

Experience of the Virtual – Prologue to part II, Image and Virtual Reality

De lo visible a lo virtual. Una metodología del análisis artística,
(From the visible to the virtual. A methodology for artistic analysis)
by Frederic Chorda. Barcelona: Ed. Anthropos, 2004.

Let us first give technology credit for developments that brought virtuality to the forefront of the cultural dialog of our days. Here we are talking about the possibility to display data that reconstructs a three-dimensional (3-D) world, allows for navigation within this world, keeps track of the viewer's movements, supports certain haptic experiences, and allows the individual to partake in living in a synthesized new world. As early as 1956, when computers were not yet accessible beyond the confines of institutionalized science, Morton Heilig tried to simulate the motorcycle experience for the senses. His *Sensorama* contains scenes and sounds of the city, vibrations (if you ride a motorcycle, you know what this means), odors (motorcycles stink even in our day, after so much effort to reduce emission)—all it takes to feel like taking instead of really taking a ride on what used to be the symbol of machismo. Even today, men—and women—who ride Harley-Davidson motorcycles form a kind of elite.

I could stop here and NOT allow computer scientists to take credit for what has become an industry extending from entertainment, the arts, education, and training, to war games, and to whatever else you can name as virtual. Heilig knew what he was after and carried out his task with a minimum of means. But *Sensorama* failed. And so did Heilig's Simulation Mask (1960), with photographic slides, stereo sound, and smell. Yes, odor is important if you want to instill a sense of reality; so are touch and sound. But it takes more than these to obtain a sense of the real. Afterwards, television tried to create new virtual realities (Comeau and Brian in 1961) by using image projections. Soon, viewers focused on head-mounted displays, something like glasses, not the cathode tube. (Incidentally, bad ideas never disappear. A researcher just presented the computer of the year 2011, a head-mounted display, as though we all want to wear glasses in order to believe the new reality of digitally generated images and sounds.) Ivan Sutherland, the visionary digital technologist, invented the computer-based digital display (1965-1968) and made it into a computer graphics display. He also invented tracking systems. The military wanted good images and mobility. It had visions of combining the "real" and the "virtual" by projecting another image (such as an explanation or a command) over what one really sees.

In the same timeframe, at the University of North Carolina, scientists trying to understand how matter works (specifically, how molecules stick together) started looking at models for assembling different substances. It looked like a child's game—the virtual world of children's imagination and interaction. Molecules are like building blocks that either accept or reject a different substance attached to them. Scientists took care of the molecular descriptions, found out that a certain force is needed to push a molecule into the space of a given substance, and simulated the process using machinery driven by the human arm (1967-1980). This was a mechanical arm extension with haptic characteristics. The name GROPE describes the virtual system. In 1975, Ken Knowlton developed virtual pushbuttons, and soon after that (1980-1982), the Data Glove was created. Through the glove, the operator would experience the sensation of

touching something—something that existed only as data, not as physical reality. Interestingly enough, some of the funds supporting this project (carried out at the University of Illinois) came from the National Endowment for the Arts. Some creative minds had suggested that new art forms would spring from this type of virtual reality. Tom Zimmerman, Jaron Lanier, and Scott Fisher brought the Data Glove to the public from the Atari Research Lab.

(Does anyone remember the Atari computer?) Scientific American reported it in 1987 and thus made the public aware of the new developments. One final detail: Videoplace (1983), a project by Myron Krueger, an artist who never gave up the idea of virtual reality as an artistic environment.

I mention him recalling how bitter he became over the fact that the glory of virtual reality was cast more on technologists than on artists. From here on, virtual reality became VR, a NASA-Ames Project, a subject for the Defense Department (U.S. Air Force Super Cockpit, 1985), and a new catch-phrase for an industry with many projects funded in the hope of creating new applications. Some exist, and we benefit from them even when we are unaware of the virtual reality component.

Now let's jump back—really far back. The terms related to virtuality (*in virtu, in actu, in potentia*, etc.) go back to Aristotle, to *energeia* (or to *entelechia*) and to dynamics (*dynamis*). And they go even farther back, to a pre-language realization that in whatever one experiences—from potency, essential to the human species as it emerges, to the ability to be successful in hunting, gathering, agriculture, etc.—there is a possibility that becomes reality at a future time. Later on, this thought crystallizes in views of the world. Let me quote: “Everything that moves is moved by something other” (*Omne atem quod movetur, ab alio movetur*). This makes virtuality the home of everything that is experienced. This line changes the experience of ritual and magic, which focused on a virtual in which those making it up (in the form of ritual movements, objects, acts, etc.) made up the future events that unfolded from it. Language brought its own sequentiality, its own time vector, and correspondingly attached a sense of *Secondness* to the virtual, which is determined by a *Firstness*. (This is supreme in nature; the quote given above comes from a text intended to prove the existence of deity.) Moreover, “*Quod est in potentia est material, quod est in actu est forma.*” That is, the material substratum appears as the possible, and the form emerges from the act (of forming matter).

Do you recall my very short history of virtual reality as technology? Interestingly enough, head-mounted displays and various devices (tracking systems, Data Gloves, etc.) are all the FORM into which DIGITAL MATTER was shaped. And the rest? Here the real subject begins. To simulate worlds into which humans can immerse themselves is a cognitive performance, not one of chips, memory, and sensors, no matter how advanced these are. The primitive human, not unlike children and artists and scientists, are able to construct fabulous worlds and experience them without resorting to any machine. Believe in their reality! They hide in the virtual; they sing there; they identify with the worlds they imagine. One can go to an amusement park to experience the roller coaster or do the same in a flight simulator. The difference is that one is a human experience in which physics and the living complement each other; the second is an informational experience, in which information processes substitute the physical or make up a new physical reality. If you ever have the chance, experience the new simulators that are now

present at fairs and amusement parks. There is something naive about their offer at a time when anyone with enough money (and enough courage) can join astronauts on the next space shuttle.

In all these attempts we deal with a dimension of the living called anticipation. Indeed, as one might fall from a virtual tower (another simulation available to those who do not want to try something like bungee jumping in reality), one would anticipate the acceleration, the sound, the impact of landing. Each virtual experience is anticipatory by its nature. The correlations to the real are made by our minds.

Can one become addicted to VR? If one can become addicted to art, or to mystery (in books, theater, and films), or the mystical (no need to elaborate on this), or to drugs, one can get addicted to VR. This cannot be ignored by those who develop new applications or by writers on the subject. Other aspects also have to be acknowledged.

Frederic Chordà (see Digital Design 2000+) explained his intention to elaborate a virtual course in art media and created simulations (*Las Meninas*, a subject dear to him). He looks at art from the perspective that allows us all to understand that the virtual is not in a painter's brush, nor in the colors and canvas, but in a projection that addresses our own coordinates in this world. We frequently reconstruct lost art. My colleagues in Bremen reconstructed a castle in Project *Vi DeMus* (Burg Delmenhorst, which was destroyed 250 years ago), and the *Merzbau* by Kurt Schwitters. Another artist, Zvonimir Bakotin, in collaboration with Van Gogh Tele Vision, did the same for the Sprengel Museum in Hannover. Other times, new art is produced. Many have tried hard to create VR-based works (like Myron Krueger). For me, the most important aspect in considering all these attempts is the new understanding of the virtual in a context in which it replaces the *facto* and, in very subtle ways, reality itself. Frederic Chordà makes us aware of the process.