
REALSPACE

The idea of space is given to the artist to change if he can.
-- Willem de Kooning

I think a painting is more like the real world if it's made out of the real world.
-- Robert Rauschenberg

As a way of knowing about things, humans began eons ago to make marks on flat surfaces. Some of those marks remain on the walls of ancient caves, left behind by famously anonymous artists whose paintings were instructed by wildlife anatomy and the habits of migrating animal herds -- nascent art and science, from seventeen thousand years ago. Curious and pattern-seeking by nature, those early agents of evolutionary survival and gatherers of knowledge represent a continuum of archaic researchers, innovators, and makers who also invented imaginary explanations for the parts of their world that pattern could not explain – and they mixed all those elements, real and imagined, into alloys of belief that have appeased for thousands of years our nervous itch for certainty.

Encoded or re-encoded in language, writing, and art, those beliefs were elaborated upon, morphed and manipulated, institutionalized and mainstreamed, to either conflict or conform with the changing shape of knowledge over centuries. A witch's brew of imaginary explanations for ourselves and our world have filtered down through time, some caught, debunked and defused, others propagated in myths, stories, or tales of the supernatural, and given the appearance of solid form through marks on the flat surfaces of paintings.

Marks on surfaces create the illusion of space and depth, and space in painting is measured on a scale that begins with deep illusions appearing to exist behind the canvas, to tangible tactile real space in front of it. Where an artist chooses to work on that illusion-to-reality scale can have meaning in and of itself, and the modern history of those choices can be viewed as a kind-of archeology of existential change. It has led some artists, in the present, to intersect the domains of art and science.

II.

Not too long ago in the fifteenth century, the German-Dutch artist Hans Memling was in Bruges, the Netherlands, making paintings. One of them was an oil-on-board portrait known as "Christ Giving His Blessing" -- a pragmatic late medieval headshot, forward-facing from the elbows up, agreeably accomplished yet conventional

except for one odd twist. To make his subject's countenance come across as a bit more egalitarian and perhaps seem less inaccessible to mortal onlookers, Memling rested the fingers of Jesus' painted left hand on the picture's actual, real, wooden frame. Using today's terms, Memling's little trick was a bit like sticking your head across to the bank-teller's side of the bullet-proof glass - it was a trompe l'oeil device that gained in audacity by its violation of a boundary.

In painting, especially traditional representational painting, virtually everything is locked in illusion. It seems obvious enough but bears pointing out, that painting is like a window. Space, on our spectator's side of the window, is real -- and the plane of the window is a boundary through which we peer into *pictorial* space that is an illusion. The flat surface on which a painting is painted or a drawing is drawn is a horizon line separating real space from imaginary space, an archaic division and a simple pictorial edict – it declares that what occupies our side is real and material and what occupies the other side is imagined and immaterial.

Memling was not the first to violate the sanctity of the picture plane by puncturing this pictorial decree, but the subtle, almost sneaky manner in which he crossed its threshold and the subject matter he used to do it (the figure of Jesus tempted, perhaps yearning, to escape from an imagined world and live in a real one) makes his foray through this unreal/real divide particularly powerful - like a small allegory in which the imaginary yearns to emigrate to reality. The Pinocchio syndrome . . .

Nicolaus Copernicus, about a half-century after Memling painted, echoed the same boundary crossing but in a different way, when he extracted Earth's true relation to the cosmos from error-ridden ancient myths and beliefs. Myth relinquished to science its power-grip on human imagination; the superstitious surrendered to what were likely to be even greater mysteries buried on our side of the window. And as it turned out, the Copernican sun-centered system did, as does virtually all science, unleash a swarm of new and tantalizing unknowns when it penetrated the border between unreal and real. Knowledge promulgating terra incognita.

Around the time Memling was painting and Copernicus was observing, Italian architect Filippo Brunelleschi was developing linear perspective, helping to make painted fictions appear even more true-to-life -- and along the way enabling the messages they embodied to become even more believable and persuasive. The social, religious, political, and historical narratives enshrined in paintings were provided an enhanced veracity via their use of illusionistic perspective, and were thus imbued with a reality easily confused with that derived from our actual experiences in the world. Ideas embedded in painted images seemed ordained by perspective to possess an authoritative mathematical truth, and to become as

psychologically real as the real things they portrayed. Such is the charisma of pictorial high fidelity. $^{\rm 1}$

During the era of Memling, Copernicus, and Brunelleschi, change in the pace of knowledge about the world accelerated, like the indiscernible quickening of a river's flow, an impatient current sweeping away from the fictional, mythological, and supernatural, streaming toward the natural and real -- the scientific. It was a tide of change that still surges today.

III.

The advent of modern art in the 19th century restructured the mark-made pictorial space of flat planes. Its deconstruction of illusion and the expansion of aesthetic experience in real space can be viewed as a metaphor for simultaneous changes taking place in the humanities, sciences, and technology. It helped create a paradigm-bending *Weltanschauung*, a world view shaped by the gradual decline of non-natural, magical, or supernatural fiction-based theories about the world, and the rise of scientific ones. Both science and art of the 1800s rejected long-held traditions, the former dispelling prominent myths and illusions about how the cosmos is understood and known, and the latter deconstructing elaborate illusionistic substructures lodged over time in the pictorial space of painting.

The early modernists began to regard appearances as no longer able to represent reality's true nature. Such superficial facades began to be regarded as doubtful or even deceptive, vulnerable to errors of subjectivity – and so artists sought to discover deeper realities concealed beyond the simple look of things. The repudiation of linear perspective, which had so authoritatively structured those appearances for hundreds of years, became a symbol of painting's struggle to address changing perceptions of the world.

The changing position of the vanishing point in perspective, its whereabouts in illusory pictorial space, diagrammed the existential journey of modern art. Like following the bouncing ball, the vanishing point began its modern sojourn deep in the pictorial space of Neo Classicism, ricocheted through the shallow spaces of the Impressionists and Cubists, and ultimately settled in the flat surfaces of the Suprematists and Russian Constructivists. Beyond, in the $20^{\rm th}$ century, it exited the canvas altogether to frolic with the audience. These art movements' deconstruction and rearrangement of pictorial space took on many forms and degrees of deviation from past orthodoxies, but the overarching intent was clear – to construct a new way of picturing the world that was based in the epistemologies of real space, and which implied a tacit rejection of not only former structures of painting's pictorial

space, but more importantly former ways of understanding the world that painting had empowered. By the time Kasimir Malevich painted his *Suprematist Composition:* White on White, in 1918, the reductionist branch of art-making had squeezed virtually all illusion from painting's facture.²

IV.

Much earlier in history, in the epic and ancient friction between the fact of human existence and attempts to know how and why it exists, these being like two great tectonic plates – the *how/why* fault-line – there emerged a settling of shockwaves and quieting of curiosities.

Existence, the settlement proclaimed, is contained in two spaces, one concealed from the other. There is a natural space where we sense and act out, and about which we can know things – and there is a non-natural, so-called *super*natural space hidden from our senses, where we cannot tread and about which we can know nothing. The supernatural is considered to refer to magical non-causality, the notion that a real outcome can be the consequence of a real action without there being a causal relationship between the two, without any known or unknown natural process linking them. It is a notion synonymous with magic, fantasy, and the imaginary.

Science, as it turns out, arose from such beginnings, from the confusion begat when humans got to know real spaces while trying to learn something useful about imaginary ones. Science has been straddling the cultural tensions of what is known to be known versus what is believed to be known, ever since. Nonetheless, and averaged over time, our human narrative seems to be a progressive one at least on the natural side of things. Examples come easily to mind – tool making, agriculture, voyages of discovery, empire buildings, ages of discovery and enlightenment, art, technology, science -- examples that suggest our better disposition to be one of slowly but doggedly replacing flawed and erroneous beliefs with greater amounts of truth. The Copernicus syndrome . . .

Metaphorically, pictorial and illusionistic space are to the painted object, as imaginary and supernatural space are to science – the former relationship is reconciled on a woven canvas, the latter on a mental canvas. By deconstructing the spatial structures upon which it had been based for millennia, art was intuitively interpreting discoveries in science and examining the higher resolution they bring to an understanding of reality. Likewise when science displaced the imaginary with new knowledge, it affected resonance and transformation in art's pictorial space. There's really no telling which came first.

In history, change gets written in packets of information, but in time it flows and blends. As illusionism's reign was challenged over time, so was faith in the perceptions and worlds it had presented and codified. This skepticism continued to evolve through various channels during the 20^{th} century and into the 21^{st} century, and can be interpreted as having done its part to undermine the assumption that nature and a *super*nature co-exist. This is, in retrospect, one of the more profound and under-heralded epistemological contributions made by late 19^{th} and early 20^{th} century art. The erosion of illusion in painting that accompanied a movement toward the concrete, symbolized the general decline of confidence in the supernatural brought about by the advancement of science. The momentum of change back then still pushes on the present with all the weight of its inevitability.

V.

Over forty years ago, Buckminster Fuller predicted that scientific discovery would be among the great aesthetics that inaugurate the twenty-first century.³

Anticipating that trajectory, painting virtually turned inside out by the end of the 20th century's second decade. To build forward into real space and renounce imaginary space, frames were abandoned – paintings became boarded-up windows, objects in their own right. Sculpture stepped off its pedestal and stood on the same ground as the spectator, anxious to declare itself as equal with its onlookers. The aesthetic artifact was as likely to be familiar and utilitarian as it was invented, appropriated from the consumer's world and transformed, aestheticized. Depiction became self-reflexive, referential to the relationships and resonance it propagated in reality. Composition expanded to include real architecture, real earth, real sky. Process equaled product. Interactivity animated onlooking. The untamed complexities of the real became a new frontier for poetic, critical narratives. Art had entered the same reality its audience occupied – art forged in the same space that science probes.

Pictorial space, illusion, the imaginary, and the non-causality supernatural, certainly continue to shape perception -- perhaps as much as ever -- in story, film, painting, literary fiction, theological belief, and the pictorial space of television, computers, and personal screens. But the shift of worldview from one authorized and originated in illusory space to one engaged in real space has been introduced into the broad arc of history, in part motivating the contemporary gravitation to science by artists and curators, as well as the proliferation of art/science-related non-profits, galleries, and university programs worldwide. In its embrace of real space, the collaboration between art and science is a direct descendent of those past artistic movements and

scientific discoveries that faced away from the window and unshackled the notion that what is real, is vastly more intricate in its abundance than earlier imagined.

The current challenge for the art/science enterprise, is to ask why it matters beyond the appealing novelty and attractive lab pictures, what deeper meanings emerge from the pairing of these seemingly opposite ends of a spectrum? And, what is it to make of the historical tension between the real and imagined, the natural and supernatural, that continues to persist? For science, which studies the natural, the *super*natural is a non-concept. It has no measurements or dimensions, no physics or geologies. It is unknown, it doesn't exist, except on the other side of an illusionary window. There is also much about the natural world that is vet unknown, but when it fails to discover answers to its questions, science never relinquishes the quest to having trespassed over the property line of the supernatural. "Science Stymied: Supernatural is Confirmed" is never a journal title reporting on an inconclusive experiment or unanswered question. Still, the persistence of supernatural mythologies infiltrating cultural perceptions of reality in the 21st century is nothing less than stunning. Long emancipated from the imperialism of the window, art should be mindful of the relationship between its history of illusion and the thriving fiction of the supernatural, and of opportunities to bring critically resonant discourse to that history through its partnership with science.

Contained within the natural is all that is worthy of curiosity and wonder, as well as that which exudes mystery and menace. Summoning the examination of real space that began almost two centuries ago, artists are wrestling resonant, poetic, and provocative content from the scientific world view. The border between art and science is meandering and porous, inherently resistant to being defined as a firm property-line. Far from the clichéd view that science is an emotionally sparse and strictly diagrammatic view of existence, and that art is a pleasurably therapeutic escape from the straightjacket of rigorous endeavor, the art-science inclination searches for the two domains' true and overlapping realities. Science enjoys a popular patina of certainty which, however, conceals a process of groping and foraging, being messy, and tentative -- while behind the veil of art's seemingly cavalier processes and sensual indulgences, there is in fact cerebral order, structure, and intent. The true kinship of art and science is to be found outside the persistence of those stereotypes thought to separate them, and instead in the spark of insight that can result when each discipline is allowed and encouraged to ignite the other.

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For further reading see:

Paskow, Alan, (1940-2011), *The Paradoxes of Art: A Phenomenological Investigation* Cambridge University Press, 2004.

"When we view a painting, we posit both the essence and actual existence of a depiction as truly real..." ("The Reality of Fictional Beings," page 62). "...twentieth-century developments in the discipline of analytic aesthetics were also brought about by larger cultural movements and ways of thinking: a reaction to nineteenth-century European Romanticism (also influenced by Kant) and its quasi-deification of natural Beauty, Art, and Genius and, especially, the general and increasing inclination in the western world's educated public to accept the methodological orientation and practices of natural science as *the* path of access to the realm of what is truly real." (Introduction, page 10). "...the distinction between *what* a thing is and *that* a thing is, between "essence" and "existence" and, by extension, the distinction between what is "merely fictional" and what is "actually real," are not so sharp as virtually all Western philosophers have unquestioningly assumed, especially since, and in part because of, the work of Immanuel Kant." (Introduction, page 4).

See also

Brandon, S. G. F. (Samuel George Frederick), 1907-1971

Man and God in art and ritual : a study of iconography, architecture and ritual action as primary evidence of religious belief and practice

New York: Scribner, 1975

"From the dawn of culture, man used his art to depict the creations of his fantasy as well as objects of his physical environment. The fact raises a further point for our consideration, as we seek to understand the original springs of religious iconography. For since early man was thus able to represent in linear or plastic form figures created by his imagination, we must reckon with the possibility that such figures thereby came to be endowed with a concrete reality for him. In other words, although he had never actually seen beings with such forms, once he had drawn their image they acquired a definite visible existence" (page 19).

2

Art historian Werner Haftmann, founder of Germany's Documenta show in Kassel, wrote of this paradigm-changing era: "...the visible appearance of things came to be regarded as less important than the relationship between man and things. This art became a method of transforming natural appearance, of distilling from it the forms which raised nature to the level of a broader spiritual reality." "...ever increasing importance was attached to the independent expressiveness inherent in the formal elements of art – colour, tonality, line, and to the structure of the picture surface" (page 65). Haftmann quotes Malevich: "In 1913, trying desperately to liberate art from the ballast of the representational world, I sought refuge in the form of the square" (page 194). Haftmann, Werner, (1912-1999), *Painting in the 20th Century* Frederick A. Praeger, Inc., first U.S.printing, 1965.

3

"The great aesthetic which will inaugurate the twenty-first century will be the utterly invisible quality of intellectual integrity; the integrity of the individual dealing with his scientific discoveries; the integrity of the individual in dealing with conceptual realization of comprehensive interrelatedness of all events; the integrity of the individual dealing with the only experimentally arrived at information regarding invisible phenomena; and finally integrity of all those who formulate invisibly within their respective minds and invisibly with the only mathematically dimensionable, advanced technologies, on the behalf of their fellow men". R. Buckminster Fuller, 1973.