

## *In Search of Meaning* Nathan Cohen

Abstraction may be viewed as a transformative process whereby the artist conceives of forms that convey ideas and finds ways to articulate them. For some artists the initial inspiration may be observed forms, experiences or places, and for others the enquiry may begin with exploring formal relationships between artificially conceived spatial and structural elements, which are not intended to be a likeness of other forms, or a combination of these approaches. There may be a desire to express ideas that speak of experience of interaction and exploration of how our perception enables and challenges us in this endeavour.

*Art, we shall find, is inseparably related to [our] growing faculty to visualize and reason about [ourselves] and [our] environment in an ever more accurate manner.\**

Charles Biederman

There is a long legacy of abstract imagery in the pictographs, paintings, pottery, weaving and artefacts to be found globally which continue to be profound sources of influence for artists today. These include many types of pattern including spiral, maze, grid, linear, diagonal and concentric forms arranged in varying combinations of complexity.

*Just as the grammar of music consists of harmony, counterpoint, and form which describes the structure of a composition, so spatial structures, whether crystalline, architectural, or choreographic, have*

\* Charles Biederman, *Art as the Evolution of Visual Knowledge*, Red Wing, Minnesota: Charles Biederman, 1948.





*Three Rivers petroglyphs, New Mexico, USA*



*their grammar which consists of such parameters as symmetry, proportion, connectivity, stability, etc. Space is not a passive vacuum; it has properties which constrain as well as enhance the structures which inhabit it.*<sup>†</sup>

Arthur Loeb

Our fascination with symmetry and asymmetry is evident in the forms and structures we create and informs compositional choices applied to all aspects of manufacture. We find in natural forms evidence of ordering principles that excite our curiosity and we have developed a deeper understanding of structure inventing the Golden Ratio, perspective, tessellation, Fibonacci sequence, impossible figures, nonlinear dynamics, n-dimensional and fractal geometries, to name a few.

We may discover some of these forms and spatial constructions as we contemplate how to evolve our artwork. In doing so we encounter a rich tapestry of formal elements and ways to articulate them with which we can further our invention and better understand the forms and images we wish to create.

As the mathematician David Hilbert observes intuition plays an important role in this process:

*The abstract tendency has led to the magnificent systematic theories of Algebraic Geometry, or Riemannian Geometry, and of Topology; these theories make extensive use of abstract reasoning and symbolic calculation... Notwithstanding this it is still true today that intuitive understanding plays a major role in geometry... With the aid of visual imagination we can illuminate the manifold facts and problems...*<sup>‡</sup>

This is an evolving process and one which can offer insight into how we perceive space. When Brunelleschi stepped back

into the door whose frame outlined the view of the building he wished to represent, the fixing of the edge of the observable space defined it as a picture plane onto the three-dimensional space beyond, marking a moment where the framing element established a means to create a spatially measurable illusion of reality. However, it also defined a boundary between the real world of the viewer and that of the image and ensures our perception of what is depicted remains consciously an illusion.

We may take this invention for granted today and are familiar with looking at artworks that represent to us a likeness of the world we are familiar with in a way that is spatially convincing, allowing us to engage with the illusion of space as an extension of our real world reality.

This abstraction can also be extended to construct images that are not seeking to represent a likeness of observed form but as a starting point for inventing pictorially and spatially. If the elements that compose the image define its boundaries, rather than sit within a predetermined frame, an alternative dynamic in its relationship to the space within which it exists is created. Locating the artwork directly within its environment using the architecture as its support can render its form architectonic, and utilising space to construct an artwork in the round produces an architectural form integrating the observer within it. Kinetic, optical, light and digitally interactive elements are also explored by artists, including art forms that offer an immersive sensory experience.

<sup>†</sup> Jay Kappraff (quoting Arthur Loeb, Chemical Physicist), *Connections; The Geometric Bridge between Art and Science*, Hackensack, New Jersey: World Scientific, 1990.

<sup>‡</sup> Stephan Cohn-Vossen, David Hilbert, *Geometry and the Imagination*, New York: Chelsea Publishing, 1952.

*An idea can be described in reference to the functions and the actual functioning of the brain, since it is the representation stored in the brain of the essential characteristics seen and selected.*<sup>§</sup>

Raffaella Folgieri and co-authors

Neuroscience, and in particular the new discipline of neuroaesthetics *whose goal is to find the neural basis of mental processes precisely related to art* seeks to explain abstraction as a function of the brain's structure. As we learn more about the way in which different parts of the brain process stimuli so, perhaps, we shall gain a deeper understanding of why we see and invent the forms we create. Folgieri and his co-authors explain that:

*The premotor cortex enacts complex actions through the connection with the primary motor cortex, which controls simple actions. When this connection between premotor cortex and the motor cortex is inhibited, the secondary motor cortex can function as the ring of a transmission chain, a cog, which can still compute complex configurations that allow us to carry out inferences and that may change over time. These secondary configurations... give rise to what we perceive as an artwork. The cogs, which are embodied at the same time because they are part of the sensory-motor system and abstract since it does not include any details, allow us to have an immediate understanding of the embodied form of abstract art. The artist is a neurologist in action, who not only knows the laws of the brain but also knows how to put them into practice.*

It remains to be seen to what extent our ability to envisage the poetics of space, the landscape of the imagination and the creative intellectual processes that generate art can be accounted for by an analysis of our brain structure and

its functions, but it is significant that this has in recent years attracted the interest of scientists.

When making choices about how to construct an artwork there are questions we may ask about how to build pictorially and spatially in ways that translate a deeper understanding of how we observe and perceive, and which in turn can be comprehensible to those who view what is created.

Isaac Newton's observation relating to seeing further by standing on the shoulders of giants is also relevant to the artist as we seek to discover new insights made real through the art we make but also build upon the work of those who have preceded us in engaging with this challenge, a process embracing diverse sources of visual inspiration and intellectual enquiry. Consequently, the history of our quest is a rich one which is international and shared by artists across generations.

Artists are constantly pushing the limits of the technologies and materials they work with often resulting in new and challenging forms. This is an experimental process which can be unpredictable but also throws up the possibility for invention and the advancement of methods and processes that encourages collaboration between artists, technologists and scientists.

In his edited anthology *DATA* (1968) Anthony Hill presents *contributors [who] are specialists representative of interrelated fields of interest to plasticians: philosophy, mathematics, physics, engineering, sociology and urbanism*<sup>¶</sup> indicating the breadth of intellectual exchange and enquiry this art embraces. To this

§ Newton Lee (ed.), R. Folgieri, C. Lucchiari, M. Granato, D. Grechi, *Digital da Vinci*; Chapter 4: *Brain, Technology and Creativity. Brain Art*, New York: Springer, 2014.

¶ Anthony Hill (ed.), *DATA*, London: Faber & Faber, 1968.



*Mondiale Echo's, Mondriaanhuis, NL, 2000*

we might now add advances in artificial intelligence and robotics, neuroscience, psychology, optics, materials and bio-science and the impact of computation and digital processes as areas of research engaging artists today.

Observers of developments in art over the past century will note that there is a breadth of interaction that takes place with each generation forging connections and engaging in dialogue and dispute. The -isms, coined by critics, writers, theorists, and sometimes the artists themselves, are various, each seeking to define an aspect of this enquiry. From a European perspective we may be familiar with the advances made by artists whose work has been categorised as Cubism, Suprematism, Constructivism, Futurism, Concrete, Constructionist, Synthesist, Structurist, Cybernetic and Systematic, to name a few. Yet discovery and invention can be a deeply personal experience and we should be wary of its misrepresentation in ways that might narrow understanding and lead to a misconception that the artists associated with these titles are somehow homogeneous in their thinking.

There is a rich history of artists' engagement with each other and their communities through publication, exhibitions and events and the period from the 80s to the present has witnessed a number of these activities, usually artist led and often coordinated internationally. British and European manifestations of these include, among others: *Arbeitskreis* (various artists including Hughes, Spencer); *Archive 90* (Cohen, van Zon); *Constructivist Forum* (Cohen, Johnson); *Countervail* (Chaplin, Charlett, Dean, Dower, Giles, Spencer, Tebby, Wilbraham); *Exhibiting Space* (Clarke, Lignon, Pearson, Thomson); *Konkret* (Sayler); *Mesures* (Husquinet, Maury); *Pro* (Ilgen); *Saturation Point* (Hancock, Morrissey) and individual artists curating exhibitions and events internationally. As documentary material currently held in archives and

the records of artists becomes available so more in depth research into this field can chart individual and group activities as they progress.

And so to the future. That we are capable of inventing with a means of expression that can translate ideas and insights, embrace new thinking and approaches to visualising what we see and encounter and articulate this in ways that enable engagement internationally in this experience, is a creative and challenging prospect. This will continue to evolve as we do. As Paul Klee writes:

*Sometimes I dream of a work of really great breadth, ranging through the whole region of element, object, meaning and style.*

*This I fear, will remain a dream, but is a good thing even now to bear the possibility occasionally in mind.*

*Nothing can be rushed. It must grow, it should grow of itself, and if the time ever comes for that work – then so much the better! \*\**

\*\* Paul Klee, *On Modern Art*, London: Faber & Faber, 1948.

Further reference

Linda Dalrymple Henderson, *The Fourth Dimension and Non-Euclidean Geometry in Modern Art*, Princeton: Princeton University Press, 1983.  
Martin Kemp, *The Science of Art*, New Haven: Yale University Press, 1990.  
Charles Bouleau, *The Painter's Secret Geometry*, San Diego: Harcourt Brace & World, 1963.  
Carl Bovill, *Fractal Geometry in Architecture and Design*, Berlin: Birkhäuser, 1995.