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Caitlin David

Art and Science: Blurring the Poetic and the Analytical

6 May 2016

BFA in Studio Art, Concentration in Painting

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Abstract:

Despite a modern conception of art and science as being fundamentally opposed, both have at their core a desire to explain the inexplicable. Their investigations and the communication of the results of these investigations can be blurred at both poetic and analytical junctions. Vivified abstract thought, or the poetic, can be thought of as instigating the ubiquitous desire to explain the inexplicable. Fruitful analysis of resulting data and representation of that data must consider the idiom of both art and science if it is to successfully cross between them, and special emphasis must be placed on the diagram as a way to navigate the boundary between the real and the imaginary. My recombination of the real into the imaginary mimics the biological processes by which encoded information is turned into a new product, renewing that which has been preserved in stasis.

Art and science have long been both conjoined and opposed, depending on one's point of view and point in history. A classic archetypal example of the linkage between the two can be found in Leonardo Da Vinci, Italian Renaissance artist and inventor, and directs attention to a time when art and science made a crossroads with religion in attempting to understand the weird complexities of the human experience. The trope of the "Renaissance man" has its roots in this multipurpose approach to acquiring knowledge. More modern views tend to be increasingly polarized, though at the foundation of both art and science sits curiosity. Each in their own way attempt to explain the inexplicable, to investigate and to communicate the results of that investigation. Often art is thought of as doing this through feeling and showing, science as focusing on thinking and telling. The line between the two fields, however, may be navigated at will if one is careful and blurs at both poetic and analytical conjunctions. Furthermore, I posit that while description of the previously existing falls under the premise of both art and science, creation of the new is a better use of their connection.

Differentiation in methodology and language marks the source of greatest friction between art and science. Art, after all, can't be measured or proven or otherwise quantified. It lives in an entirely foggy, subjective realm that defies the validity of the one to one relationships that science thrives on. Art, because of its subjectivity, can be argued and often invites such disagreement; one person might see a work of art as entirely valid and well done while another might feel that it fails entirely. The two opposing viewers read the work using their own experiences and viewpoints as their figurative dictionaries, translating the same visual information into different meanings. Science, on the other hand, seeks to be immovably truthful (even though it can never realistically obtain this solidity). It presents as much information as it

can as fact, using conventions that have been copied and parodied by artists such as Mark Dion in order to present challenging questions rather than to inform.

Figure 1. Mark Dion. *The Tar Museum -- Cave Bear.* 2006. Wooden shipping crate, tar, resin cast, ceramics, keys, knife, clock, books, tools, trap, wheel. 121,5 x 178 x 221,5 cm.

As Prof. Dr. Michael Hagner pointed out in an interview published in *Think Art Act Science*, "art has no epistemic obligations, nor any other particular obligations to knowledge, and that is its great privilege" (Hediger et al. 16).

This interview, incidentally, comes from an exhibition catalog and collection of short essays that explore the relationship between art and science, particularly the harmonies and dissonances between artists and scientists themselves. The Swiss artists-in-labs programme from which this exhibition arose allows for artists to spend nine months within research institutes and university departments specializing in a variety of fields, fostering dialogue between both the

artists and scientists. In particular, the essays included speal about the ways in which artists and scientists can learn from one another. Despite their methodological dichotomies, neither exist in a vacuum. Artists must make art about things, and those things can and will include other forms of knowledge, of which science is one. As pure representation and abstraction for their own sake are rigorously interrogated by a demand for concept, artists seek "other systems and disciplines" (Hediger et al. 7). Scientists, meanwhile find themselves increasingly prevailed upon to make their esoteric studies interesting and digestible to the layman, needing "to dramatise, simplify, exaggerate, and, more than anything, vivify all abstract thought to convince and captivate" (Hediger et al. 11).

Vivid abstract thought can be paraphrased as the poetic, a concept that many artists have capitalized on. It is, however a concept necessary for discussing the deeper connections between art and science as they relate to curiosity. Curiosity can in turn be moved along the spectrum of the poetic to wonder, which is inextricably linked to the sublime. Wonder, loosely defined as a cause of astonishment or admiration, is an integral factor in inciting much investigation. And though it has often been reduced to unfortunate cliché when used in reference to the natural world, wonder is indisputably present in the motivations for much more analytical thinking. It causes people to stop, to consider what something is or how it came to be. By this action of presenting something ambiguous or intangible, wonder serves to remind us of our limitations and in fact cannot exist without our limitations.

That which causes wonder must be, at least temporarily, beyond us, and may recall that which is so far beyond us it can be considered sublime. Drawing up a boundary around such a misty word as sublime, though a difficult proposition, can be thought of as the same as differentiating between the unknown and the unknowable. The unknown may be marveled at but

eventually dissected into satisfactory pieces of information related to previously acquired pieces of information, while the unknowable will always evade full explanation and probably provoke much futile head scratching in the meantime. Both art and science struggle to make the unknown known, or sometimes re-present the known in an otherwise unknown fashion, and both occasionally run face first into the unknowable, aka the sublime. It must be noted here that the sublime comes loaded with meaning and often connects closely to the history of painting in the search for a visual representation of transcendence, from the artists of the Hudson River School's landscapes of manifest destiny to Rothko's immersive color fields.

Figure 2. Mark Rothko. *Orange, Red, Yellow*. 1961. Acrylic on canvas. 236.2 cm × 206.4 cm

The religious and spiritual connotations of ‘the sublime’ in relation to a supposed higher power or state of being are not, however, part of the discussion I wish to take part in. The realizations I value in my work are not dependent on a plane above our own, and therefore I often avoid the sublime in favor of wonder. I am interested in that which we can decipher, if only through new and unconventional investigations.

The process of acquiring knowledge from new sources requires examination and analysis. Seeing must combine looking, usually very closely, and thinking. More often than not, information must be interpreted from patterns in the data. Pattern recognition has been studied in depth by many scientists who seek to understand how it is our brains take so much information and organize it into categories which at least nominally make sense. It is a way of seeing, and incredibly important in many aspects of our lives because it draws connections. This may not sound like anything particularly revolutionary, but consider how much more can be learned from comparison than from isolation. This is why scientists collect data in large sets, to get a better idea of the pattern in question. Systems of classification can arise, and more telling distinctions can be made. This method of seeing is time consuming and cannot be done without observation ad nauseam. Every piece of information must be taken into account before the complete pattern may be puzzled together. Therefore it comes as no surprise that observation is one of the key elements of the scientific method which is passed down in so many classrooms, and that it comes well before any conclusions are drawn. Hypotheses need to be formulated and tested, data examined, and then finally conclusions can be extrapolated. The repetition of retesting hypotheses ensures that no confounds lead to false conclusions, clarifying the final picture.

Science, however, does not have a monopoly on the analysis of information, and it would be extremely narrow minded to disregard the methods of visual analysis taught to those studying

art and art history. In fact, a study was published in 2006 that attempted to test the ability of medical students to recognize patterns, a skill paramount in making correct diagnoses, but some of the students were given "arts-based" classes instead of clinical sessions. The students taught to analyze visual art were actually much better equipped to take in all the information present, specifically including that which was not directly related to the patients' medical history, and viewed their patients in the complete context of their personhood. Though this context may not be absolutely essential to informing a correct diagnosis, it does point to a greater awareness of narrative which can be viewed as another, deeper layer of information still important in calibrating treatment. Towards the end of the article, the authors say, "clinically based teaching appeared to be an effective way to teach about disease, while the arts-based method was a useful way to teach about illness" (Shapiro et al., 268). Visual analysis, therefore, can be understood as a tool for examining higher levels of meaning within data.

All of the topics covered so far, the strained relationship of science and art, the role of wonder in motivating investigation, and the analytical process of that investigation, center around the creation and usage of systems of information. Conflict occurs when content is translated between those systems, particularly since there may or may not be direct relationships between those systems. One can think of art and science as two languages, perhaps of debatably similar origins that diverged long ago, each of which contains words that do not have clear counterparts in the idiom of the other. Attempts to give a full understanding of one of these concepts to someone who doesn't speak the language of the concept's origin will necessarily result in the loss of some information, either from unintentional slippage or editing for ostensible clarification, and therefore confusion. The divergence of the two languages, or the points of opposition between art and science as introduced above, comes from differences in prioritization,

which leads to differences between what is named and what is not. Naming signifies the importance of that which is being named – if it were not important, after all, it would be ignored – and imposes meaning on the subject. It follows closely after investigation and effects an expansion of our limitations, drawing the subject in under the umbrella of the labeled and presumably understood. Naming also connects the newly named to anything previously named, setting up relationships between things that may have previously appeared to be unrelated.

Connecting the named in a useful series of relationships or taxonomies can be done verbally or diagrammatically. Diagrams, in fact, embody a strong connection between science and art through the ubiquitous medium of drawing. But in order for the diagrams to make sense, there must be rules by which to interpret them. Martin Kemp writes in his book *Seen/Unseen*, "Any form of communication relies upon accepted conventions, in which a representational schema effectively conveys information both through its repetition and through recognized variations in its properties" (68). Diagrams, through the language of the visual, do something extraordinary. They represent the real through the imaginary, and in so doing, enable understanding. Diagrams can connect two unlike vocabularies through a system of consistent drawn rules. This, I believe, is an essential property that makes diagrams uniquely suited to the task of translation.

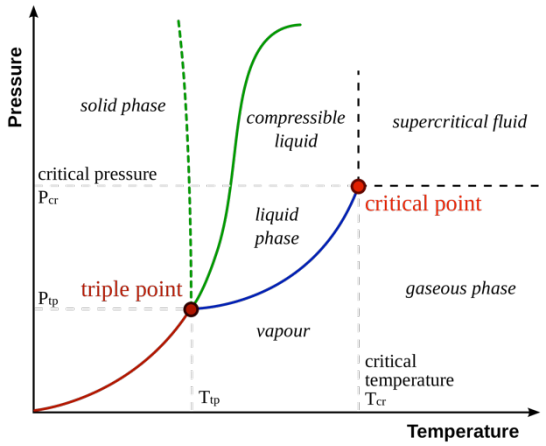

Figure 4a. A classic phase diagram, as used to describe transitions between states of matter.

Figure 3b. Terry Winters. *Phase Plane Portrait.* 1994. Oil on linen. 274 x 366 cm.

Artists have been taking advantage of the diagrams' ability to communicate the real and the imaginary long before me, but two contemporary examples stand out in Terry Winters and Matthew Ritchie. Both take the scientific diagram, from chemistry or biology or physics, and bring it into the realm of art often through painting. Waveforms and phase planes in Winters' paintings look at the diagrams themselves and the manner in which information is passed on, while Ritchie uses the language of the molecular to describe the possible infinity of the entire universe.

My work, titled *Recombinant*, takes the form of a series of drawings, some bound into books and some hanging on the wall, and through it I use the representation of the real to create something new and unreal. The books are compilations of observational drawings, done from microscopic slides of various animal tissues, and the accompanying drawings hung more conventionally on the wall are compilations of imagery from the books themselves. Through the work, information is collected, analyzed, categorized, and patterns reformed into new conclusions. The books provide a source system of information from which the wall drawings derive their language, contextualizing them and giving them meaning as in a set of rules for interpreting a diagram. Graphite and ink, media which are also traditionally used in writing and verbal analysis, take advantage of what Deanna Petherbridge calls in *The Primacy of Drawing* the relationship between drawing and writing as two "symbiotic symbol systems" (121). In this way they function diagrammatically and analytically, even though actual letters and numbers give no solid information about the real world identity of the images being presented. Instead they are notations of my visual analysis and keys into understanding the process of the drawings' making.

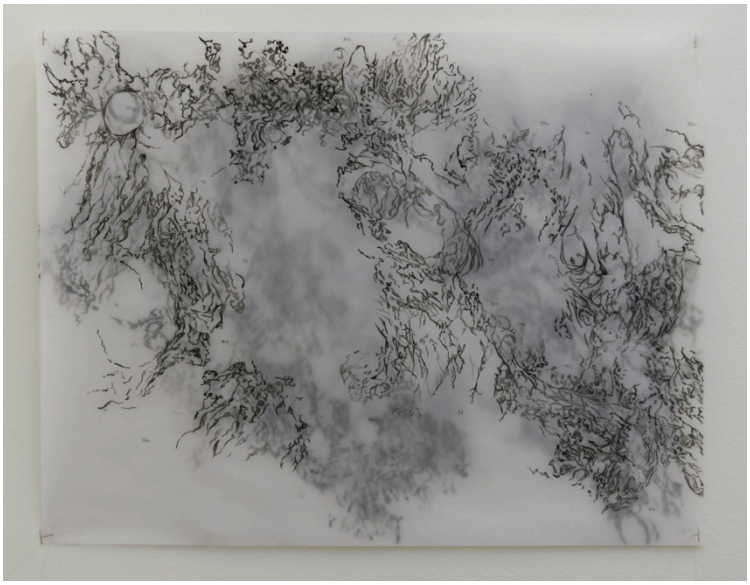

Figure 4a. Caitlin David. *Recombinant, final synthesis.* 2016. Graphite and india ink on vellum, T pins. 25.5 x 19.5 in.

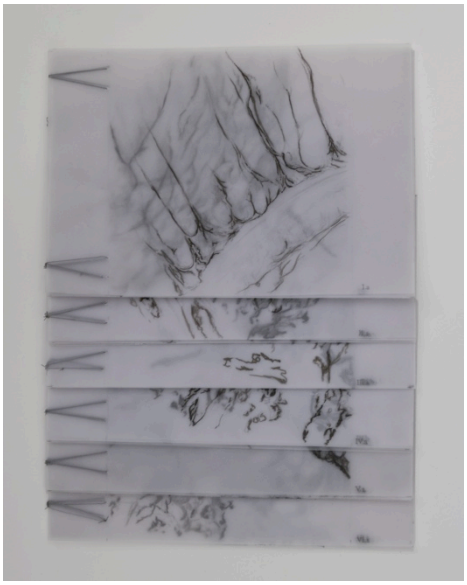

Figure 4b. Caitlin David. *Recombinant, sections I. - VI.* 2016. Graphite and india ink on vellum, thread. 8.25 x 5.83 in.

Ambiguity, as noted above, is required for the instigation of inquiry by inducing curiosity or wonder. My intention with the work is thus not to explain and diagnose specifically, but to leave room for the viewer's process of discovery. I could certainly label every drawing with its correlated source—the type of tissue and particular organ from which the tissue came, the stain used to make said tissue visible, the genus and species of the animal from which the sample was collected, even the approximate age of the sample—but this would be utterly stagnating. I would be creating an exhibition of biological materials, not art. The intuitive process of recombining pieces of normally inaccessible information into a new visible whole via showing, not telling, pushes the work into the realm of the imaginary. My use of imagery from microscopy in particular draws attention to that which is normally only seen by scientists, but in my work the images, though observed with particular attention to detail, are expanded and analyzed without the use of any special lenses or other devices which require technical skill. Exploration of the boundary between science and art requires a delicate balance, but the notion of bringing

something wholly implausible and only visually possible into being grounds the work firmly in the artistic. I see this synthesis and revelation as a way of giving back life to matter that has been preserved in dead stasis for decades.

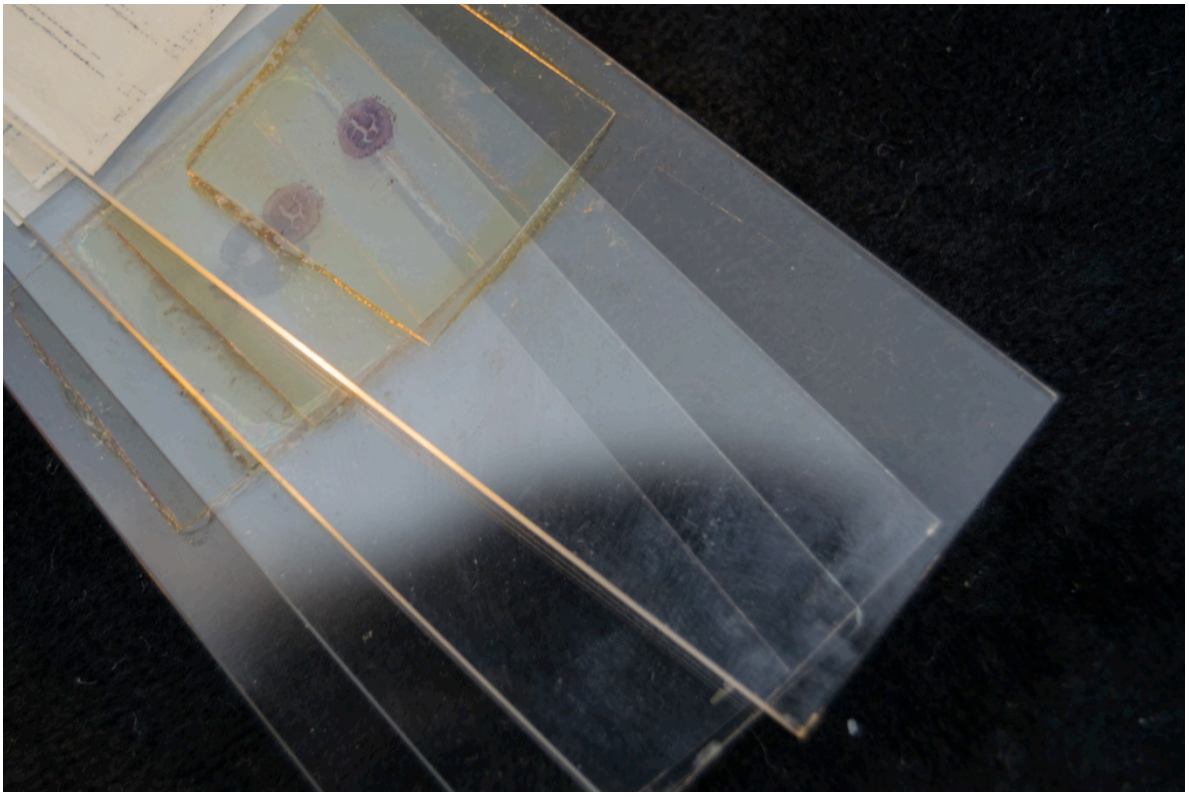

Figure 5. Sample of slides used in the creation of *Recombinant.*

Biology, the study of living things, often in reality becomes the study of things that were once living as it is impossible to fully understand the inner workings of an organism from the outside. The living are preserved in death and either filed away or simply thrown out once they have yielded whatever information was sought. Thus I think it is fitting that through art, an action and study that seeks to understand or demonstrate something about the process of living, tissue that was once living long ago becomes dynamic once again as it is remade through examination. In a way analogous to the translation of DNA to RNA and then to protein, the visual information of the slides is translated to books and then to larger drawings. My

intervention in this process can be seen as the cellular machinery responsible for transcription and translation as I move information into different forms on different substrates with a particular degree of fidelity, picking and choosing what sections of information are translated, making a new whole.

Paul Thomas, in his book *Nanoart*, quotes Brian Petrie's profound statement that "the purpose of art is not the presentation, for whatever reason, of certain fixed configuration of matter…but rather to render transcendent truths about ontological status of matter" (42). Art and science can achieve this higher knowledge of matter, and therefore life, through their complementary approaches and an alchemy of poetics and analysis. In rendering these truths, they can be used to describe, to resurrect, and finally to create.

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Image Sources

Figure 1. *The Tar Museum – Cave Bear.* < http://www.georgkargl.com/en/fine-arts/press/mark-dion-the-tar-museum>.

Figure 2. *Orange, Red, Yellow.* <http://gothamist.com/2012/05/09/record_for_rothko_orange_red_yellow.php>.

Figure 3a. Phase diagram. <https://upload.wikimedia.org/wikipedia/commons/thumb/3/34/Phase-diag2.svg/2000px-Phase-diag2.svg.png>.

Figure 3b. *Phase Plane Portrait.* < https://www.museum-joanneum.at/en/press/press-current/events/event/13.03.-21.08.2016/das-kabinett-des-malers>.

Figure 4a. *Recombinant, final synthesis.* Photo by Caitlin David.

Figure 4b. *Recombinant, sections I. – VI.* Photo by Caitlin David.

Figure 5. Selected microscopy slides. Photo by Caitlin David.