“What do Artists Want from Science?”

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[Editors. I need to do some heavy lifting on this one, but don’t want to do so if the main points are already successfully made in the “Art, Science and Aesthetic Ethics” piece.]

I am not a scientist. So, the little I say here about science is likely to be either too cautious, incautious, or fundamentally wrong. That’s probably alright because this paper is not about science but about artists, their projections and desires, and the institutions that shape some of their practices. I am interested in the phenomena of so-called art/science collaborations. My thesis is that these partnerships are improbable if not logically impossible. Though touted by their host institutions as successes, the terms for evaluating achievement and proving it are unpublished—or might we say unconscious or repressed? These projects are more artistic and institutional wish fulfillment than viable possibilities.

Though art/science collaborations are *said* to occur (in grant and exhibition applications, at least), they do not materialize in real life in quite the balanced way their reports claim. What does happen is that rather than being a partnership, one discipline becomes the subject or tool of the other. The relationship is fundamentally unequal and the results are either art or, less frequently, science-with-illustrations. It is not that interesting art cannot come out for these relationships, only that the results are nearly always *art* rather than the hoped for interdisciplinary hybrid: *art/science*.

Unfortunately, there is not enough time to demonstrate thoroughly and explain why, but I am also hinting that the forced marriage of incompatible disciplines yields more monsters than beauties.

[Image: arm ear Stelios Aracdious Strelarc]

Though many of these ‘genetic’ dead-ends are fascinating as works of art and may even interest some scientists as speculative fiction, they effect science not at all.

For the moment, I am using the term *science* as loosely as do ‘artist-researchers’. And this, as I will show, is the basis of much of the confusion. Artists *do* engage scientists but rarely engage science. Most often, artists just want to borrow science’s cool, shiny toys—and technicians—to make science-like things and images. The resulting works are more often about surface than depth, and vague association rather than rigorous analysis. Or

the works are critical of their hosts and their enterprise—anything but synthesis and co-authorship.

There two broad categories of science influenced art. There are those who are awed by the images produced by new technology

[Image: Hubble]

and they either base their paintings or other objects on these images, or they use the new tools themselves for aesthetic pleasure rather than illustration.

[Image: "Particle Wave," by Dawn Meson]

Artists in the other camp take these same tools and turn them upon themselves in order to critique science. Some are silly fun; others are oblique; a few are disturbing.

[Image: Mireille Perron] pataphysical feminist parallel practice.

[Image: Nigel Helyer crickets]

[Image: Ionat Zurr and Oron Catts.]

[Image: Kira O'Rielly pig performance 1]

[Image: Kira O'Rielly pig performance 2]

These last three examples come from SymbioticA, an art/science program at the University of Western Australia, in Perth. In a recent production they call an *experiment*, rather than an exhibition, *Visceral: the Living Art Experiment*, 17 artists were invited to create works that "confront audiences….challenging them to consider the tension between art and science and the cultural, economic and ethical implications of biosciences today. The exhibition explores and provokes questions about scientific truths, what constitutes living and the ethical and artistic implications of life manipulation."
In a few cases, artists went beyond what some would see as an ethical boundary. [protest!?]

[Image: "Victimless Leather' (2004) by Oron Catts and Ionat Zurr.]

Rather than write speculative fiction as previous generations did, some of these artists make real fake things, or ficto-prototypes that approximate where science might go without ethical controls. In other words, the artists act as mad scientists to evoke calls for the regulation of their fictional researchers.

But more often, as artists are wont to do, they make stuff without much ethical concern at all. They just want to see what they can do with the new tools and watch how people

respond to, and make use of, their provocations. Few artists think things through the way scientists are supposed to. Art is 'what happens if?' Such art is science on a holiday.

The art world resembles the real world in many ways, but on its fringes (or really its deep center) it sets its subjects at play in order to challenge normative behavior and ways of seeing the world *for its own sake*. This habit makes artists in laboratories like kids in a candy shop: unregulated desire in a site of potential satisfaction. What a cruel but accurate simile: labs and shops are sites of disciplined desire. As artists become co-opted by the institutions that enable these art/science projects, as they discipline themselves into artist-researchers, their playful autonomy is bound to be diminished and their critiques toothless. As academic activities, artist-researchers are bound by the same ethical guidelines that regulate, regularize and instrumentalize scientists and their research.

I'll return to this idea in a moment.

[Image: da Vinici drawings.]

Leonardo da Vinici's wonderful anatomical drawings seem to be a type of great exception that combines art and science. However, at the moment of their making, Leonardo is a scientist using his great drafting skills to record his observations. It is only later that people see and treat them as art. The scientific gaze and the artistic gaze use the same works differently. Science is looking for material fidelity; art is looking for beauty, expression and metaphorical meaning. They are separate realms that we, as poly-valent viewers may oscillate among.

But the fields are separate. If artists were to engage science methodologies, do real experiments, then they would be doing science and no longer be making art. The divide is simple and absolute. Well, sort of…

[Image: Art/science books.]

Clearly, there are artists who are inspired by science and scientists inspired by art. There are also scientists who make art and perhaps there are artists who do science. However, a physicist who paints a still life is unlikely to consider her production science. If she did, she would be called upon to give reasons, and she would be hard pressed to do so. At the moment of painting she is not working as a scientist, but as an artist—an artist informed by science, sure, but not someone doing science.

[Images: Beuys]

Interestingly, this logic does not always obtain in the topsey-turvy world of art. Artists routinely go beyond the canvas and gallery and may term nearly everything they do 'art'.

[Image: Marina Abramovic]

Even everyday activities can become art—science can be called art. Last year, the performance artist Marina Abramovic sat at a table in the Guggenheim Museum of Modern Art for eight hours a day across from whomever wanted to participate in her durational performance. That's art.

[Image: Manzoni's can of shit.]

So is Manzoni's can of shit.

Art and science are mutually exclusive fields—but sometimes art actions can transform any thing into art. But, once some thing is treated as art, it no longer is whatever it once was.

As I said in my introduction, so-called art/science collaborations are inequitable: one discipline always dominates the other by rendering it a subject or as a tool. Such 'collaborations' are more expressive of a desire than a logical possibility.

Science is a system that uses observation and experimentation to describe and explain the material world. It continuously corrects and improves; it aspires to objectivity. Science is also the literature produced by people using the scientific method. Scientists in each particular discipline are required to speak the same language (mathematics, for example), know its histories (the relevant literatures), its internal disciplinary borders, and maintain its external boundaries (metaphysics, emotions, biography, art, and so on).

Art has no agreed upon definition, no common system, methods, goals or boundaries. It admits the possibility of nearly anything. There are literatures *about* art—art history, criticism, philosophy of aesthetics.

[Image: Barnett Neumann As Barnett Neumann said: "Aesthetics is to art what ornithology is to the birds."]

These are meta-discursive disciplines with art as their subject —they are not art itself in the way that science literature is also science. Art is subjective, expressive, usually imitative, often fictional, unsystematic, unconscious and extra-rational. Art is not a language; therefore, art works are not propositional. They may inspire, illustrate and communicate knowledge but do not produce it. *Art is*; viewers make meaning.

Science rarely crosses into the art realm—except, perhaps, to explain how Degas' late landscapes are due to cataracts,

[Image: Degas.]

Van Gogh's "Starry Night" accorded to migraines and El Greco's elongated figures to astigmatism. When it does, it is 'about' art; it makes art its subject, not its collaborator. Such direct forays amuse but have little effect on art because they are uncollaborative.

[Images: bee on Van Gogh.]

[Image: beautiful science images.]

Individual scientists occasionally use scientific imaging tools to produce stunningly beautiful images that they describe as art. While definitions of art are elusive, art institutions are more conservative and rarely embrace such works. Curators and aesthetic philosophers argue that art has not been synonymous with beauty for a very long time. Some art works are beautiful but not all beautiful things are works of art. This may be a current prejudice. And anyway, because art is fluid, any thing, arguably and eventually, *could* be art. Even so, the inclusion of such works in art galleries would not mean that science is art, only that these objects are now art and some imaging technicians are now considered artists. Science does not open its gates as generously, or recklessly.

Like the da Vinci anatomical drawings, if the works moved from the science realm to the art world their meanings, uses and economies of display and consumption would all be completely different. The images are not science. They are the artistic result of using scientific tools: art can be made by any means and materials.

Some scientific illustration might look like art. Drawing is an art form but not all drawings are art. Illustration is its own discipline. It is a technology or craft between, in this case, art and science. It is a descriptive tool of science. Too much art (creative interpretation and expression) weakens an illustration as a tool for science. Too much accuracy, no metaphor, personality or subjective play, makes for a poor work of art.

Individual sciences are generally conscious of their limits. The numerous cases of scientific interdisciplinarity are collaborations of previously defined practices that share insights but remain separate, or ideally, combine to create a third new discipline that rises in response to the complexity of their shared subject.

Art, however, rarely recognizes boundaries—the limits that individual artists recognize are self-imposed. Most art, as Plato complained, is imitative. It pretends to be other things all the time, including science.

[Image: Lyndal Osborn ab ovo]

[Image: Alan Dunning, Paul Woodrow, The Einstein's Brain Project, 1995-2001.]

In *Madhouse* (2001), part of the *Einstein's Brain Project* (1995-2001), the participant alters an electromagnetic field emanating from an anatomical model of the human body and thereby triggers different media events (sound, video projections) in real time.

In their statement about this project, the artist-researchers explain:

"To add a malleable physical layer to this interface, Dunning has isolated a liquid matter, a ferrofluid, which reacts to the changing strength of an electromagnetic field.

Ferrofluids, which NASA discovered in the sixties, are part liquid, part magnet with energy-conducting properties similar to motor oil. When this fluid is subjected to an electromagnetic field, the attractive forces of gravity, magnetism and surface tension shape the ferrofluid whose density changes proportionally. In medicine, ferrofluids are used to carry medications to specific locations of the body. Some scientists are investigating the use of ferrofluids to improve the readability of data generated by a magnetic resonance display device.

I experienced this piece, but not the ferrofluids described in grant application. Ferrofluids are undoubtedly cool.

[Image: ferrofluids].

But if they were used in this project it was hidden and only there to amplify magnetic reception. Like so much art/science literature, the project is cool by association. These artists claim to work closely with scientists. Well they might, but their authorship is not in evidence. *They* are not allowed to act like artists.

> Perhaps a side note: Art that attracts attention primarily because it showcases new technology, runs the risk that when the new becomes old the art also appears not just dated but obsolete. Such objects make up a special species of faddism: technovelty. The only remedy is to have compelling subject matter and content; the work is about more than its form, which is its material. There are plenty of works of art rendered in old media that resonate today because of their canny content.

Sometimes scientists do play at art. Several decades ago, I saw an exhibition in Calgary of work by a scientist. He was attracted to the many colours molds can take and decided that they could form a pallet for paintings. Because he wasn't an artist—didn't know the craft or contemporary concerns—he made mold van Goghs. When most people jump into art, they adopt an old form, styles even media that conform to a public, but not necessarily current, mode.

Talk about experience with, Ken van Rees, a soil scientist at Emma Lake.

So what's wrong with a soil scientist teaching painting to his students in order for them to have a different sort of sensitivity to the environment? Nothing! It's wonderful!

But imagine the reverse, my teaching MFA students science using equipment, concepts and 'experiments' from the 1950s. Ken's students are making art (or at least paintings) and my students are doing science (or at least replicating experiments). Don't ask artists if those paintings make a contribution to art as research; don't ask a scientist if my students are contributing to science. In a causal way, there is no harm in calling these productions 'art' or 'science' or experiments—all sorts of folks call themselves artists

[Image: Subway artist].

I'm not a scientist. I am an artist—but not one who works with science or scientists. However, I am also an art critic who over the past twenty years has reviewed many science inspired works of art and exhibitions. And, as a frequent Canada Council jury member, I have seen numerous applications that aspire to art/science synthesis. I have also noticed a rapid rise in so-called art/science partnerships among academic artists and their non-art colleagues.

The new SSHRC grants to artist/researchers are particularly fond of art/science projects perhaps as an expression of the general mania for interdiscipilarity, but perhaps as part of the general interest in instrumentalizing all academic production.

[Image: book: *Science: Art, Science, and Social Change*]

In fact, the sketch of this only less sketchy sketch was first published in *Imagining Science: Art, Science, and Social Change*, a SSHRC funded book, conference and exhibition produced by the remarkable Caulfield brothers.

[Image: Sean and Timothy]

Sean is a Canada Research Chair in Visual Arts and Timothy is a Canada Research Chair in Health Law and Policy; both at the University of Alberta. A troll through Visual Arts department websites in Canada, the United States and especially in Australia, reveal numerous professors professing art/science collaborations—almost always with biology labs or engineers. While interest in this trend may have peaked in the art world a little while ago, it is now a tenured practice which, like formalist painting in some university towns, threatens to be institutionalize and with us long after its art historical demise.

[Image: artist/scientist]

I mentioned that such projects are pursued with particular zeal in Australia. This is probably due to the rise in Visual Arts PhD programs; which has meant that many MFAed professors are scrambling to get PhD's so they can remain relevant within their evolving programs.

If the title is slightly rephrased to "What do **Academic** Artists Want from Science?" The crass answer is aura and seriousness. Taking science as a partner is a fast track to all that is important and relevant—having Aboriginality as an art/research subject comes in as a distant second. This may be a form of professional deformation that, in the new grant hyperbole of the academy, constructs the artist as a "researcher," who must therefore have a defined-in-advance-subject, methodologies and proposed outcomes. A model that leaves most artist-researchers who try to fill out SSHRC forms scratching their heads or distorting their practice to meet the mould. Nearly all the language of these applications (and I'm only privy to the winning ones!) are deceptive when not oblique. The first casuality is the nature of the partnership. Scientists are described as 'collaborators'—

that's the actual language of the form—when mostly they just supply the space, tools and advice, or let artist-researchers look over their shoulders (though not really as partner as equals).

This probably sounds mean. But apart from reading about these "collaborations," I have also spoken with five artists who have been in these engagements. My comments reflect their reports. This essay is an attempt to understand why this is so. I am not mentioning them by name because the host institutions require that all collaborations be reported as successes—which is certainly against the scientific attitude.

The measure of a true collaboration would be that both parties are agents, equals and their fields and methods would come together in a synthetic way to create new knowledge within both spheres, or create a third space, a shared space for further research.

Dirk van Dusseldorp gives a concise listing of the main components and stages of interdisciplinary research and analysis:
(1) studying the same object (2) at the same time (3) by members of different disciplines (4) in close cooperation and (5) with a continuous exchange of information, (6) resulting in an integrated analysis of the object under study. (van Dusseldorp 1992).

Or, more accurately, perhaps we should call this work what it is, art with science as its subject and look for new ways to discuss and critique it.

Perhaps the most persuasive indication that the current imaginary of art/science collaborations are designed from artist's desire and institutional accommodation (or assimilation?) is the fact that in all my research I have yet to find a single scientist who went to an art studio to collaborate with an artist as an equal.

David Garneau