Ethics into aesthetics: Gustav Metzger and the question of beauty

Dr Elizabeth Fisher

'I am concerned with beauty, perhaps more than with anything else'[1]

As Metzger himself acknowledged, this statement may come as a surprise to many familiar with the highly political body of work, or lifetime of environmental and social activism, of an artist known as 'the conscience of the art world.'[2] For the last sixty years, the best part of Metzger's working life, aesthetics was something of a dirty word in contemporary art and his radical artistic practice was part of a groundswell of conceptual, performative, anti-art, anti-capitalist artistic movements across Europe and the USA in the post-war period which challenged the hegemony of Greenbergian formalism and modern aesthetic theory. The relationship between aesthetics and art has, nevertheless, been a cornerstone of the systems of connoisseurship and commodification perpetuated by the art market and the gallery – or as Metzger once described them, 'Capitalist institutions. Boxes of deceit' and 'stinking fucking cigar-smoking bastards and…scented fashionable cows who deal in works of art.'[3] In view of this apparent incompatibility, Metzger's statement invites a little more unpacking.

Beauty and aesthetics appear with some frequency in Metzger's writings and particularly in the manifestos written between 1959-64, playing too an important role in his artistic production from the earliest to his last works. Recently (re)discovered drawings and paintings made between the late 1940s and late 1950s -Metzger's student days and the decade immediately after- allow us to understand the course of his engagement with aesthetics much more clearly, and to trace it as an evolving preoccupation from the beginning to the end of his career.

Metzger claimed that his artistic education began at an early age, with the vivid aesthetic experiences of his childhood in Nuremberg: marvelling at the city's medieval architecture and famous fountains, or witnessing the increasingly theatrical Nazi party rallies held annually in the city between 1923-1938.[4] He has also referred to the formative influence of his family's religious beliefs: 'I was raised in a Jewish Orthodox environment, so there was a fascinating clash in my youth between art and the Jewish insistence on the prohibition of images.'[5] By the time he left Germany aged 13, Metzger had become highly attuned to the power of aesthetics in service of both politics and religion. Although Metzger never practised the religion as an adult, aspects of both his aesthetic sensibility and his philosophical outlook appear to have their roots in Jewish intellectual and religious culture. His approach to revolutionary theory and practice draws on a dialectical way of thinking that he attributes to Judaism; likewise, the importance of bodily experience, a preoccupation with materiality and a deep mistrust of images are characteristics of Metzger's practice also present in Jewish ritual and mysticism.

Metzger decided to become an artist after a brief but intense involvement with extreme left-wing politics while working in a furniture factory in Leeds during the war. He read Eric Gill's writings on art, religion, and industry – linking aesthetics and social reform – alongside the theories of Karl Marx and Leon Trotsky. In contrast to this early schooling in radical anti-capitalist, socialist and anarchist ideas, his artistic training was highly conventional. On Henry Moore's advice, he began by studying life drawing and spent several years acquiring the basics of a traditional artist's education. He attended Cambridge School of Art and spent a year studying at the Royal Academy of Arts, Antwerp. In 1945, he enrolled in evening classes taught by David Bomberg at the Borough Polytechnic, London. He quickly became a protégé of Bomberg, under whose tutelage he gained a thorough grounding in the history of modern art. This, according to Metzger, instilled in him – in contrast with many of his peers – 'a commitment to aim for high standards in art. And so linking with the long tradition – a tradition constantly emphasised by my teacher David Bomberg.'[6] His wide-ranging scholarship on art historical subjects from ancient automata to Vermeer, or art in Germany under the Third Reich, is testimony to Metzger's deep sense of continuity with the past.[7] Acutely aware of his own artistic predecessors he consistently sought to contextualise his choice of materials, methods and aesthetic theories within an art historical framework.

Metzger was a disciplined and diligent student. Series after series of life drawings, studies of Flemish and Spanish paintings in the National Gallery, and oriental masks and classical and ancient Greek friezes in the British Museum from this early period reveal a methodical approach to the study of mass and movement, and a clear

progression as he wrestled with abstraction and the use of colour in successive iterations of the same motif. Metzger evidently valued the routine, learned from Bomberg, of serious, sustained interrogation of artistic methods and ideas. Reflecting on the work produced during this period, he wrote: '[t]oday, when Action Painting and Abstract Expressionism are taught at leading art schools, it is important to realise that in 1945 David Bomberg's class at Borough Polytechnic was the only school in England where ideas and forms that had points of contact with the New York school were consistently developed and practised.'[8] According to Kristine Stiles, it was also Bomberg who taught him 'that the revolutionary formalism that had unanimously been upheld as the standard of radical art since Impressionism was insufficiently concerned with revolutionary content'.[9] However, after a disagreement with Bomberg in 1953 Metzger stopped painting and left London, rejecting the art world in favour of the isolation of King's Lynn. It was almost four years later, with a series of small paintings made between 1956-58, that he started to think about art again.

All the paintings depict the same motif, a three-legged occasional table that he had picked up in King's Lynn, where he was then earning a living as a second-hand book and furniture dealer. The circular tabletop usually fills the top part of the image; its edges meet the sides of the canvas or board allowing little or no depth of field, while its legs carve up the bottom zone into wedges of thickly, hastily applied paint. Some are heavily worked and full of dark, sombre colours; in others there are dashes of bright blues, pink and warm creams, and a sense of lightness and speed about the brushstrokes that lends the diminutive paintings a delicacy. They are preoccupied with the surface, and echo Bomberg's insistence on the importance of 'essential form.' The physical mass of paint – a vestige of the painterly style adopted by several of Bomberg's proteges, including Leon Kossoff and Frank Auerbach – gathers in solid ridges casting tiny shadows where dust has gathered. The shape of the table evokes the form of a mushroom cloud and the symbolism is pertinent: during the 1950s, the testing of atom bombs in remote corners of the world caused untold environmental destruction. The subject of nuclear disarmament became a major focus of Metzger's activism over subsequent decades. His return to painting coincided with his involvement in anti-nuclear campaigning and the foundation of the King's Lynn branch of the Campaign for Nuclear Disarmament (CND). Picking up where he had left off in 1953, these works attempt to invest the formal structure of painting with political meaning but in so doing underline the difficulty of addressing revolutionary content within the abstract lexicon of modernism, formalist aesthetics and the autonomous picture plane.

The work with which Metzger followed the 'table' paintings was characterised by a reprisal of the disciplined exercises of his student years as well as the rapid exploration of various painterly devices and media. A series of drawings show the same three-legged table rendered increasingly abstract – in charcoal, pencil and pastel, watercolour and ink – spilled and splashed, rubbed and scratched, sometimes until a hole is worn in the paper and the original motif disappears. Several entirely abstract paintings, made between 1957-59, show Metzger trialling alternative supports – from mild steel sheets to wooden boxes – working with a palette knife rather than brushes so as to engage more directly with the surface. The airy rapidity of the drawings is slowed by the physical bulk of paint, which he scrapes and scratches, overpaints, drips and smears in experiments that echo those of his contemporaries and immediate predecessors wrestling with the same self-referential problems of modernism such as Ben Nicholson, Kurt Schwitters, Willem de Kooning, Jackson Pollock and Philip Guston.[10]

Metzger's breakthrough came in 1959 with the discovery of some discarded television packaging outside a shop on the Fulham Road in London. Perhaps thanks to his thorough grounding in the language of formalism, he recognised in the crisp, machine-cut cardboard forms qualities that, as he declared when he exhibited them, were 'equal to the greatest in modern painting, sculpture and architecture.'[11] The Cardboards marked a significant shift in Metzger's practice, and the end of his experiments in painting. As radical as this departure seems, however, it wasn't a departure from the formal rigour of modernist aesthetics. As the arch-formalist critic Clement Greenberg noted, '[The Modernist response] begins to make a break with many well-tried conventions and habits, ostensibly a radical break. But for the most part it remains only ostensibly a break and only ostensibly radical. Actually, it's a 'dialectical' turn that works to maintain or restore continuity: continuity with the highest aesthetic standards of the past.'[12]

'As a Jew', Metzger explained that he was drawn to such dialectical thinking and that, following Greenberg's logic, the aesthetic standards of formalism could be applied to non-art objects without abandoning the 'highest aesthetic standards of the past.'[13] He later elaborated, 'I was struck by the beauty of the material […] These particular boxes were simply beautiful and in perfect condition. This is important; cardboard boxes could easily be knocked about.'[14] While acknowledging the historical function of aesthetics in defining the work of

art in terms of its artistic as opposed to natural beauty, Metzger asserted '[b]eautiful objects are being made all the time but you can have beauty for free provided you understand the potential of the simplest and plainest materials.'[15] His only intervention with the 'Cardboards,' as he was careful to point out in the exhibition announcement, had been to select and arrange them, to highlight their inherent aesthetic qualities, entirely unmediated by the aesthetic concerns of artists or other taste-makers.

Pursuing the notion of an aesthetic experience as unrelated to artistic production, Metzger acquired further evidence in the form of clear polythene sacks stuffed with scraps of coloured fabric and paper left out on the pavements of Soho for the binmen to collect. These 'Rubbish Bags', like the Cardboards, were for Metzger, 'among the most significant aesthetic-realistic experiences available to us.'[16] While the cardboards were a 'statement about ultimate, abstract form, and the beauty, and perhaps also terror, inherent in the machine product', reminiscent of the movements of Constructivism, Russian Productivism and Minimalism, Metzger noted that 'the chaotic formlessness' of the bags revealed 'the significance and beauty that can reside in chance', employed as an artistic device in the work of Braque, Arp and Malevich amongst others.[17] The significance of the discarded Cardboards and Rubbish Bags as unwanted, seemingly worthless waste material as well as their potential to transcend such negative associations was not lost on Metzger. For him, they were consistent with a radical materialist, anti-capitalist tradition from Kurt Schwitters to Arte Povera.[18] The Cardboards and Rubbish Bags provided the impetus behind the development of Metzger's aesthetic theories over the next decade, central to which was expounding the potential of a wide range of non-artistic materials and processes and taking aim at the notion of artistic genius. Such theories, which underpin the manifestos for Auto-Destructive and Auto-Creative Art, hinged on an expansive and democratic approach to materials that subverted conventional artistic values in line with his social and political views and sketched a field of aesthetic experience ranging from revulsion to transcendence that would, he believed, lead to social change. His declared aim was to '[transform] peoples' thoughts and feelings' in relation to art and society, and Auto-Destructive Art allowed him to voice mounting concerns over the unchecked progress of capitalism and military activity during the post-war period, including the development and testing of the atom bomb and other chemical weapons, and the war in Vietnam.[19]

Processes of physical disintegration were central to Auto-Destructive works such as the *Acid-Nylon Painting* (1959/60) and the unrealised *Auto-Destructive Monument* (1960), which featured the corrosive power of rust. Projects such as the theatrical *Auto-Destructive Art Demonstration* on London's South Bank on 3rd July 1961, in which he sprayed acid onto three nylon screens wearing a gas mask, gloves and army fatigues, or the monumental public art proposal for *Five Screens with Computers* (1965-69) in which computers would be programmed to eject individual panels from large steel structures, causing them to crash to the ground without warning were calculated 'to remind people of the horrors which they are perpetrating, and a warning and admonition to reverse this direction.'[20] Although controversial and 'ostensibly radical,' Metzger saw these projects as part 'very long history…of the aesthetic of revulsion' and took pains to present them to audiences within an art historical context that included a broad set of references, including Greek and Roman caricatures , Far Eastern and Medieval European art, Grunewald and 'a great deal of Christian art' as well as the Dadaists and 'much work by Picasso.' He also noted the pioneering the use of rust in art and architecture by Kurt Schwitters and Eero Saarinen as evidence of an artistic tradition in which he shared.[21]

'Manifesto World,' penned just days before the Cuban Missile Crisis in October 1962, brims with revulsion and contempt towards a capitalist art market oblivious to 'a world on edge of destruction' while redoubling his call to 'open up the whole world, including sense impressions, as potential aesthetic experience' as a form of uncommodifiable resistance.[22] Pushing beyond the realm of the autonomous art object, his experiments with materials and self-generating chemical or physical processes produced new aesthetic effects that heralded 'an art of extreme sensibility and consciousness.'[23] From the details of moving bodies, their speed and trajectories, to forms of matter including aerosols, dust, smoke, water droplets, '[a]ll these forms and motions are potential aesthetic phenomena.'[24] These ideas resulted in an intervention at a converted domestic residence, known as Gallery House (1972), when Metzger invited visitors to take a bath, have a massage or cook rice and lentils in the kitchen.[25] This was an aesthetic experience in which 'life and art coalesced in the steam on the mirror.'[26] In many ways a clear precursor of relational aesthetics, the work had come out of Metzger's interest in the realm of kinetic art and uncharted possibilities for new perceptual experiences.

In January 1968, Metzger staged what he would later refer to as 'a landmark event in the history of British kinetic art that went almost unnoticed at the time.'[27] Having previously noted that '[t]here is a limit to the potential of kinetic art while the material employed remains in a 'solid' state…Art is enriched by an astronomical number of new forms, colours and textures, when the rigidity of materials is loosened,'[28] Metzger spent two weeks in a Filtration Laboratory at University College Swansea, using the lab facilities (which included powerful water jets, a continuous supply of compressed air, heat, and access to various chemical compounds and minerals) to create ephemeral, kinetic artworks by manipulating states of matter such as liquid crystals, and physical phenomena such as the Leidenfrost effect, Brownian motion, refraction and evaporation. Every evening, visitors were escorted to the lab where Metzger would choreograph an interactive display of various techniques and aesthetic effects. *Extremes Touch*, as the project was called, brought to the fore Metzger's interest in scientific research and in the problem of 'the particular fabric of science and technology.'[29] Metzger saw his intervention in Swansea as a study of perceptual experience, an attempt to observe the effects of kinetic art on the autonomic nervous system.[30] In the context of 'a history of modern art and its relation to science' from Turner onwards, he argued that the use of 'light, heat and motion' as artistic media had resulted in art forms corresponding 'in their physical structure to the theories of physics': suggestively blurring the line between aesthetic and scientific enquiry.[31]

For Metzger, concepts such as quantum mechanics reflected 'the extension of concepts and language, the subtlety of the philosophical structure of science' which demanded an equivalent 'extension of concepts and language in the fields of art theory, history and criticism.'[32] 'The quantity of experience the artist has to pack into a work is so vast now, it is not possible to compress it all into the space of an object' Metzger argued; '[a]rtists cannot compete with reality.'[33] At the same time, he wrote, 'we must use science to destroy science.'[34] Material/transforming art – from the cycle of evaporation in Drop on a Hot Plate to the random patterns seen in liquid crystals when subjected to changes in temperature – represented a new aesthetic paradigm that would help to redraw the limits of scientific understanding. In his fifth and final manifesto, Metzger described material/transforming art as 'the drawing of belief…a belief in molecular theory and related definable and indefinable beliefs, institutions, shared with scientists and others.'[35]

According to Metzger, the fact that '[a]t a certain point, the work takes over…is in activity beyond the detailed control of the artist; reaches a power, grace, momentum transcendence…which the artist could not achieve except through random activity' had revolutionary implications for 'concepts of art, nature and society.'[36] The random in art, he announced, would be 'a catalyst for social change.' In some ways, it was; audiences in the psychedelic Sixties were particularly receptive to the transcendent potential of aesthetic experience, and when Metzger presented his Liquid Crystal light projections for Cream and The Who at a New Year's Eve concert at the Roundhouse in 1966, they defined the visual culture of an era that also ushered in seismic social and political change. His work caught the imagination of several visionary figures including Frank Popper, a pioneering professor of aesthetics and the science of art; the poet and Benedictine monk Dom Sylvester Houedard; and architect Cedric Price, who invited him to collaborate on a meditation and therapy centre in which liquid crystals would play a central role.

Although the meditation centre was never constructed, Metzger remained convinced of the therapeutic aspects of aesthetic experience, especially in the forms derived from materials such as liquid crystals or water, which, in its liquid and gaseous states, played a key role in several of Metzger's works.[37] Water was used as a medium in which to immerse the body (Gallery House) as well as to demonstrate various material characteristics, from the random movement of particles (Brownian motion) to refraction, evaporation and condensation. It also appeared as a foil for the release of compressed air in *Dancing Tubes*, one of the last works realised by Metzger as part of a project of 'creatively revisiting' his experiments in Swansea in 1968.[38] In addition, the symbolic significance of water – its powerful associations with divine immanence and ritual purification in Jewish culture, manifested as aesthetically rich sensory experiences – would not have escaped Metzger.[39] Inherent in these transmutable materials was a metaphor for change and continuity, a sense of unity with the world and dialectical revolution that was 'behind the entire Swansea project and much else.'[40]

Metzger's studies in aesthetics were not confined to the materials and processes of Auto-Creative and Auto-Destructive Art. His use of aesthetic form and particularly the senses in subsequent and increasingly explicitly politicised works such as *Mobbile* (1970) or *Karba* (1972/2006), which deal directly with the issue of pollution,

serve to locate an abstract idea in the realm of corporeal. One is repeatedly made aware of the centrality of bodily experience as Metzger's later works such as *Historic Photographs* (1995-2011), in which emblematic mass-media images of historic events, from the ramp at Auschwitz to the Oklahoma bombing, are enlarged to the point of illegibility and exhibited behind a screen or under a blanket on the floor ('To Crawl Into: Anschluss, Vienna, March 1938') so as to force the viewer into an immersive physical encounter with the image and turn the passive act of viewing into a dynamic, multi-sensory experience. Reflecting on the affective power of his installations, Metzger wrote: 'Facing profound issues within an aesthetic context can give insights which affirm 'life enhancing' capacities…What is at stake is perception. What do we perceive and how does it happen?'[41] This preoccupation with perceptual experience at the level of the aesthetic (from the Greek 'aisthesis,' meaning sense perception in contrast to conceptual thought) links the active viewing experience choreographed by Metzger in the Historic Photographs and other works, from 'Extremes Touch' (1968) to the equally complex perceptual environments of *100,000 Newspapers* (2003), *In Memoriam* (2006) or *Dancing Tubes* (2014). Through this finely tuned aesthetic of 'affect,' provoking bodily responses to scale, disorder, unpredictable and sometimes physically threatening situations and invoking haptic and other forms of sensory knowledge, Metzger found a way to amplify and embody the material and psychological impact of the political.[42]

In one of Metzger's last public statements, a call for worldwide action against extinction, he informs fellow artists that 'there is no choice but to follow the path of ethics into aesthetics.'[43] In light of the anti-aesthetic character of activist art over the last fifty years, this is a contentious coupling.[44] Nevertheless, the interweaving of ethics and aesthetics was a defining characteristic of Metzger's life. For him, 'the artist acts in a political framework whether he knows it or not. Whether he wants to or not,'[45] and rather than making a radical break with the aesthetic formalism of the twentieth century, Metzger found ways to expand existing theory and practice by looking (back) to history and (forward) to science. His was an inherently dialectical outlook in which the aesthetic was both contradictory and always and already political; his parting message signalled the way forward by invoking the link between beauty and morality enshrined in the founding document of modern aesthetics, Kant's *Critique of Judgement*.[46] Metzger was well aware that aesthetics could be (and had been) co-opted by the oppressive social operations of capitalism, but for him aesthetic experience also contained the possibility of an alternative, liberated sensibility and subjectivity. In a world on the edge of destruction, aesthetics embodied hope.

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[1] G. Metzger, 'A Terrible Beauty: interview with Andrew Wilson,' *Art Monthly* vol.222 (Dec 1998/Jan 1999) pp. 7-11.
[2] John A. Walker, *Left Shift, Radical Art in 1970s Britain*, (London: I.B. Tauris & Co, 2002) p. 31.
[3] G. Metzger, 'Manifesto World,' (7 October 1962). Reproduced in Mathieu Copeland, ed. *Gustav Metzger Writings 1953-2016*, (Geneva: JRP Editions, 2019) p. 87.
[4] 'There's no question that my first encounter with art was in my hometown of Nuremberg, which has a profusion of art, churches and cathedrals. The fountains of Nuremberg are world-famous and, as a child, I would sneak into the town centre whenever I could and wallow in the immensity of this kinetic art. The movement of form, colour and sound has been important to all that I have done.' G. Metzger, 'Influences,' *Frieze*, 19 Mar 2016 https://frieze.com/article/gustav-metzger-influences [Accessed 26 May 2020]. Metzger would have witnessed the chilling spectacle of the Nazi party's rallies including Albert Speer's 'Cathedral of Light' at first hand: 130 anti-aircraft searchlights aimed skywards to create vertical pillars of light encircling Nuremberg's parade grounds which Sir Nevile Henderson, the British Ambassador to Germany, described as "both solemn and beautiful…like being in a cathedral of ice." See https://rarehistoricalphotos.com/nazi-rally-cathedral-light-c-1937/ [Accessed 26 May 2020].
[5] Metzger (2016).
[6] G. Metzger, 'Outline for a Retrospective (1959-74)' (unpublished manuscript, Amsterdam, 1993). Reproduced in Copeland (2019) p. 558.
[7] See G. Metzger, 'Automata in History' *Studio International* (Part I/Mar 1969: 107-109 & Part II/October 1969) pp. 109-117. Metzger's unpublished biography of Vermeer came to light in 2016.
[8] See 'List of works and biography for the exhibition *Metzger Paintings 1945-60*,' Temple Gallery, (London, September 1960). Reproduced in Copeland (2019) p. 68.
[9] Kristine Stiles, 'The Destruction in Art Symposium (DIAS): The Radical Social Project of Event-Structured Live Art.' (Unpublished Ph.D. diss., University of California, Berkeley, 1997) pp. 66-67.
[10] 'Let me tell you briefly of my experience of painting. Just after the war, I was in the Tate Gallery with my teacher, David Bomberg. He remarked that I was dissatisfied with painting and asked what sort of painting I was after. I was unable to give a coherent answer. All I knew was that it had to be extremely fast and intense. About ten years later I saw Pollock's drip paintings. They came nearest to that conception of painting I had in 1946. In 1957 I had reached a strong dissatisfaction with the materials of painting. I needed something tougher to work against than board. The following year I did a series of paintings on mild steel. I used a palette knife which, in the course of paint application, scraped and incised the steel, giving reflections. This did not satisfy me either…Looking back I see that I had exhausted the medium of paint on canvas…We had reached a position where it had become impossible to concentrate the artistic equivalent of the power used in science

and society within the confines of a canvas.' G. Metzger, *Auto-Destructive Art: Metzger at AA (expanded version of a talk given at the Architectural Association on 24 Feb 1965)*. Third edition (London: Bedford Press, 2015) p.8.
[11] G. Metzger, 'Cardboards' exhibition handout, (1959). Reproduced in Copeland (2019) p. 61.
[12] Clement Greenberg, 'Necessity of Formalism' *The Lugano Review*, (19 October 1972) p. 105.
[13] G. Metzger, Artists' Lives recording, Philpott/Metzger, (2009) BL ref C466/292.
[14] Metzger (2016).
[15] Ibid.
[16] G. Metzger, ARK, Journal of the Royal College of Art, London no.32, (Summer 1962). Reproduced in Copeland (2019) p. 82.
[17] 'The experience of the Cardboards convinced me that the machine could achieve quality of the highest level – higher than the man-made. The Bags assured me that the random offered scope for very profound experiences…They represent the two extremes of the other found objects which I collected. The Cardboards raised questions of machine and art issues related to Minimal Art, Constructivism and Russian Productivism of the 1920s. The Bag had to do with rubbish, the value-less, the random and unpredictable, and issues concerning Arte Povera, the interest in Chance in Dada, and other work of the twentieth century. But going further back, with Chinese and eastern thinking.' Metzger (1993); See also G. Metzger, '1959-61: From Painting to Spraying with Acid. Sketch of a Development' reproduced in Copeland (2019) p. 77.
[18] Metzger had visited the exhibition of Schwitters' work at Lords Gallery in 1958 and regarded him as an important influence, perhaps prompted by a shared experience of exile. Like Metzger, Schwitters had also been exiled in England as a result of the war, and in 1944, when the leading English art critic Herbert Read introduced Schwitters to British audiences, he made an analogy between Schwitters' use of 'rubbish' in his collages and the biblical metaphor of 'taking up the stones which the builders have rejected' from Psalm 118, drawing parallels between the artist's aesthetic language, his experience as a refugee, and the process of postwar reconstruction. Read wrote, 'There is, of course, a philosophical, even a mystical justification for taking up the stones which the builders rejected and making something of them, even the headstones of the corner.' Herbert Read, Introduction to Kurt Schwitters exhibition, The Modern Gallery (London, 1944). The reference is to Psalm 118: 22 (King James Bible) 'The stone *which* the builders refused is become the head *stone* of the corner.' Read had caught the mood of postwar Britain in which the arts were to play a significant role in rebuilding British society from the ruins left by war; this had also been the context in which Metzger began his training as an artist and there are notable confluences in the aesthetic sensibilities of these two exiled artists which cannot be explored here. I am indebted to Megan Luke for drawing attention to what she has described as 'an aesthetic of material recuperation' in her essay, 'Sculpture for the Hand: Herbert Read in the Studio of Kurt Schwitters,' in *Art History* 35/2, (April 2012) pp. 234-251.
[19] Metzger (1965/2015) p. 3.
[20] Ibid. The description of 'Five Screens with Computers' (1963-69) is taken from 'Five Screens with Computer, Computer Graphic Aspects of a Sculpture Project,' reproduced in Copeland (2019) p. 258.
[21] Metzger (1965/2015) pp. 17-18.
[22] Metzger (1993).
[23] Metzger G. (1962b) *Manifesto World* (Fourth Manifesto), 7 Oct. 1962. Reproduced in Copeland (2019) p.88.
[24] Metzger (1965/2015) p.16.
[25] See 'Statement for the exhibition *Three Life Situations*,' Newssheet no.1, (London: Gallery, House, 1972). Reproduced in Copeland (2019) p. 438. Metzger repeatedly underlined the importance of aesthetics in this project, as in an interview with Sören Schmeling in 2012; 'it was about the beauty of the lentils' movement.' S. Schmeling, & S. Dangel, *Gustav Metzger-Years without Art* (Freiburg: Modo, 2012) p. 114.
[26] Metzger/Philpott, Artists' Lives recording (1997a) BL ref C466/50/BYZZ. Metzger later described this project and other auto-creative artworks as 'aiming at a unity of self with the world' Conversation with the author, Feb 2014.
[27] Metzger/Philpott, Artists' Lives Recording (1997b) British Library ref C466/50/BSZZ.
[28] G. Metzger, 'The Chemical Revolution in Art,' published as 'Auto-Destructive Art' in *Granta*, Cambridge, vol.71, no.12457, (6 November 1965).
[29] 'We are faced by issues that are deeper than the political level. The problem also resides in the particular fabric of science and technology – not merely in its social applications. It seems to me – and I am speaking as an artist – that the most challenging and profound, and ultimately the most constructive research activity in science, is that effort to establish new and revolutionary insights into the nature of science and technology as it has developed in different cultures in the past thousands of years.' Statement by Gustav Metzger, recorded in Watson Fuller ed., *The Social Impact of Modern Biology, proceedings of a conference organised by the British Society for Social Responsibility in the Sciences, 26-28 November 1970* (London: Routledge & Kegan Paul, 1971) p.245.
[30] Metzger began to set out these ideas at the Architectural Association, London in February 1965 & in the Cambridge lecture/demonstration, 'The Chemical Revolution in Art,' (November 1965).
[31] Metzger (1965/2015) p.24.
[32] Ibid.
[33] Metzger (1962b).
[34] Metzger (1965b).
[35] G. Metzger, *On Random Activity in Material/Transforming Works of Art,* Fifth manifesto, (30 July 1964). Reproduced in Copeland (2019) p. 97.
[36] Ibid.
[37] 'My projections are light fountains, which constantly rejuvenate themselves. We're moved by liquid-crystal projections and fountains to go deeper into ourselves; we are stimulated and recharged. This is central to my work: the use of art to recharge the human being who can tend towards depletion or collapse. I have envisioned a project in Mexico where domes would be built across the country and inside there would be liquid crystals projected onto the walls. People would be able to enter them at the end of the working day and feel the benefits. These liquid crystals have become a key effort of mine and whenever I have an exhibition, I try to include a display of them.' Metzger (2016)
[38] The Swansea exhibition was a key element of Metzger's exhibition in Cambridge in 2014, which focused on the artist's engagement with science between 1959-73.

[39] The author accompanied Metzger to a Mikvah as part of the preparations for his exhibition in 2014, in which 'Dancing Tubes' was first realised.
[40] Metzger/Philpott (1997a) & in conversation with the author, February 2014.
[41] G. Metzger, 'Killing Fields: Sketch for an Exhibition,' (1999), reproduced in Copeland (2019) p. 620.
[42] According to Simon O'Sullivan, 'Affects are moments of *intensity*, a reaction in/on the body at the level of matter.' Affect theory, a way of understanding spheres of experience beyond representation, draws on the work of philosophers including Spinoza, Bergson & Deleuze & Guattari. For a discussion of affect in contemporary art practice, see S. O'Sullivan, 'The Aesthetics of Affect,' *Angelaki* vol.6 no.3 (2001) pp. 125-135.
[43] 'There is no choice but to follow the path of ethics into aesthetics' in G. Metzger, 'Action Mass Extinction,' statement for the conference *Facing Extinction* at UCA Farnham, June 2014. Reproduced in Copeland (2019) p. 681.
[44] As Terry Eagleton notes 'the construction of the modern notion of the aesthetic artefact is…inseparable from the construction of the dominant ideological forms of modern class society' and therefore incompatible with a movement striving to define a post-capitalist artistic practice. T. Eagleton, *The Ideology of the Aesthetic* (Oxford: Blackwell, 1990) p.3.
[45] Metzger (1962b)
[46] See I. Kant, *The Critique of Judgement*. Translated with Introduction and Notes by J.H. Bernard (2nd ed. Revised 1914) London: Macmillan: 'General Remark' following §29, 265-267; §42, 298–299; §59, *passim* & 354; §60, 356; 'General Comment' following §91, 482n.