

Drawing as a Way of Knowing in Art and Science
(by Gemma Anderson). 2017, Intellect Books.

By Andrew S. Yang

Leonardo da Vinci (1452-1519) wrote, “all our knowledge has its origins in our perceptions.” While Da Vinci’s insight is timeless, our perceptions and the knowledge that flows from them, are very time-dependent. There are, for example, the times in which we live, an era when attention is not only split, but diffracted by media and multitasking alike. Given contemporary life’s tempo, how much time is there to look at anything in detail? In the 15th century, Da Vinci might have inspected an insect in the palm of his hand, but in our century the insect is more likely to be an image on a mobile phone in the palm of our hand. Our habitual knowledge shifts with our habitual perceptions.

The artist Gemma Anderson recognizes that the visual arts and natural sciences are both practices devoted to looking closer, looking longer, and looking deeper. They seek out those things that are not visible to our casual seeing or everyday believing—stretching our perceptions, and our representations, to new limits. In this way, the practice of drawing is a natural bridge to connect the epistemologies of the visual arts with that of sciences – Anderson’s new book, *Drawing as a Way of Knowing in Art and Science* guides us through her journey through this rich terrain.

Anderson’s drawing and printmaking are guided by underlying principles, making her artworks at once well-studied and fantastical, detailed and open-ended. They function as documents of her creative engagement with biodiversity and mathematics, while also illustrating her philosophical views on how drawing can help us come to know. In terms of the ongoing art-science conversation, Anderson’s contribution is advancing how an artistic approach that embraces analogy, typology, and intuition (into a method she calls “Isomorphology”) can expand our thinking about how to both recognize and organize the natural world.

Her writing is deeply reflective and she uses the majority of the book to theorize her own practice in relation to different strands within the philosophy of biology, including taxonomic pluralism, raising interesting questions about how art-making might function as a form of experimental epistemology. Indeed, certain chapters put quite a bit of focus on how her own drawing practice is “consistent with,” “advancing and building on,” or “in line with” the work of specific contemporary philosophers, such as her Exeter colleague John Dupré. While informative, more space for the artwork to speak for itself and for readers to interpret more freely would also be welcome, especially given Anderson’s own investment in embodied observation and close study of form, both the imaginary (as seen in her mathematical projects) and the specimen-specific (as seen in her biological ones).

If science relies on our ability to exceed the experiential or the intuitive in ways that give access to wholly other scales of phenomena (be those neutrinos or neural networks), then it is just as clear that the ever-growing layers of technological mediation—our instrumentation—can weaken our embodied perceptiveness. Anderson rightly points out that the loss of drawing as a fundamental skill for observing and intimately knowing the world can be a hindrance scientists and amateurs alike. “There is no compulsion for drawing to continue alongside DNA analysis, scanning electron microscopy and photography, but perhaps there should be.” (p.48) I couldn’t agree more. Historian Sabine Brauckmann

has written on the foundational, epistemic role that observational drawing played in cultivating forms of tacit knowledge that embryologists relied on for conceptualizing the developmental processes they were studying, turning “hands into tools for making visible what the naked eye has seen and the mental eye has imagined...”¹ But the implications for having our attention increasingly decoupled from haptic experience resonate far beyond the laboratory: Consider a recent report in *The Guardian* in which pediatricians claim that an overuse of touchscreens by children is stifling the development of their finger muscles & coordination to such an extent that many youngsters entering school aren’t capable of positioning a pencil correctly, and in turn require occupational therapy (!) .²

It is around concerns of broader cultural engagement that Anderson’s work stands out, for in addition to her rich and evocative individual drawing practice, she is also driven to re-invigorate observational drawing as a form of *social* knowing through drawing workshops and her Cornwall Morphology and Drawing Centre project. These initiatives gather the public to experience the pleasure of close looking, attention, and first-hand drawing, while also bringing her in collaboration with various of scientists who share her desire to bring people into a more proximate relationship with the natural world once again. The book provides a wealth of documentation about her workshops, including step-by-step instructions for employing her “Isomorphology” and “Isomorphogenesis” drawing methods as a means of collective knowledge production by way of plants, insects, lizards, and geometric forms alike. Taken all together, the socially-engaged aspect of Anderson’s work advocates for slowing down our perceptions enough such that both novel, and neglected forms of knowledge-making can take hold.

Given Anderson’s unwavering commitment to the value of direct observation, it is interesting to see how her approach draws as much from the metaphysical as from the physical. As an adherent to Goethe’s morphology, Anderson also seems to hold that “the observer must look beyond the surface to see the essence of a thing and the forms that lie concealed within it,” intent on the “common forms and processes” that pervade life. (p.138) However, that looking beyond doesn’t necessarily extend to the most common and elucidating of all of life’s hidden forms, DNA, whose molecular methods Anderson characterizes at one point as “encroaching” on taxonomic practice. Understanding that the critique stems from the overwhelming abstraction and quantification that DNA sequencing has brought to the study of life (to the detriment of support for morphological work) it makes me wonder how molecular - as well as Darwinian - perspectives could be brought to complement an artistic methodology like Anderson’s that seeks underlying “essences” and universal form first and foremost.

Arguably, German Romantic and transcendental threads form the weft of Anderson’s aesthetic approach, and the book is notable for how she contextualizes her artistic methodology in relation to other artists. This includes a thought-provoking chapter in which she unfolds a number of aesthetic & art historical proposals connecting Paul Klee to Goethe as kindred artist-morphologists from whom she draws much inspiration. Some of the book’s editing and layout decisions, however, don’t necessarily give due support to her ideas as they develop. For example, in the chapter where Klee’s use of tonal color gradations is discussed in some depth, not one of the over ten images of his work is actually printed in color. Only in the next chapter do we find a color reproduction of the very same Klee painting (*Suspended Fruit*, 1921), that appeared (in grayscale) during the discussion of tonal color in the chapter before. This appears to be partly an artefact of two previously published articles being inserted as chapters, without alteration. These, and a few other, questionable editorial choices do a disservice to the book’s conceptual and narrative flow, and may position it somewhere between an artist’s monograph, an academic compilation, and a how-to book, without fulfilling any of those ends completely.

Caveats granted, engaging with such a wide spectrum of Anderson's drawings, prints, and her scope of philosophical exploration by way of drawing is enjoyable. On balance, *Drawing as a Way of Knowing in Art and Science* presents and meaning-full foray into a practice of drawing, illustrating how art can function as epistemology and a para-scientific form of inquiry at the same time.

REFERENCES

1 - Brauckmann, Sabine. "On Fate and Specification" in *The Educated Eye: Visual Culture and Pedagogy in the Life Sciences* (N. Anderson & M. Dietrich, eds). University Press of New England, 2013.

2- Hill, Amelia. "Children struggle to hold pencils due to too much tech, doctors say" *The Guardian* (US edition). Feb 28, 2018 by Amelia Hill). Accessed March 5, 2018:

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