

Neuroscience and the artist's mind

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This paper is a heuristic attempt to put art back into nature by trying to understand the biological basis of mind and its relation to the world. This relationship is negotiated at a physiological level by primary consciousness but, with the development of the human brain over time, higher-level consciousness has evolved symbolic systems to explore the significance of social and cultural experience, as well as to make forays into new ways of thinking about the world through recursive synthesis. The arts – including the visual arts – are an important field within higher-consciousness. Their significance for each of us is constrained by genetic inheritance, somatic and social evolution, and is part of the mental repertoire we utilise to process phenomenological experience within a social context.

Key words: brain, consciousness, recursive, arts, analogic

Neurowetenschappen en het geest van de kunstenaar

Dit document is een heuristische poging om kunst terug te plaatsen in de natuur door te proberen de biologische basis van de geest te begrijpen en haar relatie tot de wereld. Deze relatie komt tot stand op een fysiologisch niveau door primaire bewustzijn, maar, met de ontwikkeling van het menselijk brein na verloop van tijd, een hoger-niveau bewustzijn heeft symbolische systemen ontwikkelt om de betekenis van sociale en culturele ervaringen te onderzoeken, en ook om pogingen te maken naar nieuwe manieren van denken over de wereld door middel van recursieve synthese. De kunsten - met inbegrip van de beeldende kunst - zijn een belangrijk gebied binnen het hoger bewustzijn. Hun betekenis voor ieder van ons beperkt zich door genetische overerving, somatische en sociale evolutie, en maken deel uit van de geestelijke repertoire dat we gebruiken om fenomenologische ervaringen te verwerken.

Sleutelwoorden: brein, bewustzijn, recursieve, kunsten, analoog

The brain is a crucial part of our bodies. One of its functions is to collect data from the environment through the senses – eyes, ears, touch and smell. This data is sorted, channelled, passed on. This is a chemico-electrical process of data collection, of comparison and analysis, during which the brain has access to accumulated material from the body's genetic inheritance, from memory and previous experience. These experiential and analytical processes are never fixed or static, but ever in a state of flux. The brain reacts to the data it receives and, as a result, is constantly making adjustments to its way of proceeding as well as to its conceptual patterns of the world, including both conscious and unconscious memory, to what we may think of as a constantly morphing 'knowledge bank.'

As a result of this sorting and analysis the brain may institute action. It will certainly reconstitute its own archive. Thus the brain maintains, repairs, even abandons, parts of the complexity within its cortices, along and between its neural pathways, conscious aspects of which we call 'the mind'.¹ The mind, like other parts of the body, grows, changes, and ultimately dies.

For well-being, a sense of social and mental homeostasis, the brain/mind needs to be able to experience, and process in various developing ways, the multitude of sensate changes taking place in the vicinity of its existence, so that it can react to protect itself, preserve itself and overcome obstacles. To impel existence the brain is of necessity knowledge hungry.

Artists have body/minds like the rest of us. This paper is a heuristic attempt to put art back into nature.

Art and analogy

In the evolutionary processes of homeodynamics, or 'life-regulation',² the human brain has developed a capacity for self-reflection (self-consciousness) beyond simple desire-free calculation. A vital part of that capacity is a conceptualising mechanism, an ability to process information

and manipulate its residue for subsequent availability in future circumstances analogically – to use metaphor and simile, to construct possibilities, to posit hypotheses, to explore potentialities through parataxis, to reconsider the archive of the past and project a potential future in the light of on-going analogical analysis. Some of this analogical processing is carried out through what is called ‘art’ – architecture, music, literature, images. This processing, akin to that of sensate experience and the structuring of the mental archive, is not passive. Analogic processes of the mind are acquired through genetic inheritance and cultural assimilation, established through use, rehearsed, reconfigured, lost with the deprivation of knowledge, with disease and age. At times they may develop one pattern of certainties, which gradually will be erased, overlain, recombined into others. These patterns of operation, of temporary certainties, may become highly elaborated, specialised, constituting codes that are available only to members of a group. All these elaborated senses of certainties are, in turn, forever being reconstituted, hierarchies shuffled, significant patterns of behaviour renegotiated, already established neural pathways reconstructed, and, as a consequence, so too is consciousness, memories, social priorities, the ability to make use of art. We are also being constantly reconstituted both as self-conscious individuals and as members of groups and cultures.

Groups and cultures

Groups (families, friends, neighbourhoods, work colleagues, clans, tribes) develop cohesive customs, rehearse patterns of a commonly agreed sensorial experience of the world, reconstruct and reemphasise their version of a collective history, constitute themselves more broadly into a ‘culture’. These are reflexive and recursive processes: beliefs colour a culture’s experience of the world (we are all in thrall to our perceptions), but experience also changes the tone and hue. Like individuals, cultures also strive to maintain a sense of homeostasis, and explore new ways of processing the data of thinking to maximise that positive feeling about themselves. Part of a collective sense of homeostasis may come from exercising the functions of the brain/mind in ever more complex patterns and processes. Social imbalance or instability comes from a sense of inadequacy in the exercise of these practices, from a feeling of cultural exclusion by those who occupy positions of political, social or economic authority, who enjoy culturally validated ways of processing data, including ways of listening, talking and visualising, ways of acting out familiarity with the set of behaviours that constitute membership of an elite. Thus behaviour, and its artistic elaboration and expression, may affect the emotions of groups and cultures for good or ill. The culturally powerful assert the superiority of their ways of processing data, with its consequent stimulus to action, of exercising symbolic systems to explore novel hypotheses these set of behaviours constituting some of their right to authority, as well as to criticise, and even persecute, those who propose new ways of thinking/behaving and using analogic conceptual practices that may undermine previously validated platforms of authority. The processes of taking, holding and exercising cultural authority are never passive, but always alert to the potential claims of rivals.

It may be argued that each mind constitutes its own ontological culture. The individual mind’s sense of being in the world is a complex of inherited characteristics, early nurture, experience, education and physical endowment. Yet that individual mind is also born into broader social networks – into gendered roles, a class, an inherited social position and history, into language and other semiotic systems, including art. Semiotic systems are encoded over time. We learn the codes of those systems necessary to attain and maintain our individual and group social, physical and psychic homeostasis. We recognise, almost on a daily basis, the boundaries, the limits of our semiotic, our socially cultural worlds. Education and experience are capable of enlarging these boundaries, but we always know (our mind knows), as if by instinct, when

we touch a social frontier, when we are entering the sphere of the as-yet-incomprehensible, incommensurable.

There is a politics in this phenomenological experience – homeostasis from a sense of belonging to a dominant semiotic world and instability at exclusion. However domestically comfortable or out of balance one's world may seem it is always and everywhere socially conditioned.

Politics is negotiation and arbitration of that conditionality. Groups bearing a conscious sense of cultural instability may seek, even demand a renegotiation of the boundaries of political, social, and economic dispensation. At times art sustains continuities, works within the well-constituted framework of a culture to embed a sense of stable well-being, or provides consolations, offers distractions to the culturally marginalised, even rides the boundaries to offer hope for change, plays a part in the process of social renegotiation. Art has an ontological role in mental processes of self-satisfaction, resignation and rebellion.

Artworks

Artworks are, then, created in contemporary social contexts that influence mental activity, but the urge to make, and in a particular form, is also influenced from within the visual archaeology (ontogenies), the mental associative architecture, of the maker – the residue of temporary positions within the neural pathways of any artist at any one time. Influences for a work to be made come from both the nonverbal inner and outer worlds of sensate experience, acting within the constantly reconstituting 'self' of the mind/brain, and the manner of its transmission to the body of the artist for action. The stimulus to act, however, comes from other, arguably more complex, conditions of being members of social and political networks, with their available contexts for behaviour, including making, justifying that making, receiving praise or censure from that making, that alters the circumstances for further action within those social environments, as well as playing a part in the reconstitution of the self and the part influences play. The 'fit' between inner and outer plays an essential part in homeostasis – some artists feel alienated when the fit is painful, others euphoric when, at least for a while, the fit brings praise and income, even fame and fortune.

Case study 1: Malevich's Suprematism

The artist Kazimir Malevich was born into a Polish-speaking nominally Catholic household, where Orthodox icons were also displayed, as, for part of Kazimir's early childhood, the family lived in the predominantly Russian-speaking city of Kiev in the Ukraine. In those early years there were always issues of cultural 'fit' – through the position of his parents in an alien environment, through language and ambivalent religious behaviour in a society where these were often issues producing the passions of the partisan. Kazimir, like his father and mother, was a cultural outsider. Though he wrote in Russian, his Russian sometimes reveals the stray Polecism.³ As he worked through adolescent and early adult art education Malevich was drawn more and more towards the centre of Russian cultural life – to Moscow, experiencing all the representational fads and fashion of the dominant culture – successively Realism, Impressionism, romantic Bonnard-like dream worlds, black-outlined still-lives à la Matisse, a heroic neo-primitivism, the shadow of Picasso's cubism, the frisson of alogism - the whole gamut of Modernism's current manifestations, rapidly absorbed, used, then discarded by Malevich one after the other, to reveal, eventually, beneath the rubble, the Kazimir who stubbornly refused to fit the cultural

clothes in the fashion house of Western Europe and yearned to return to what he described as the ‘negatives’ waiting to be developed in the suitcase of his memory.

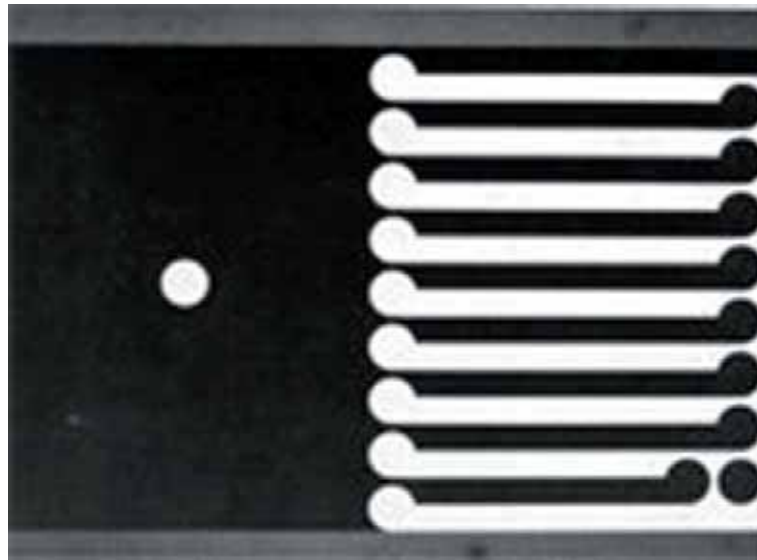


Figure 1

Kazimir Malevich, *Partial Eclipse. Composition with Mona Lisa*, 1914, oil, graphite and collage on canvas, 62x49.5 cm, State Russian Museum, St Petersburg.

This rebelliousness, this refusal to submit to the political and cultural norms, even within the dynamic Russian avant-garde, led to a decisive reassertion of his own well-being, declared by the artist to himself with the completion of his canvas *Composition with Mona Lisa* of 1914. Malevich never exhibited this work during his lifetime, a fact of some significance, as Malevich was normally always an eager presence at a whole succession of shows of the Russian avant-garde. Somehow the work failed to satisfy, not yet fully corresponding to the concepts etched on those negatives, not yet ‘true’ to Malevich’s own inner development as an artist. *Composition with Mona Lisa* is a seemingly alogical image, marking the artist’s friendship and solidarity with Russia’s avant-garde poets, in particular the work of his close friend of the time Aleksei Kruchionykh. The poets were developing texts in *zaum*, neologisms that sounded vaguely Slavonic but had no clearly recognised meaning, yet did convey to the sympathetic listener some culturally-linked ‘sensation’. *Zaum* was a form of linguistic proto-minimalism, focussing on ‘the word as such’, but with an uncanny relationship to the sound systems of Russian speech.

To decode *Composition with Mona Lisa*, against the grain of the subject’s flagrant alogism, it must be re-encoded. The Western viewer is drawn to the torn reproduction of the face of Leonardo da Vinci’s *Mona Lisa*. This icon of the Renaissance, already defiled by Malevich by the use of a torn reproduction, is further insulted: the face and upper chest are each scored over with negative red crosses, and beneath is attached a snippet from a newspaper announcing that “an apartment is being transferred” – as if the authorised history of Western art is being deserted and the artist is announcing a shift of loyalties, moving ‘cultural’ house. Even Malevich’s own recent forays into Modernism are mocked: the remnants of military epaulettes, the F-hole of a violin, a half-cylinder depicted with dark and light shading (the constructive conceit of Malevich’s own short-lived ‘tubism’), even Picasso’s collages, their fragments, further detritus, are scattered across the lower half of the canvas, in a pictorial sense like the apostles blinded and confounded by the resurrection of Christ in Russian icons. Above these symbols of the past, edging these old and new signs out of the picture, as it were, are rectangles and triangles of white, black and blue, and other colours, heralded by the painted words “partial eclipse”, as

if this canvas is the scene of a field after battle – the corpses of past phases of Modernism lying broken-limbed as the New Art, somewhat coyly, announces its hesitant appearance, not quite victorious, still battle-scarred.

Like a number of works by Malevich from this period the image of oil, pencil and collage has had an unquiet history. It is has become further damaged, some collaged fragments missing, existing only in hearsay.

Following *Composition with Mona Lisa* Malevich went into seclusion for a little over a year whilst he prepared not only his series of paintings in the style of his newly created pictorial system, Suprematism, but also whilst he wrote his radical, and highly amusing, manifesto, *From Cubism to Suprematism. A New Painterly Realism*, proclaiming the death of Western art and the birth of a new role for images - as visual aids to new thinking.⁴

This major shift, not only in Malevich's image and theory making, but also, subsequently, in Western art, with the development of varieties of so-called 'abstraction', lies deep in Malevich's own mental development.

In the mid-1920s Malevich wrote a number of theoretical essays, all, in one way or another, defending Suprematism, and non-objectivism more generally, against the storm gathering around Modernisms of any sort within the cultural echelons of the ruling Communist Party in the Soviet Union. One of these essays is a set of autobiographical notes, in which Malevich emphasises pictorial values that were laid down in his mind before he ever knew what 'art' was. "I well remember and will never forget, that in the first place I was always struck by colour and light, later by violent winds, thunderstorms, lightning, and also that complete calm after a storm. I was very excited by the change from day to night. And also remember how difficult it always was for me to go to sleep because of my passion for looking at the world or, to be more exact, simply gazing at the burning stars, at the night sky black as a rook."⁵ He shared a love of nature with his father. Both of them used the banal adjective 'great' to describe moments of shared sensate experience, the changing colours of the world of nature, neither, at the time, having language to describe, or even attempt to describe, experiences lying for both of them beyond the simple speech of everyday life. Malevich goes on to say that these experiences "exerted a strong influence ... I could only carry these startling phenomena in my optic memory with the word 'great'. All these images were packed away somewhere by my nervous system, like negatives in a suitcase which needed to be developed, but there was no available language for this sense, [such a desire] had not yet made itself felt within me, and no advice came to me from any other source, as no one knew what was happening to me, what I was thinking and experiencing (as if I was someone who was only capable of having sensate experiences)."

This emphasis on pre-verbal experience underlines Malevich's insistence on the significance of the visual sensations laid down in his early childhood, packed away, undeveloped in his mind.

Though Malevich knew pictures, even icons, his mind was not triggered⁶ to awareness of those 'dormant negatives' until, again as a child, he saw a man painting a roof green, changing the visual aspect of a surface from how it had looked to a new 'thing'. This was not colour as depiction, but colour for its own sake. In addition it was a sign of the transformational significance of colour – from this sensation to that.

As a teenager he was schooled in understanding art as depiction. The early experience of the value of colour was packed into the suitcase. He became acculturated to the social systems of art operating within his community – the depiction of a subject, through line and colour. He went to art schools, made use of the gamut of Modernism. Yet, as he recounted in a second memoir fragment, he realised that painting could be understood in two distinctly different ways.

“One way is pure – pure painterly form-making for its own sake, the other way consisted of objective themes with a named content. Together they made eclectic art, a mix of painting and non-painting.” He realised that to create ‘painting as such’, like the poets’ ‘word as such’, to explore colour and light for their own sakes, he must eschew any other distracting ‘content’. Self-incarceration in his studio in 1914 gave him the space and time to develop the discovery he had made in the months prior to *Composition with Mona Lisa*.

This relationship between sensations laid down in early childhood and their realisation later in creative development, this formation of the mind and its deconstruction as a thinking and imaginative adult, is dealt with in even greater detail in Malevich’s remarkable essay *1/42 Non-objectivity*, an essay that, largely because of its length and the fact that it remains untranslated, has been neglected.

For example, near the beginning of this essay he separates the world of primal sensate experience and the world as affected by the rules that come with consciousness: “the world as the actuality of consciousness and the world as an abstraction outside consciousness, without objects. The world and its manifestation did not exist earlier in consciousness, because there was no consciousness, there were only abstractions. From this position the world was not a world, it was ‘nothing’, and only thanks to the developing organisation of the human ‘ego’ [person], ‘something’ came into being from this ‘nothing-world’, as a result of which the world was destroyed and [made] in the likeness of reality, which began to manifest itself in man’s mind as a representation, in one form or another. But this was not the world but its destruction, division, for this reason two ways of describing the technique of depicting this state of mind came about: [the first way] is the destruction and reconstruction of the unstable destroyed divisions, and [the second] – the reconstruction of what has been destroyed into instability” (Malevich 2003: 69-70).

What is significant here, it seems to me, is not so much the details of Malevich’s intense need to ‘explain’ the difference between primal visual experience and the way we learn to see through acculturation, and neuroscientists would add, the physiological development of the brain, so much as to try to develop a visual system that would put acculturated models to one side in order for us to be able to rethink and imagine in primal-like ways, as we say in common parlance ‘to think outside the square.’ Suprematism, with its rectangles, circles and triangles, is an analogic system of deconstruction and reconstruction to enable new ways of experiencing pictorial concepts without language. Malevich’s own remarkable thinking (Westerners find it hard to call it ‘philosophy’) has much in common with what Christopher Bollas later described as ‘the unthought known’, what is inscribed into our way of behaving as adults from the sensations of being-in-the-world and nurturance in the period before language,⁷ though Bollas argued that those primal sensate experiences were as constricting, in their own, if different ways, to those of the later world of language.

Neuroscience and ‘influence’

A shift in creative direction, in the incorporation of ideas from an earlier or ‘uncanny’ tangential source, or the depiction of a subject that can be described as non-objective form-making (*formirovanie* in Russian), has been variously labelled the result of influence, inspiration, intuition, innovation. In the past these labels have often been unexplained. It has been enough to utter the platitudes of ‘influence’ or ‘intuition’. More incisively, critics, historians and scholars have often sought for congruencies of subject matter, style, biographical or social circumstances, historical/cultural serendipities between the ‘discovered’ or confessed source of influence, the primal soup of intuition and the ‘new’ artistic product, the innovation. All such assessments,

discoveries, depend upon the subjectivity of the critic or historian, the sensitivity of their investigative antennae, their agendas, taste, prejudices, desire to please a particular audience, the allure of their act on the stage of cultural assessment. This may be all that is possible. As readers, scholars, we make our choices of the judgment that suits our own particular needs or triggers our own currently constructed view of the world. Christopher Bollas might describe this as similar to the transference and countertransference experienced between psychoanalyst and analysand, including that which is non-verbal (Bollas 1987: 207). Though triggers are biological, the ways they act on us – we are often caught unawares – they are more complex, they result from social/cultural experience which has been laid down in the mind through often largely unconscious processes, processes always in the throws of becoming. Embryology and evolution interact (Edelman 1992: 51, 58).

Writers on neuroaesthetics and neuroscience try to describe such shifts in more precise terms. Yet for the historian of artistic change such precision, using the tools of the neuroscience of creativity, is as difficult to achieve as the psychoanalytic exploration of genius attempted by Freud on Michelangelo. It poses equally unanswerable questions relating to the precise nature of the development of the mind/body of the artist in her/his formative years and of the process of cognition during a more mature creative phase. It is a temptation to invent or falsify the evidence based upon the writer/thinker's own recursive motivations.

Neural networks are constructed as the result of individual development. Any outside observer can have only limited access to all the variables of that process. The creator her/himself can only get in touch with those aspects of the development of mind that have become embedded in the autobiography that mind/body has made for itself out of the significant traces left along the neural pathways, as well as within the ganglia of collection and sorting, emotion- and action-triggering (induction) sites in the brain, such as the amygdala.⁸

Triggers

As has already been intimated 'intuition', 'influence', and the specific ontogenies of neural networks, seem to be activated by triggers (causative events or objects), a sight or sound, even a feel and smell, that act, either consciously or unconsciously, as "emotionally competent stimuli" (Damasio 2003: 60) for the selective, focussed attention (distinctive consequent thoughts) of the functioning mind. Part of that triggering mechanism is related to what the internal architecture of the mind makes of the object or event. As Damasio makes clear (Damasio 2003: 93-4) it is not the whole of an object or event that usually acts as the trigger, but a part, even sections of a part. Roland Barthes emphasised the affective arrest of our attention by what he called a particular 'punctum' in a photograph that may start a chain of mental events that, in turn, may lead to contemplation, emotion or even creative action.⁹ What is sometimes overlooked is that the pre-existing structure of the internal mechanism of the mind is as significant as the external causative event (Damasio 2003: 91), Malevich's 'negative in a suitcase'. The triggering event, and what is made of it by the brain/body, as well as any resulting inductive, interactive perceptions, are invariably related to the normal functioning of homeodynamics, with states of well-being and well-thinking, as well as their opposites, such as a sense of social instability, a fear of being overwhelmed, assimilated, controlled. The purpose of perceptions and actions is to try to secure future social and mental homeostasis.

Case study 2: Conrad Brouwer

For example, Conrad Brouwer, a Dutch ceramicist at the end of the nineteenth-beginning of

the twentieth century, had a conservative training in art schools. His long exposure to drawing left him with a sense that this was a useful enough tool to notate design, but did not resonate sufficiently to constitute a preoccupation. It was a method of working, but towards some other end. His experience as a painter was more negative: a lack of inspiration from teachers, perhaps a sense of manual inadequacy. Whatever the reason there was no inside and outside fit, no mesh with his already established neuronal pathways. Though he associated with painters he was drawn to different forms of manual dexterity, to woodcarving, to working with clay. The interior architecture of his mind/body, his organism, had evolved to feel a fit with these crafts. It is for those reasons that, when he visited the Museum of Ethnology in his home town of Leiden, he should be struck by the ‘BEAUTY’ [*SCHOON*], as he writes in capital letters, of the Maori carving he saw on display. It was carving that triggered the attention of his eye, bringing the sort of data through the retina and optic nerve that found a positive response, a correlation of an exterior stimulus to the pre-existing interior architecture, a fit between the outside and inside of the mind/body.



Figure 2
Willem Brouwer, vase, height 10 cm, 1907, collection Haags Gemeentemuseum.

The coming together of internally reconfigured data from outside, that is then “somato-optically projected onto the cerebral cortex”, with the aggregate of internally stored information and feeling states, creates energy, “sets off fireworks across the brain”¹⁰, creating a range of reactions with consonant modes of thinking – emotive perturbation, the reconfiguration of the internal architecture, a shift in perceptions, creative cogitation, intuitive plans for action, that together constitute what Damasio labels ‘well-thinking’ (Damasio 2003: 89) the actions themselves resulting, in the case of the ceramicist Brouwer, in the making of a jug, and in the case of Malevich, the making of a non-objective painting. In the one case the Maori carvings, or sections of a carving, in the other the rectangles of colour on a repainted rooftop, acted like Barthes’s *punctum*, triggering chains of events. They were soon no longer, in themselves, necessary external adjuncts to the creative process, as their causal energy, triggering dynamics, had been ingested, were residing in part(s) of the internal architecture of the body/mind of the artist (Damasio 2003: 91).

What we cannot do, of course, is to have any conception of Brouwer’s, Malevich’s, or any other artist’s, cognitive map before the causal event, be able to gauge the specific attribute of the object that set the spark, to assess the signals received as data, or the way the mind/brain was reconfigured as a result of the interaction of so many variables. As observers we are limited to the report of the triggered event by the artist in his later recalled memoirs or to the existence of the fact in the image itself.

Training and education induct the learner into established ways of thinking and behaving. Setting off in a new direction outside the parameters of what has been learned, however complex, seems to occur when the triggering flame is brought close to a smouldering aggregate of emotions within the complex interplay of the neural networks, to cause a spark of hyperactivity, or bring those emotions to a critical pitch that sets off a chain of activity that extends the boundaries of previously conscious mental functioning.¹¹

Psychic, almost seismic, shifts of this kind seem to be associated with other disruptive behavioural events – a new and intense working relationship, a change in place of creative activity, a shift away from a previous working environment. Thus Brouwer worked on his Maori-inspired pots in a shed separate from the factory in Gouda where he was ostensibly and recently employed: Malevich shut himself away from his friends to create the whole series of paintings he later called Suprematist: the closeted relationship of Picasso and Braque in late 1908-early 1909, gave rise to what others would label ‘analytical cubism’.

It needs to be emphasised that triggers which emanate from objects or events outside the social milieu of the artist, even from another culture, depend for their effects on the objects or events themselves and do not necessarily entail any empathy for the culture from which they originate. As far as can be known Brouwer had no interest in New Zealand or Maori as such, just as Picasso had no real interest in Africa or the Oceanic cultures where the masks that influenced (triggered) his painting around the time of *Les Demoiselles d’Avignon* originated.

In particular circumstances the self-conscious admission of an influence or the mechanics of an intuition may be the chosen mask for the trigger, a way of confessing the fact that the unrevealable lies beneath, that energy driving the creative act comes from some other, less consciously certain *causa proxima* within the essential body-being-state (Spinoza’s *conatus*) of the artist. Indeed this is more likely to be the case, as the interplay of the components of data, established neural detritus, homeodynamics and genetics are hardly going to be fully conscious in their complexity to even the most perceptive mind.

It is also observable that artists gain the sort of energy that brings about a major shift in the way they work but rarely in a lifetime. It is not absurd to call such changes ‘seismic’ as there are aftershocks, ripples of lesser inductive energy from the same cause that may continue throughout a career and deeply rearrange the broader cultural landscape.

Equally, well-established neural habituations, the washup of education, social context, cultural behaviours, may reassert themselves, set up a resistance to variance, a counter-emotion, the need for controls over an innovation that leads to socially negative consequences. After 1907 Brouwer makes no further conscious or visibly observable use of Maori motives or the innovative sgraffito of the Gouda and early Leiderdorp period of his ceramics. Becoming an established potter for the middle-classes of south Holland drew him to more conventional models. Homeodynamics gave way to homeostasis.

Evolution

Western art historians have been castigated for seeing the ‘evolution’ of art in a line of ascent from the primitivism of European Upper Palaeolithic to the culturally sophisticated achievements of Classical Greece, to Renaissance Italy, and even to Modernist Paris, Moscow and New York.

Darwin’s own postulation *On the Origin of Species by Means of Natural Selection* (1859) removes any essential and necessary sense of progress from ‘primitive’ to ‘civilised’ or ‘lower’ to ‘higher’. For Darwin evolution was value-free. Human beings, indeed all life on this planet, simply evolves, adapting to the circumstances best suited for survival. The brain/mind’s

evolution, just like any other part of the world of nature, has no other ‘purpose’. Therefore it is not unreasonable to conceive of a functional and material ‘evolution’ of art in such biocultural terms. It took a substantial intellectual effort for Darwin’s contemporaries to see the evolution of Man on the same footing as that of plants and animals, just as it is difficult for many in our own day to see social and cultural behaviour in evolutionary terms, including the making, using and valuing of images and symbols.

Consciousness, according to Gerald Edelman, is a facility that has evolved over time (Edelman 1992: 133-134). He suggests that there is a primary consciousness, a state of being mentally aware of things in the world in the present, even permitting of a ‘remembered present’. Through processes of physio-psychological evolution *Homo sapiens* has developed a more and more complex higher-order consciousness with not only an ability to imagine a past and a future, but also to exercise self-awareness including self-awareness of consciousness (Edelman 1992: 112-113). We can refer to other things. We can think about them. We can think about ourselves thinking. Our mind exhibits intentionality – our awareness is always of something (Edelman 1992: 5), even in dreams. “The matter of the mind interacts with itself at all times” (Edelman 1992: 29). We can assess the past and future, as well as the best pathways forward in the present. This process of assessment can reach beyond simple risk calculation through the use of speculation, analogy and metaphor, through mental processes that make connections with the ‘negatives in the suitcase’, enabled and enhanced by branches of the arts. The value of images lies not ‘in themselves’, that is as autonomous objects (the playthings of false consciousness), but always within the context of their use as vehicles for mental cogitation leading to action (cultural consciousness). The mind of the artist – even the artist seeking to create ‘formless’ images, or exhibiting a studied indifference to content¹² - is context bound, as is that of the pleased or enraged viewer.

Art, its conception, production, utilisation and effects, is an analogical system of symbolic representation developed out of the complex of both primary and higher-order consciousness existing together.¹³

Consciousness is a physiological construct. That construct is complex and, in each individual case, has its own history (Edelman 1992: 25-26). Edelman emphasises that the way neurons connects with other neurons in the brain is slightly different in each of us and also varies over time. We do not evaluate what we see in exactly the same way as others or in the same way in our own mind from one moment to another.

We are the products of chance, the social and geographical (place-dependant) circumstances of our birth. These circumstances will have an effect on the social context of the way we develop our neural pathways, as will the biological circumstances of our genetic inheritance. Experience will cause the effects of those chance beginnings to adapt to our physical and social environment (place-dependency): some adaptations will be successful for survival, others will not. We will be subject to competition in our social environment for food, shelter, nurture and resources. Chance will forever continue to play a part in our ongoing development.

Adaptation

It is contended that change, accelerated variation, occurs on the margins of social groups, that “geographical separation can lead to new species [and, I would add, new varieties of consciousness] when the environment is different.”¹⁴ In his studies of plant adaptation Darwin found that “the more free...diffusion was, the more-out-breeding there was, the more successful the adaptations and selection became” (Boulter 2008: 144). In this way migration, for example,

may provide the stimulus for sudden shifts in consciousness: those tied to old ways decline, whereas freer adapters flourish. Diversity is a sign of vitality.

Consciousness is not, then, a static given, but a set of possibilities that are subject to experience, may grow and develop, may be restricted and atrophy, may be stimulated by change or alarmed into desuetude.

In a sense, all artistic practice is the transformation of some experience, some feeling, some thought, a combination of all three, into an image, words or sounds. A trigger from outside the artist's consciousness will set up a series of actions within the artist's mind that will eventually produce 'a work.' The work will be experience and culture bound so that it will always have some relationship with what has been produced in the past ("events occurring in one place require that previous events have occurred at other places") (Edelman 1992: 64). An artist will work within a tradition (even if that 'tradition' is 'avant-garde'). S/he will make use of the work of others, through assimilations of a style, a way of thinking, working through processes of appropriation, hybridisation, adaptation to circumstances. The artist's development will be more or less influenced by both the restrictions of tradition and the freedom to change. Artists whose experience is deeply set within the heart of a settled society and with little need to change will happily work within the cultural parameters of her/his peers, whereas an artist riding the boundaries of cultural difference will feel more both the ability and the necessity of moving away from established tradition. Again, there are no value judgements involved here. The radical may seem heroic, if unsettling, but the follower of tradition may be more affirming and a more comfortable fit to the already established workings of the appreciating mind.¹⁵

Brouwer was drawn to Maori carving, triggered by his own experience of woodcarving, itself an aesthetic preference for relief over a uniform surface, for reasons we can only guess at. Yet the fact that no ceramics of Brouwer's look like a Maori carving, or purport to copy or even reference Maori carving, places his predisposition to their influence on the margins of consciousness. He felt no compunction in making use of that influence. Examples of Maori carving were in the Leiden Museum as a result of European colonisation, of the economic domination of trade along the shipping lanes of the Far East over a period of three centuries by the Dutch. He grew up with a sense that all the cultures displayed in the Museum of Ethnology were there for the taking, without the need to seek permission. He was not subject to the social proximity of the originating culture, but enjoyed the creative freedom of geographical separation.

The trigger of Maori carving for Brouwer would not normally come within the sense usually attributed to 'appropriation'. This epithet bearing a sense of opprobrium is more normally reserved for those cases where an artist deliberately uses the visual or cultural code of another artist or culture, so that the act of creativity is understood by outsiders as a 'take' on those visual codes, a parody, a skit, an overt reference in order to make a comment, often critical, political or wilfully playful. The originating culture may sense this act as an undermining of its cultural standing or dignity. Where an artist from a culturally dominant group plays with the sacred images of the less powerful, particularly those that have been dominated through colonisation, this is regarded by many as insensitive to the point of tasteless brutality, as a deliberate cultural insult. In these political circumstances adaptation still occurs, but the lines of demarcation between those enjoying homeostasis and others experiencing social instability are more sharply drawn. Yet change will occur, indeed, must occur, following the inexorable laws of evolution, for a group or culture to adapt to survive in new social circumstances.

Case study 3: Gordon Walters¹⁶

In the 1970s the New Zealand modernist painter Gordon Walters took the Maori *koru* motif, the unfurling fern frond (a motif also used by Brouwer), as the vehicle for an exploration of contrasts between white ground and black or another coloured surface, as counters in a visual game of surface and ground, as well as of Modernist abstraction and national ('New Zealand') cultural dynamics. Perhaps he was also conscious of black (Polynesian skin) as opposed to white (European skin). His titles (Genealogy, Black/white) may sometimes lend themselves to a cultural or political contrast, whereas the images themselves remain strictly inexpressive of any political point of view.



Figure 3

Gordon Walters *Painting No. 1* 1965, PVA on canvas, 91.4x121.9, Auckland Art Gallery Toi o Tamaki.

In the twenty-first century there is a widespread moral sense of rights to cultural, to intellectual property, with commercial and legal ramifications. No such self-consciousness existed for Brouwer or Picasso. Was this because of their European unselfconscious arrogance, ignorance, sense of cultural dominance? Was their appropriation part of the way of the world as it then existed? The cultural life of the planet has altered considerably over the past one hundred years. The 'cultural context' of all of us has changed radically – expanded, in the sense that we all have access to an extended field of images and information, and contracted, in the sense that we are more and more members of one international market with an atrophying sense of our own cultural uniqueness. This makes for both pleasure and pain: we have the delights of intercultural experience, but the pain of losing, almost on a daily basis, the security of a 'home' culture, hallowed by tradition and immutability. Artists cannot 'make' their work with the need to ask

permission of all the multifarious sources of their own visual experience – sources of such diversity that the artist is unable to sift the ‘intuition’ from the ‘influence’ and the ‘influence’ from the ‘appropriation.’ Indeed these words themselves have been so overused, and for reasons that usually lie within specific frames of cultural and political reference, as to make sense only within such particular provinces of discourse.

Walters had a long artistic gestation. He studied in Wellington, particularly finding inspiration in Polynesian and Melanesian material in the National Museum. He was also influenced from sources outside of New Zealand – through the reproduction of works by European Surrealists, Neo-Primitivists and the work of Paul Klee. He was drawn to Maori rock art through his friendship with Theo Schoon, himself a newcomer to New Zealand. Walters spent time in Australia and Europe. He experimented with abstraction in a range of formulations over a period of eight years, during which he showed no works in public, eventually concentrating on variations of the Maori *koru* motif. This motif became transformed into a purely abstract subject, playing essentially with the difference between surface and ground so that he could say: “My work is an investigation of positive/negative relationships within a deliberately limited range of forms; the forms I use have no descriptive value in themselves and are used solely to demonstrate relations. I believe that dynamic relations are most clearly expressed by the repetition of a few simple elements.”¹⁷

Like Malevich, Walters passed through many stages to find the negatives in his own suitcase – the art of the Western world and the styles and concepts of the art of the South Pacific tentatively imprinted on each other, a palimpsest of multicultural visual experience. The *koru* may have begun as a Maori motif, but as Dunn suggests, this ‘Maori content’ was the vehicle for experimentation and not deliberate appropriation. It swiftly transformed into a seemingly acultural motif to permit a play with colour contrasts. The cultural context in which Walters was working was Western Modernism and not Maori rock drawing or carving.

With our wider understanding of the cultural provenance of images the form Walters finally landed upon, triggering a particular form of artistic self-expression, was not, in itself, the intellectual property of one culture. The claviform, the club-ended or ball-centred line, either vertical or horizontal, is found in European Upper Palaeolithic rock drawings, having in that context its own cultural significance.¹⁸

However within the context of New Zealand art in the late twentieth century Walters work was subject to its own specific cultural dynamics. The motif, for Walters, did have a Maori origin. It was then transformed by Walters’ own acculturation into Western Modernism, as well as by the ‘negatives in his suitcase’. Maori critics ‘felt’ this to be the appropriation of ‘their’ intellectual property, an act of colonial expropriation.¹⁹ Triggers work both ways, not only within the cerebral cortex of the maker, but also in that of the viewer, the cultural audience of art: some will be neurally soothed, pleased, others will be neurally excited, angered, affronted. The very activity of making, of viewing, of pleasure or pain as a result, is part of the social and cultural evolutionary process, particularly acutely felt on the margins of cultural conflict.

In terms of its own evolutionary development Walters’ mind having been triggered through its own and unique recursive somatic systems into ‘selecting’ the *koru*, his mind-map arranged a series of instructions about its nature and, as a result of a ‘recognition’ of significance, prompted by memories and inherited susceptibilities, he acted to make a work of art. His body/mind adapted the ‘fit’ of one visual element (the *koru*, Polynesian art), itself the result of recursive histories, into elements of another (European non-objective art), with its own complexities, and in doing so, from his point of view, created something that was novel, that had not existed before in the archive of his own mental mapping processes.²⁰ The result had enough traction to incline

him to return to this process and refine it, repeat it, adapt it, play with it, just as Malevich had done with the forms and ideas of Suprematism and as did Brouwer with his fusion of elements of Maori carving and the contemporary world of late-nineteenth century Dutch ceramics.²¹

The adaptive mind of art

The making of art, as well as the selective appreciation of art – that which attracts our mind for more or less attention, is, its own small way, part of the process of adaptive matching of ourselves to the social and cultural environment from which we seek sustenance in a whole raft of ways, such as self-esteem, social integration, acceptability within a group, and through social networks to find food, drink and shelter. The analogic theatre of art is where we play out heuristic games of inclusion and exclusion, superiority and inferiority, dominance or acting supine before the fates, narcissistic self-celebration (aesthetic contemplation) or propitiation/expiation. Through art we adapt to change. Art, in turn, changes as we adapt, as we fight to establish values and to repress the contradictions of our own actions. Art is a struggle of minds. On its canvas, through its sculpted forms, on the flickering screen, on the printed page, we can see and try to understand, or fail to see and therefore ignore or avoid, the fight to adapt to survive analogically without, until it becomes unavoidable, engaging all our somatic forces in real combat.

Notes

1. Of course this is a simplification – there are connections between the conscious mind and the unconscious store of information and affect within the archive that may be activated from various directions within the mind, sometimes triggered from outside-the-body sources. But then this is the subject of this paper.
2. The argument here follows the ideas of Antonio Damasio (Damasio 2003, esp. 27-36).
3. For Malevich’s own account of his childhood, see Malevich 1988-9:102-107. The fact of Malevich’s controversial cultural ‘fit’ is emphasised by later Polish and Ukrainian writers claiming him as one of their own.
4. There were two editions of this text, one produced in St Petersburg for the exhibition of the works at the end of 1915, and the second, more considered version, published in early 1916.
5. Malevich 2003 288 (translated by the author).
6. ‘Triggering’ mechanisms are complex. They relate to the theory of neuronal group selection described in Edelman: 1992: 81-110. They are elaborated further below in the section entitled ‘Triggers’.
7. Bollas 1987.
8. No single part of the brain controls specific triggering mechanisms, which result from the near simultaneous activity of a number of sites. Damasio 2003: 59-60, 73.
9. Barthes 2000: 25-27, 42-47.
10. The argument here largely follows the scenario discussed by Stafford 1999 Chapter 4. This phrase is used on 141.
11. See note 6.
12. See, for example, anti-hierarchical art discussed in Yve-Alain Bois and Rosalind Krauss 1997
13. This complex or spectrum comprises interlinked parts, such the preconscious activity of the brain, subconsciousness, the constantly morphing activities of consciousness itself, as well as the altered states of consciousness that occur by accident or intent. It will, of course, include such hierarchical categories as Freud’s ego, superego and id.
14. Boulter 2008 137-8.
15. Andrea Hurst emphasised the anxiety of ‘passionate truth-telling’ innovation and is harsh on trauma-free tradition (Heidegger’s ‘average everydayness’) and the devolution of the new when entering the public domain into the ‘falsity of kitsch’. This is a value-laden judgement, rather than an assessment of the evolutionary processes of art in human societies (Hurst 2007 44).

16. I am fully aware that my three 'case studies' are taken from 'Western' art history. It is the field with which I am familiar. I have my own cultural boundaries, however they might be expanded by the technology of the contemporary world. I simply offer these as examples of the principles I am discussing in the text. 'Case histories' can, if the argument holds, be taken from any 'non-Western' cultural traditions. Indeed I would welcome reading any attempts by others to extend these arguments outside my field.
17. Cited in the very informative article on Walters's work by Dunn 1978
18. Giedion 1962 241, 246-7 and Lewis-Williams 2002 207, 233, 262
19. Panoho 1992 122-134
20. This process is based upon a reading of Edelman 1992 74
21. Stupples 2010

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