

## ***Abstract***

*ArtScience is an emerging twenty-first century cultural movement promoting collaboration between the humanities and sciences, that is reflected internationally in new university programs, journals, conferences, artistic studio practices, and design strategies. In this essay, its fine art origins are traced back to the nineteenth century's transition from representation to abstraction, a salient feature of the period's artistic revolution that introduced the modernist epoch. While that switch was a seminal step in art history, the author proposes that its true paradigmatic impact was a shift in aesthetic experience from expressions structured in imaginary spaces, to those structured in real space. It was art symbolizing and synchronizing with what science had been slowly doing for three-hundred years – replacing supernatural explanations of the cosmos with natural ones. The arc of that shift continues to be drawn today with renewed relevance, as an underpinning for the contemporary impulse to combine science and art.*

## **How ArtScience Doubts the Supernatural**

**by Stephen Nowlin**

REAL SPACE, so far as we know, really exists. It's what is from here to over there, the airy in-between through which we pass to arrive at our daily places. It's our wandering from the bedroom to find coffee and the morning paper, it's the Metro station commute to the other end of the line, it's swinging open the door. It's anywhere and everywhere we go, fly, swim, dance, crawl and fall – and what we avoid, sit on, step over, and crash into. It's the natural space whose shapes and names, in's and out's, ups and downs, we and every other living thing learn from infancy – the space whose physics we empirically know so well it becomes an extension of ourselves. Humans know real space when they occupy it.

We don't walk straight into solid walls or step off the edges of cliffs – we know too well the personality of our space and how walls and cliffs can trigger unhappy consequences. Instead, we confirm a knowledge of real space in every deft movement we make, by countless reinforcements day-after-day, hammering into our brains' neurons what is real and what isn't. We're skilled experts, dancers in a maze performing the choreography of getting around. We learn to trust in the reality of our space, and we know it's a bear-hug reality made of physical laws that define as well the arcane landscapes of a mystifying cosmos beyond our tiny benevolent planet. Our trust rises to a belief – let's call it realspace, one word – no matter what else we may say we believe in, our actions pledge allegiance to our true belief, in realspace. We worship it in unceremonial practice, every time we start the car, board a jet, ride an elevator, or avoid falling down the stairs.

Science studies this space and finds out curious and important things – whatever is breathing or not out there, simmers in it. And the coolest thing about us in our realspace, is that we are biologically equipped to find it infinitely and stunningly beautiful, from even its gritty dark and dirty parts to its soaring enthralling sublimities. We were formed in it, just the same as a seedling tree is whittled into an adult diagram of the forces shaping it. The Earth is real and really under us, and when we point northerly by standing upright on it, someone doing the same is really pointing southerly on its opposite side. We walk around on the orbiting spherical satellite of a hydrogen-fusion star floating in a space vacuum, just as sure as we pour milk on our cereal. Realspace is our natural cradle, our true faith, our mystery, our evolution, our cosmos.

Nonetheless, we conjure spaces we don't believe in or occupy, spaces from which we are barred physically – spaces of the imagination, of stories and mythologies. Other than metaphorically, we can't walk around in them, stick our hands inside to fathom their touch, pick their fruit, turn their knobs, or pluck their strings. These are fictional spaces, and most everyone agrees they're just fantasy. They provide the stage-setting for great literature and art, for good stories, myth, legend, and many bad novels. They are places where we vicariously play out stupidly heroic and sweetly ordinary narratives, or the other way around – spaces where we speculate, puzzle, disrupt and bedazzle to send shockwaves back across the border, just to shake up reality a bit. We know them to be powerful and wonderful, smart and symbolic surrogates, and our minds can wander carelessly along their cliffs, assured there's no gravity to yank us into oblivion.

As if real and fictional weren't enough, however, our ancestors came up with the idea of a hybrid real-imaginary space – the so-called *super*-natural space. In a quest to fill gaps in their incomplete knowledge of the world's patterns, humans made stuff up. Reasonable-sounding at the time, perhaps – but thus was history's great fallacy sent careening through time – the meme of the supernatural. Statistically, it's believed by most of us to be another actual and bona fide piece of reality.

Envisioned as a hidden crawlspace between the walls of the natural world, the supernatural is a heaven-esque place both close by and far away. It sneaks across the credulity boundary like a viral invader, vaguely headquartered in the sky, in the ancient aether perhaps, just a ways past the chagrined Ptolemaic universe, concealed in the stars and in the darkness and under our beds. If threatened by reason, the supernatural evaporates mirage-like into realspace – a magician's trick, exposed. Still, it persists as a double-vision'd notion, a hybrid view of reality broadly confounding human discourse and decision, a duality where the actual and absurd are equally real and porous, seemingly able to allow physical passages back and forth. It's a fantasy stunningly still mistaken for being real, among a majority of the Earth's population.

And art is much to blame. Art is the illusionist, the magic-marker and image-maker for the supernatural. Without art – visual, literary, aural and oral – supernatural space would have remained as void of form through the centuries as it is of location. A fraud at being anything *except* art, the supernatural is a concept that might have withered into quaint tales of our deep past had it not been convincingly fabricated and thus sanctified in art

over great expanses of time, particularly in the scenic spaces painters create. Virtually all of art's long arc of history has been devoted to stockpiling the two imaginary spaces, fictional and supernatural, with the trappings of reality – feeding our placebo-like trust in the authority of what looks familiar and thus real, imbuing those spaces with believability by dressing them up to mimic realspace.

In painting, themes of the supernatural were provided new and greater fidelity by the fifteenth century's invention of the vanishing point, a linear perspective sleight-of-hand that forced the painted surface to behave like a window through which onlookers peered into a much more convincingly populated world. That illusion of depth, what artists call pictorial space, is where the supernatural lives in forms we recognize. Acting like a sales-rep for the veracity of any subject painting chooses to engage, artistic skill enabled the depiction of denizens and themes of the supernatural to help convince doubters throughout history to fall in line. Art has always acted as the supernatural's authenticator, its notary public.

That is, until the 19<sup>th</sup> century and the stirrings of modern art. Typically described as a seminal transition from representation to abstraction, one that flowed into the broad delta of twentieth century artistic movements, the greater paradigmatic shift was instead the derailment of world views based in art's pictorial space and a new track toward those based in art's embrace of realspace.

In the distance roughly between Paul Cezanne and Marcel Duchamp, perspective's famous point transformed from one that vanishes to one that protrudes, eventually turning illusion inside-out. Art had begun to question the sovereignty of pictorial space – and as that space dissolved, so did confidence in the truth of the human narratives it had forged and given safe harbor over time. The byzantine scaffold melding the real and the supernatural began to collapse, as a side-effect of nineteenth century artists' journey to abstraction – their flattening of pictorial space and making of paintings that were real objects, instead of illusionistic windows.

Science, at least since Copernicus, had been doing the same thing. Blazing an earlier trail than the one traversed by art in the late 1800s, science had been incrementally placing into doubt imaginary narratives about how the world works, and replacing them with new understanding based in the real, natural world. Nineteenth century art's introduction of themes that were repositioned from pictorial to real symbolized this same gradual turning point. It gave visual validation to a long-simmering existential change, metaphorically echoing the scientific replacement of the imaginary with the real, by moving aesthetic experience from the exclusive domain of pictorial space and relocating it to the untamed and uncertain wilds of realspace. Today's impulse to pair art and science, a burgeoning international movement in the twenty-first century, reckons back once again to that seminal moment.

The backlash among traditional artists and critics, and from the general population, to the advent of modernist art and science was due in part to the introduction of uncertainty into previously confident structures – structures erected by history and dominate for

millennia, that explained how the world works and how it should look when depicted as art. Nineteenth century discoveries such as Darwinian evolution and quantum physics that shook Newtonian reality with a high-Richter earthquake, created new faultlines in the tidy epistemologies that had been symbolized for centuries by realistic art. A recognition of teetering belief systems enveloped both the arts and sciences, promoting skepticism and motivating push-back that continues to this day.

So perhaps it was inevitable as things came into greater focus and doctrines of the imaginary faded, that uncertainty would arise and earn the reputation of a menacing interloper in those half-discarded former worlds of belief. What is certain is typically more desirable than what is not, but what is not certain is also the seed of curiosity and exploration and discovery, the siren call of knowing just a bit more. The places we've set aside for the imaginary and supernatural persist in fictional space – but they are not real, and cannot contain the vast mysterious unknown whose beckon we feel so irresistibly. Realspace, it turns out, is the infinite uncertain frontier. It's where we really live and how the cosmos works, while we're wondering, theorizing, and discovering where we really live and how the cosmos works.

*REALSPACE (Oct. 2014 – Jan. 2015) was an ArtScience exhibition at the Williamson Gallery, ArtCenter College, that included contemporary artists Adam W. Brown & Robert Root-Bernstein, Dan Goods & David Delgado, James Griffith, Santiago V. Lombeyda, Rebeca Mendez, and Jennifer Steinkamp; with science from Curiosity Rover, Dawn Spacecraft, James Ferguson (1710-1776), William Herschel (1738-1822), and Isaac Newton (1643-1727). Website: <http://williamsongallery.net/realspace> .*

*UNCERTAINTY (Oct. 11, 2016 – Jan. 22, 2017) at the Williamson Gallery will feature scientists and contemporary artists including Marc Fichou, Owen Schuh, Jonathan Corum, Lia Halloran, Jim Campbell, The Einstein Collective, Thomas McCauley for CERN CMS, Edward Tufte, and Donald A. Glaser. Website: <http://williamsongallery.net/uncertainty> .*

*Stephen Nowlin is a maker/curator, and founding director of the Williamson Gallery at ArtCenter College in Pasadena, California, where he initiates projects at the intersection of science and art. For more information on his work: <http://williamsongallery.net/google> .*