

## Chapter 15

# Digitally Mediated Art Inspired by Scientific Research: A Personal Journey

**John Antoine Labadie**

*Jumbo Arts International, USA & University of North Carolina – Pembroke, USA*

### ABSTRACT

*Artistic practice is a uniquely personal thing. Artistic activities and the products produced thereby often develop and unfold in highly idiosyncratic ways. In reading a comprehensive artistic biography one often becomes familiar with the who, what, where, when, how, and why of an individual's formative influences, education, and the development of their art. In this chapter, the author shows the progression of his artistic practice from pre- to post-digital activities. Perhaps through showing this range of influences, activities, and experiences, it will be possible to clearly illustrate how scientific illustration and computer science have inspired the author to move along a path from pencils to pixels and archeological sites to digital displays in museums internationally. It is the author's hope that this "personal history" can inspire others to see less obvious possibilities and move ahead into realms that might be difficult to predict at any point along the arc of one's artistic career.*

### BACKGROUND

My artistic practice is driven by current published research in the sciences and my research into the history of science. Numerous collaborations on scientific illustration and visualization projects over the years has become the engine for my more personal aesthetic works. My artistic output has, over a period of many years, shifted from art in the service of science to very personal, expressive

"fine art" provoked and underpinned by science. Displaying my art in public venues always provokes questions. Some examples: How has science driven my work in the fine arts. How does one explain the connection between the visual arts and science (an all its aspects)? How has the evolution of digital media changed the possibilities of scientific visualization?

For me this connectivity between seemingly disparate disciplines has occurred incrementally,

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sometimes in flashes, more often quite slowly, in starts and lurches and certainly it has happened across my entire lifetime. After being asked to propose a chapter for this book I have spent more many hours reflecting on how my expressive artwork became so influenced by science practice. I have been a professional artist for more than 35 years. As a practicing digital media “fine” artist, graphic designer, scientific illustrator, photographer and new media project collaborator my sense of what can be done to develop visualizations spans a wide range of possibilities. From the cover of publications for IEEE (Institute of Electrical and Electronics Engineers), to NSF (National Science Foundation) supported archeology projects, to illustrations for United States National Park Service, to eBooks for universities in India, to new media theatre productions for commercial clients in the USA, to art exhibitions in museums in China and Taiwan my understanding of tools and media is always changing and forever mutating and expanding. Those who are involved in similar projects will understand exactly what I mean.

I was once purely a “traditional” artist, one who was (in part) trained by artists who used the media of their mentors: paint, ink, clay, plaster, paper, etc. Computing emerged slowly in the last quarter of the twentieth century to change all that for many, if not most, persons in art schools today. Now, in 2014, I am often called a “digital” artist by those who grope for terms to deal with creative works derived through primarily digital means. The move from graphite pencils and charcoal to graphics tablets did not happen overnight. My professional education and work experience literally parallels the rise and revolution of digital technologies. Even so, my first professional forays into putting work (of any kind) out in public involved traditional (aka: physical) media. Many of those who trained my generation in art school were artistic practitioners who themselves were trained by artists trained in the late 19th or early

20th centuries. My generation may be the only group who has intellectual and experiential “feet” in both pre digital and digital worlds.

As with many “creatives” born in the mid 20th century (1950 in my case) my artistic practice has moved along a path that has change radically concerning how work is accomplished and in the means used to share work with the interested publics. A trip along such a path is always an interesting experience. Let’s take “pen & ink” drawings as an example. In the late 1970s a typical publication path for my “black & white” drawings led from pencil sketches, to putting ink on paper, then through PMTs (photo-mechanical transfers), to printing plates and then into the pages of the books or journals I was paid to illustrate. In less than 20 years graphics tablets and scanners defined new paths and works were required to be developed in presented to publishers in “vectors” or “pixels” and problems with file types and data storage became topics most often discussed. In the mid-1990s I was a part of several groups and committees tasked by a consortium of professional associations to ascertain and assist in planning how “data” files” could smoothly be moved to the Internet and displayed in WYSIWYG (what you see is what you get) displays on monitors (and consequent printing) around the planet. In those transitions there is a story worth telling and, just perhaps, some useful lessons to be learned along the way. Much of that story will have to wait for another publication as that is not my main purpose in this article.

The larger question here is how science and art have combined as influences in my artwork. At age 64 is not difficult to fill many pages with project-drive, work-based observations about the fundamental similarities, as well as the elemental differences, between art and science. The push and pull between the demands of science and the skills and perceptions of artists is legendary in the world of scientific visualization. In the best of

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