accordingly examine how colour was applied in artistic production as well as how colour was conceived, displayed, or staged – and by implication perceived – by artists, scientists, and the public at large. The geographical focus of the project will centre on colour modernism in Britain, France, and Germany, with reference to concurrent developments in America (i.e., in William James’ psychological work at Harvard) and elsewhere in Europe (i.e., Italian Futurism, Russian constructivism and Swiss Dada, which shared many aesthetic features with German Expressionism and French Surrealism).

Central research questions include:

- What meanings did artists, composers, dramatists, philosophers, and psychologists ascribe to colour?
- How was the interplay of colour, light, and sound interpreted as a form of transcendental spiritualism? What function did this quasi-religious aesthetic philosophy serve at this particular moment in time?
 - Why, for example, was the notion of art as a mystic or esoteric activity in *orphisme* so powerful in France, where its combination of cubism, fauvism, and the colour theory of Paul Signac and Eugène Chevreul took a particularly redemptive form?
- How were these metaphysical beliefs communicated to audiences through public performance or display?

⁹ Quoted in Elder, *Harmony and dissent*, p.60.

- How was this particularly modernist consciousness influenced by scientific discoveries in optics, chemistry, and psychology? What significance does this hold for understanding modernism not through C.P. Snow's division of the 'two cultures' of arts and science, but as a holistic programme exploring the depths or limitations of human knowledge and the 'truer' reality of the unknown or unseen universe through a combination of means?
- How did colour mysticism inform medical theory and praxis, such as Edwin Babbitt's *The principles of light and colour* (1878), which described how specific colours alleviated medical conditions ('chroma-therapeutics'), and subsequent practices like chromotherapy or aura reading?
- What happened to technologies like the colour organ: were they subsumed within, or replaced by, the sensory combinations of commercial cinema or new performance techniques? Or were they abandoned with the disintegration or disappearance of this particular form of metaphysical thinking, and the specific sociocultural and scientific combination that created the conditions for this multi-sensory, transcendental programme to emerge in the early twentieth century?

The project will attempt to explain how ideas of colour represented a search for stabilising beliefs in the fin-de-siècle, offering a kind of individual spiritualism or salvation that captured the underlying 'essence' of things. Primary sources will include paintings such as Mondrian's *Composition in Black and White* (1917) or Picasso's *Blue* (1901-04) and *Rose* (1904-06) periods, as well as colour-organ concerts designed by A.W. Remington, Arnaldo Ginna and Bruno Corra. It will also include multisensory productions that combined light/colour with sound and action, such as Kandinsky's *The Yellow Sound* (1912), Kurt Schwerdtfeger and Ludwig Hirschfeld-Mack's *Reflektorische Lichtspiel* (c.1924-5), and films like Leopold Survage's *Rythme coloré* (1913). Art criticism and/or exhibition reviews in the *Burlington magazine*, *Art journal*, *Arts and letters*, *The Spectator*, *Les Cahiers d'art*, *Mercure de France*, *La Revue indépendante*, *L'Art des deux mondes*, *Der Sturm*, *Der Blaue Reiter*, *Jugend*, *Die Kunst für Alle*, *Studium Generale* will moreover be consulted, as will artistic treatises on colour including Alexander Laszlo's *Colour-light-music* (1925), Kandinsky's *On the spiritual in art* (1911), Loïe Fuller's *Light and the dance* (1908), and Henri Gouhier's *The essence of theatre* (1943).

From a scientific perspective, psychological experiments in the *American journal of psychology*, *Philosophical transactions of the Royal Society*, *British journal of psychology*, *Psychological review*, *Zeitschrift für Psychologie und Physiologie*, *Philosophie Studien*, *Psychologie Studien*, *L'Année psychologique*, and *Le Revue philosophique* will be assessed alongside popular science texts such as Arthur Osborne Eaves' *The power of colours* (1906) or David Katz's *The world of colour* (1930). Finally, spiritualist writings such as C.W. Leadbeater's *Man visible and invisible* (1902) and medical treatises like R. Dimsdale Stocker's *Colour as a curative agent* (1907) and R. Douglas Howat's *Elements of chromotherapy; the administration of ultra-violet, infrared and luminous rays through colour filters* (1938) will be analysed during the second phase of research.

Significantly, the project will re-establish the contributions of French artists and intellectuals to understandings of Western modernism. Orphism and symbolism, for instance, represent two schools of artistic thought that were particularly French in origin wherein artists strove to express emotion over reason or objective observation, inner intuition, and the universe beyond the surface of reality through colour. The project will also address how

perception has a history – not only how perceptual practices change over time, but also how understandings of colour in early twentieth-century psychology, art, and culture may continue to suffuse vision and cognition today (Robert Delaunay, for example, was inspired by the halos cast by the installation of streetlamps in Paris to create performances of coloured disks that became a leitmotif of his work). Drawing upon my doctoral research, it will furthermore shed light on the circulation of knowledge in modernism: how the realms of art and science were complementary partners in a search for deeper meanings, as well as the way in which modernism can offer fruitful insight into sources of knowledge that rivalled the physical sciences in propagating and explicating complex concepts like colour or temporality.

Speaking to the Seminar's themes of 'values, materials and interests' in 2016-17, the project will explore the cultural encounters between the arts and sciences, as well as between different schools of national thought or performance style. It will contend that during this period colour was imbued with values and ideas that widely informed scientific and aesthetic investigations of the same, transforming ordinary 'materials' (optical technologies, paint and paper, coloured lights and film) into laboratory or performance experiences that sought to expand understandings of human colour perceptions as well as colour's ability to engender emotional or psychological experiences that intensified or transcended the norms of everyday life. The project will moreover benefit from close collaboration with Professor Billie Melman, whose writings on optics, visual histories, and the interactions between 'high' and 'low' popular visual cultures in *The culture of history* (2006) will contribute to my visual historical analysis and help delineate the interactions between avant-garde and mainstream modernisms. I also look forward to discussions with researchers at the Cohn Institute for the History and Philosophy of Science and Ideas, whose work on nineteenth-century physics, biology, and the relationship between religion and rationality will help elucidate the scientific side of my proposed project.

The intended academic outcomes of this project include an article for publication by the end of year one, a second article for publication by the end of year two, and a draft monograph ready for publication three to four years after the project's commencement. Research conducted during year one, at Zvi Yavetz School of Historical Studies, will focus on visual art, colour-organs, and psychological literature in conjunction with nineteenth-century optics, which formed the basis for subsequent experiments in the emerging science of psychology. The objective of this first year of research will be to produce an article on 'colour consciousness' based on these three areas of primary source material for immediate publication. Year two will focus on modernist performance and synaesthesia, expanding primary sources in the 'arts' category to include theatre and film (*Les Nabis*, for example, crafted the stage design for the theatre of Ibsen, Strindberg, Wild, and Jarry). In tandem with this synaesthetic emphasis, the second year will also be devoted to analysing spiritualist and medical writings on colour. Overall, it is anticipated that two to three years of research would provide ample time to complete a draft monograph, which, alongside my doctoral monograph, would firmly establish an early career contribution to the fields of aesthetic modernism; historical understandings of visual perception and of experimental psychology; the relationship between the physical sciences, sciences of the mind/philosophy, and the arts and humanities, and how discursive exchanges between these sources of knowledge in Britain, France, and Germany developed during the period despite the political cleavages and cultural interruptions that inevitably accompanied two World Wars.