# **The Glass Path and the Visual Culture of Glass: What Does All This Glass “Do” in the World, Anyway?**

GAS 2018 Education Panel, Friday 18 May, Abate Zanetti, Murano

Dr Jane Cook, Chief Scientist, Corning Museum of Glass, USA

Dr Vanessa Cutler, Senior Lecturer in Product Design, University of Chichester, UK

Inge Panneels, Senior Lecturer, University of Sunderland at National Glass Centre, UK

Moderated by Dr Jeffrey Sarmiento, Reader in Glass, University of Sunderland at National Glass Centre, UK

*Glass has fundamentally changed our cultural landscape over the last one hundred years. Yet, the aesthetic qualities of glass have predominantly been the preserve of designers, makers and artists and its discourse mostly limited to the field of art history. Collaborative creative thinking in the fields of art, technology and science has yielded a synergy that transcends the fields. We are led down the “glass path” by the questions of how glass science and technology have contributed to the visual culture of society, and how glass has influenced how we perceive culture. We hope that this will be the opening of sustained dialogue around the idea of genuine collaborations as a means of being better equipped for future challenges.* *This discussion is rooted in an exchange of ideas among the three panelists at* Glass Reflections, *the 2015 Society of Glass Technology conference, in Cambridge, UK.*

A brief history of glass as a material which has profoundly shaped Western science, will not only glass put glass in a historical context but also explain how it has fundamentally shaped how we “see”. Glass technology played a critical role in the development of western civilization, and the development of western science in particular. Alan Macfarlane & Gerry Martin (2002)[[1]](#endnote-1) argue that the use and knowledge of glass through experienced glassmakers led to the hegemony of western science over China, whose scientific knowledge at one time far exceeded the West. Glass is inert. Its resistance to temperature and corrosion led to its use in alchemy and then chemistry as the choice material for laboratory equipment. Most importantly, its transparency made it the prime material for observation; as used in the barometer, thermometer, and vacuum jar. Observation is a key tenet of modern science. Inge Panneels choose the word “modern” carefully. The modern period started in the early 16th century, and there is still critical debate on whether we are currently in the postmodern era or not. The optical quality of glass to refract and magnify drove the invention of lenses, microscope, telescope, and the photographic camera. Photography itself became a key part of a new type of telescopes, recording images from space onto light-sensitive plates. This negated the need for human eyes scanning the sky, which are prone to being tired or simply missing things in a blink. Glass thus played a critical role in allowing us to *see* beyond our human limitations. Learning to see is both a neurologically learned cognitive process and also a socially and culturally defined ability. *How* we see and *what* we see, is thus worthy of further critical examination.

The advent of the Anthropocene—the era of man-made impact made visible and evident in climate change—has engendered huge debate about our material culture. Critical thinking around climate change is asking, “What does all this stuff do anyway?” Panneels posed the question: if the way in which we “see” the world was significantly altered by glass, then can we alter our perception in the Anthropocene by shifting the way we “see” once more? Aesthetics is a powerful tool. Going further, Panneels asked: What are the images that we collectively create in glass? What do they say about us as a society? How do these images reflect us? What do they make us “see”?

Observation in science by the trained eye, or the sublimely conceived and made scientific instrument, provides a record of causality seen or refuted. Something is predicted, an action is taken, a result is recorded, and with analysis new structures of reality are revealed and communicated. Glass in an artist’s hands is glass in action, seen through an artist’s eyes. Jane Cook argued, “Where there is action, there is change, and the opportunity for observation”. Though not conceived as a scientific experiment, glassmaking, when observed with science’s eye, is always teaching science. She argued that the so-called “science-art divide” separates only the gross motivations of the professions, not the actual mental processes that are responsible for creativity. While principal motivations in the scientific/technical realm are the quest for precision, the balance of risk and cost for mass manufacture, and the fine-tuning of utility, the artistic pursuit of aesthetic goals is no less demanding. The oft-venerated scientific method, taught with a first step to “generate a hypothesis”, is a pithy testable pronouncement of a possible bit of truth. This too often leaves out the essential “zero-eth” step: play. The element of “serious play” is what Jane Cook argues is the key role of creativity and contribution artists make in art-science collaborations.

It is perhaps no coincidence that all the panelists hold a PhD, a period of training in research that provides access to thinking time, workshop and laboratory facilities unobtainable within the normal confines of a studio practice. Research, and the ubiquity of maker spaces, has promoted digital technology and science as a tool for the glass artist. Universities help fund its development, much like the Medici’s patronage in the Renaissance. This results in both individual creative outcomes and scientific impact. Jane Cook discussed her role as scientific advisor to the Specialty Glass Artist-in-Residence program. Corning Museum of Glass and Corning Research and Development Corporation annually select an artist with a track record of innovation with the goal of profound engagements with scientific methods and content. There is no commission attached to the residency, and no requirement for a body of work. What is expected is a deep, fruitful sharing of ideas, philosophies, and minds between the artist and the technical community, and that those experiences be put forth to the broader glass community. In Cutler’s experience of engagement with industry, outcomes are not exclusively mechanical. She argues that artistic, or perhaps more human, approaches can be useful to manufacturers: “The molecular structure of what we use is already established, so are we modifying an established norm making something individual that draws on material capabilities.” In parallel to Cook’s “zeroeth step”, Cutler’s research expands the possibilities of material knowledge through a methodology of “informed play.” Waterjet technology brought a new language that cross-referenced from engineering and sciences into a creative enquiry into glass. Lacking research models in creative practice, glass art research degrees are often evaluated against well-established science practices. Yet, artistic approaches in practice-based study are bringing new perspectives and methodologies to research in which play is vital. However, Cutler warned that current UK government policy (under the guise of austerity and focus on increasing productivity) is separating STEM (Science, Technology, Engineering and Math) from STEAM where the A stands for Arts. What is crucially important is the development of new hybrid models in the glass classroom, which stimulates artistic curiosity underpinned by scientific understanding of the material. This is an emerging tendency generates both the possibility for innovation as well as encouraging awareness and engagement with the broader, global context.

So what does all this glass do in the world? Glass has fundamentally changed science over the last five hundred years, of how we *observe and see* our environment, but has also significantly changed our physical urban landscape. From glass-clad skyscrapers to the agricultural and communication revolution and space exploration, glass has been a cornerstone material of the 20th century. Going forward, the role of glass within medical science and climate change discourse and the growing need and availability of solar power generation will see its role undiminished. Artist and critic Beth Carruthers made this plea: “Even in this day some eyebrows still rise, or concerns appear at the idea of art being pragmatic, functional and useful. I counter by saying that art is always active in the world. Art does something, it is not passive. Were that the case, it would not have been burned, banned and forbidden by dictators throughout history. While we always need the voice of art and artists, we need it now more than ever. This is critical, engaged and passionate praxis at a time of global ecocrisis[[2]](#endnote-2).” The panelists argue that is genuine collaboration, where scientific method and technology are coupled with creative play, will equip us better to tackle the challenges of the future.

1. Alan Macfarlane and Gerry Martin, *Glass: A World History* (Chicago: University of Chicago Press, 2002) [↑](#endnote-ref-1)
2. Beth Carruthers, “Why Art?: A Statement from Beth Carruthers Our Newest Environmental Arts Advisory Committee Member”, *Community Arts Council of Vancouver*. 27 November 2010. [Online] Available at: Source: http://www.cacv.ca/beth-carruthers/ [↑](#endnote-ref-2)