How Art, Science, and Technology Interact in Southern California
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Stephen Nowlin

Bill Wayne, a Los Angeles expatriate vintner in western Oregon's rustic Willamette Valley, is also an impassioned cyclist. From his pastoral hillside vineyard, he previews his bicycle routes using Google Maps' amazing Street View, scouting inclines and road conditions for an early glimpse at the physical challenge and aesthetic experience. There's likely to have been a moment in the early 2000s as Street View geeks from Google sat down to discuss their bold idea for revolutionizing the concept of a basic map (which had itself already revolutionized human culture once upon a time), when the audacity of their creative vision was palpably apparent -- when the practical obstacles to what would have been a fanciful short-lived daydream for most, were tossed aside in favor of the perilous suspense that comes along with a monumental innovation. A core economy of creative endeavor, it seems, is its slightly reckless embrace of uncertainty.

Southern California and other large cosmopolitan arenas, as places for cultural intersection and memetic alchemy, are where creative economies best flourish and thus evolve. As just such a multi-layered social crossroad, L.A. and its neighboring communities have forged a unique creative presence, one with parts that are traceable to its longtime regional sources of art, science, and technology.

Technology's seminal L.A. moments are well known -- a mid nineteenth-century arrival of the Southern Pacific railway, followed by the discovery and industry of local oil by that century's end; the birth of movie and entertainment companies in the early 1900s; the advent of ship building and aerospace engineering and manufacturing during and after World War II; all of them furthered along by the allure of Southern California's work-and-play paradise climate, and all accompanied by the commensurate land/population expansion that continually thickens and diversifies the social *soup du jour*.

Less popularly recognized, perhaps, are stunning innovations resulting from how the region's historic industries, respected universities, and untethered culture attracted the inquisitive and somewhat skewed minds of young scientists – reflected, to name a few, in the quaint beginnings of Jet Propulsion Laboratory as a place to experiment with rocket

fireworks in the Pasadena foothills; the shared birth of the internet by UCLA ARPANET transmissions to Stanford; or the discovery of an expanding universe by Edwin Hubble at Mount Wilson. L.A. was, and is, a nexus of scientific change and exploration to which artists, scientists, and intellectually creative oddballs are drawn – people who are searching for the poetry of this change, uncovering its new vocabularies of expression, exposing its implications and defining its social discourse.

From roughly 1965 to 1975, a handful of local projects and movements captured and helped bring focus to the art-science-technology track of Southern California's present creative economy. The influences that flowed from the little stable of L.A.'s Ferus Gallery artists in the early 1960s, and that was revitalized through the recent Pacific Standard Time series of exhibitions and catalogues, recognized and aestheticized the presence of advanced technological industry in the region. Reflecting a West Coast impertinence toward its eastern minimal and pop influences, so-called "Cool School," "Fetish Finish," and/or "Light and Space" artists such as Craig Kauffman, Robert Irwin, Larry Bell, DeWain Valentine, and Helen Pashgian explored the expressive and perceptual potentials of new industrial materials by working with plastics and resins and chemical coatings, and generally engaging with engineers and scientists in the process. At the same time, Los Angeles County Museum of Art curator Maurice Tuchman launched an ambitious project to bring artists and corporate engineers together in the museum's Art and Technology Program, 1967-71, which resulted in some works being displayed at the avant-garde American Pavilion for the 1970 Osaka World's Fair, and that spawned an instrumental publication and major LACMA exhibition during the same year.

Lesser known was a program at California Institute of Technology that sought to bring together artists and scientists "to see what would happen," in the words of faculty organizer Dr. J. Kent Clark, in a three year effort from 1968 to 1971. The program included artists Pashgian and Peter Alexander, computer graphics pioneer John Whitney, Nobel physicist Richard Feynman, and Caltech trustee/industrial designer Henry Dreyfuss.

These projects were all undertaken during the same period that E.A.T., Experiments in Art and Technology, grew into a broad national initiative launched by New York artist Robert Rauschenberg and Bell Laboratories engineer Billy Klüver. E.A.T. and the Southern California initiatives were largely focused on formal concerns -- on using technology as a fertile and experimental resource for establishing new visual vocabularies that were, nonetheless, still thoroughly modernist. E.A.T. later aligned with the aspirations of new-media artists who worked independently with video and sound or other technologies during the last two decades of the twentieth century, and who advanced an understanding of how technology could remain self-reflexively critical in its role as both an artistic and industrial medium.

Although these undertakings were sometimes engaged in a critique of how technology transforms society, they were seemingly not too interested in considering science itself as their subject, or in using technology as a symbol to trigger critical discourse on the scientific world view. They did not particularly explore the role of science as antagonist to religious belief, engage directly with the ethics of science, its poetry, or its right or wrong impact on society. Better situated in terms of those concerns, was the Design School at California Institute of the Arts, initiated in 1970 as an independent program unaffiliated with the Institute's Art School (until 1975 when the two schools merged under the Art umbrella).

Short-lived and ahead of its time, the CalArts Design School embraced the notions of designers Buckminster Fuller and Victor Papanek regarding growing concerns over negative impacts from industry and technology on the Earth's ecology, and it incorporated into its pedagogy the need for sustainable alternatives to harmful interventions in the environment. Critical of habits and attitudes that had long lingered into obsolescence from the Industrial Revolution, the Design School philosophy was to hold science and technology accountable in service to global humanity. It envisioned a beneficially recalibrated relationship among humans and their planet and the objects they made, through the harnessing of science as a creative partner.

In the 1990s these early influences coalesced around the emergence of ubiquitous computing power, finally accessible to artists and designers without affiliation to a large university or corporation, providing digital tools and a global communications network that matched, as it were, computer code with the conceptual frameworks of those earlier analog collaborations. Intuitively, forays into multidisciplinary efforts between art and science in the mid-century period anticipated computer mediation, and when that technology finally arrived it broke a logjam that resulted in the early twenty-first century's proliferation of art-science organizations, museums, university programs, collectives, discourse, and artistic endeavors worldwide. In L.A. today, the art-science maxim in some way infiltrates virtually every enlightened interaction of making, designing, and innovating – the more visible list of participants including university affiliated programs such as UCLA's Art | Sci Center + Lab, LACMA's Art + Technology Lab, UCI's Beall Center for Art + Technology, Art Center's Williamson Gallery and Designmatters programs, UCSB's Media Art & Technology program, The Studio at Jet Propulsion Lab, plus smaller but no less vibrant collectives and non-profits like Machine Project, The Museum of Jurassic Technology, The Institute For Figuring, Sturt Haaga Gallery at Descanso Gardens, The Armory Center for the Arts, Innovate Pasadena, AxS Festival, and many others.

Perhaps a question to ponder while the art-science paradigm unfolds in this young century, aside from what new formal worlds it will reveal and what new innovations it will spawn, is why it really matters – as in, *deeply* matters?

Broadly viewed, art-science in the twenty-first century can be seen as the current manifestation of an historical arc of change tracing at least to the nineteenth-century's European art history. Early Modern art's introduction of radical abstraction to the lexicon of painting, the dismantling of illusion in the pictorial space of painting versus its relocation of aesthetic experience to real physical space (i.e., paintings as windows through which we peer into a fictional world that looks beautiful and real but isn't, versus paintings as simply beautiful objects themselves in the real world) – traded the security of a familiar and certain way of knowing our world for an unfamiliar and uncertain one.

We are still reconciling with this paradigmatic change. Science likewise does not presume to represent knowledge that is ultimate and certain, but rather that is subject to revision when warranted by a changing knowledge base. If knowledge is infinite, this will never cease to be the case – and for an animal driven to great achievement by its curiosity, what could be better or a more beautiful prospect? We need, then, to be a bit more loving of uncertainty, of stipulating that we may never know everything, and of embracing the trade-off – which is a certainty that there is always more to discover. Mr. Wayne, the winemaker on his bicycle, will no doubt be more delighted by the surprises he encounters on his ride, than the twists and turns he already knows from Google's amazing map.

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