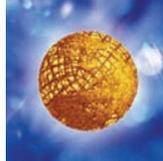




*Virtual animation artist J. Walt Adamczyk*

# **Visions from the Techno-Mystic Edge**



*How can mystics and technocrats,  
so long at odds in their vision of the universe,  
find a common path to the future?...  
Mystics must give up their insistence  
on the empirical truth of their metaphysics,  
and technocrats must stop denying the truth  
of anything that cannot be proven empirically,  
for both the mystical experience and technology  
transcend religious and cultural differences.  
And it is the transcendent quality of each  
that will allow them to merge in the  
'conscious technology' of the future.*

—Jerome Glenn, futurist and author of *Future Mind*

## KATE McCALLUM

**A**S THE TWENTY-FIRST CENTURY UNFOLDS, our global culture rides precariously atop an unprecedented surge of scientific and technological innovation. Not much more than a century ago, humankind harnessed the power of electricity; now we have nanorobots poised to explore the quantum realm. This intense velocity of technological change and intellectual creativity demands that we also provide enough space for the making of art and beauty, for in order to bring balance to the evolutionary forces that are shaping our experience of reality, we need to be reminded of life's more ineffable qualities.

Throughout history, art has played an organizing and integrating role both between our emotional and intellectual lives, and between human experience and the

sometimes abstract and subtle ideals we strive to achieve. It often reveals the unseen and ignored, and it has the capacity to create order out of chaos and change. Art also has the power to unify cultures and philosophies. From the early Greek stories and Pythagoras's theories on music to Goethe's early studies in color theory and the latest in neuroesthetics—art continues to transform us, however unaware we are of its influence.

The Florentine Camerata, a group of creative individuals that came together in the late 1500s, exemplifies this influence. Based in Florence at the height of the Italian Renaissance, the Camerata consisted of great artists, musicians, humanists, philosophers, merchants, and innovative thinkers. Under the patronage of Count Giovanni de' Bardi, they

# Science is supplying concrete data substantiating the impacts that color, light, sound, space, and even narrative can have on the physical body and brain.

gathered and discussed and ultimately guided trends in the arts, especially music. Their common belief was that music had become corrupt and that only by returning to the forms and style of the ancient Greeks could the art of music, and by extension society itself, be improved.

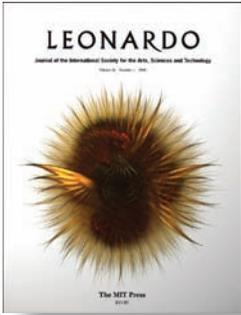
They were influenced by Vincenzo Galilei (the father of the astronomer Galileo), a leading musical theoretician, and Girolamo Mei, a Roman scholar, who together created the *Dialogue about Ancient and Modern Music*, a utopian vision of a new music. Since no Greek music was available to the Camerata, they had to imagine what it was like as they attempted to create a new style of musical expression and sound played on newly created instruments. The Camerata stressed that the music should not simply underscore the lyrics but should also explore the feelings and emotions inherent in them. The result was a synergistic explosion of musical and dramatic activity unlike anything else at the time, and we now credit the group with creating opera.

In the spirit of the great artists and thinkers of the Camerata as well as the nineteenth-century American transcendentalist movement (Emerson, Thoreau, Fuller, et al.), many media makers today are crossing another threshold of creative expression as they explore new ways to engage human beings at deeper levels. Using an astonishing variety of emerging technological tools, they are creating and disseminating information, stories, and immersive experiences that have the potential to radically alter our perceptions of both inner and outer worlds. At the same time, science is supplying concrete data substantiating the impacts that color, light, sound, space, and even narrative can have on the physical body and brain. When art, technology, and science come together in this way, elevated by a heightened level of imagination, innovation, and intention, boundaries dissolve and our evolutionary potential is aroused.

## SCIENCE DISCOVERS ART

As science has begun to pay more attention to the influence that sounds and images can have on the brain, new fields of study are emerging. *Neuroesthetics*, for example, is a rapidly growing subdiscipline of neuroscience that seeks to explain and understand the impacts of music and art at the neurological level using such tools as neuroimaging and genetic analysis. The field was pioneered by neurobiologist Semir Zeki of the University College London, who also founded the Institute of Neuroesthetics in Berkeley. He believes that “the artist is in a sense a neuroscientist, exploring the potentials and capacities of the brain, though with different tools.”

In his book *Neuroarthistory: From Aristotle and Pliny to Baxandall and Zeki* (Yale University Press, 2008), John Onians, a professor of art history at the University of East Anglia, in Norwich, England, teamed up with Zeki to investigate what happens inside artists’ brains. In so doing, Onians is founding yet another new discipline—*neuroarthistory*. Onians, whose research interests include perception, cognition, and the biological basis of art, is using neuroimaging to try to understand what happened in the brains of great artists such as Leonardo da Vinci. He and Zeki also hope to gain insights into the neurobiological processes underlying the first works of art, such as those adorning the walls of the cave of Chauvet-Pont-d’Arc in southern France. These wall paintings are believed to have appeared around 32,000 years ago and depict at least 13 animal species, most of them predatory. Some scholars believe that the paintings were part of hunting and fertility rites, while others argue that they are representations of spirits seen during hallucinatory shamanic trances. In exploring the ancient roots of imagination and expression, the neuroarthistory project is also investigating the evolution of human cognition and consciousness.



The journal *Leonardo* focuses on the application of contemporary science and technology to the arts and music ([www.leonardo.info](http://www.leonardo.info)).

Also, researchers are undertaking more studies to learn the impacts of music and sound on human physiology, development, and performance. Norman Weinberger, professor of neurobiology and behavior at the University of California at Irvine, compiled a substantial record of research and commentary on the scientific study of music called “The Music and Science Information Computer Archive” (visit MuSICA at [www.music.uci.edu](http://www.music.uci.edu)). In 2004 he wrote an article for *Scientific American* called “Music and the Brain,” in which he explores from a neurological perspective the mystery of why music is so powerful in its ability to affect our emotions. Based on his research, Weinberger was able to see how various aspects of music (tone, pitch, harmony, and rhythm) affect different areas of the brain. He has also found areas of hyperdevelopment in the brains of musicians that were not found in the brains of nonmusicians. (See our review of Daniel Levitin’s new book, *The World in Six Songs: How the Musical Brain Created Human Nature*, on p. 39.)

## TRANSFORMATIVE MEDIA

Art and media can affect us on many levels—the emotional, the mental, and the transcendent—each of which has the ability to transform us. Media that has primarily served to entertain affects us at an emotional level. Movies, television, theater, games, and visual art that move us to laugh, groan, cry, tremble, or rage proliferate in our current cultural environment. They have been the staple of much of this past century’s creative efforts, driving the success of the multibillion-dollar entertainment industry. And yet a well-told tale in itself can also touch us deeply, helping us to more fully understand the human experience, and perhaps inspiring permanent changes.

Media that informs is generally delivered via print publications, television news and “journals,” documentaries, and the Internet. It’s what might be called cognitive content, created to provide facts, figures, and

opinions about specific situations that serve to activate, stimulate, teach, and expand the mental body. Such media can also move us emotionally and trigger inner shifts in perspective when they bring about new understanding and awareness.

Art and media that *transform* operate on multiple levels, affecting one’s whole self—physical, emotional, mental, and spiritual. This often subjective and unexpected experience can be elicited in myriad ways: listening to powerful storytelling, viewing a painting, listening to music, watching a dance, feeling the sacredness of a physical space (as in a church). A film about animal cruelty can have the effect of changing consciousness; so can the visual impact of a movie such as *Baraka*. And now comes a new generation of transformative media. Some impressive breakthroughs in art and media that transform are emerging in the realm of technology, where new tools and products are taking as many shapes as creativity and intention can allow. The following are just a few examples:

**Behavioral researcher Bill Scott has invented an innovative software program called *Brainpaint***, which incorporates audio and fractal art into biofeedback technology. Scott’s original intention was “to determine the extent to which a computer-guided, automated biofeedback system could improve variables of attention as well as or better than an experienced biofeedback practitioner.” A study carried out at the UCLA Neuropsychiatric Institute concluded that Scott’s EEG biofeedback protocol did improve the efficacy of addiction treatment (*American Journal of Drug and Alcohol Abuse* 31, May 2005), while ongoing research is finding that it also helps children with ADD. The question remains of how it works, which likely has something to do with the extraordinary images that the program transmits, speculated by some to be a “resonance capture” of real-time brain activity ([www.brainpaint.com](http://www.brainpaint.com)).

**LightDancer is another innovative development in the realm of biofeedback.** Inventor-artist David Clark has a U.S. patent pending on an interactive-biofeedback-system “art form” that spontaneously and progressively entrains a player into a desired perceptual-kinesthetic-cognitive state. Working with Ivan Dryer—the founder of Laser Images, Inc., and generally considered to be the father of the commercial laser-light-show industry—Clark believes that full-body “freospace-interactive”

# Advanced Immersive Media Technologies

The word *immersive* is used to describe anything from a video game, in which immersion arises from a mental projection into a virtual world displayed on a TV or computer screen, to surround-video and surround-audio environments. Unlike traditional film technology, digital technologies allow a high degree of interactivity. In a storytelling medium, interactivity creates an expanded possibility space, allowing users to explore what-if scenarios, take on alternate personas, and engage in behavior that would otherwise be too risky or even impossible to act out in real life.

The overall measure of immersion is “sense of presence”—the degree to which a user actually feels present in an alternate reality. Today’s immersive-media delivery systems can hijack users’ nervous systems, providing them with a facsimile of reality that can be as emotionally engaging, satisfying, and even addictive as real-world interactions. Transhumanists believe that this is just the tip of the technological iceberg—that humans will soon be faced with a choice of living their lives in virtual worlds or the real world. Some parents feel that their children have already made such a choice.

Many of us who have a foot both in the world of media art and technology and in the world of inner contemplation are awed by the potential of advanced immersive technologies to facilitate deeply transformative experiences. And because these experiences can be rapidly delivered on a mass scale, transformed individuals would accelerate the shift toward a transformed world. Just as television pioneers in the 1950s warned that without meaningful value the medium could easily cater to our base instincts or even cause harm to our psyche, such caution is relevant today as these advanced systems become more powerful and their programming becomes more addictive. Indeed, the intent and manner with which these delivery systems are used—the experiences, dramas, and creative programming—will determine what effect they will have on the masses.

What follows is an overview of advanced immersive technologies with great potential for inducing powerful transformative experiences.



## Virtual-Reality Healing

Remember virtual reality? It’s back, and it’s turning out to be a powerful healing modality for the treatment of a wide range of disorders—including anxiety, addictions, eating disorders, phobias, PTSD, and ADHD—as well as an effective tool for pain management and

conflict negotiation. The Interactive Media Institute recently hosted its annual “cybertherapy” conference, “CyberTherapy 13: Changing the Face of Healthcare.” It also publishes the *Annual Review of CyberTherapy and Telemedicine*, an indexed journal available at its website ([www.interactivemediainstitute.com](http://www.interactivemediainstitute.com)). Other virtual-reality resources include the Virtual Reality Medical Center ([www.vrphobia.com](http://www.vrphobia.com)) and the virtual community of Second Life (described below), which has a variety of support-group options.



## Multiplayer Online Role-Playing Games and Virtual Worlds

Dress up your “avatar,” a digital representation of yourself or alternate

persona (in Sanskrit, “the descent of the soul into human form”) and head out for a party! These online video games are built by users who can buy, sell, or lease property and engage in activities ranging from business meetings to sex to spiritual rituals. The most popular virtual world, Second Life, was founded in 2003 and now has 14 million members engaging in more than \$25 million of transactions per month. Google recently launched its own virtual community (“3-D social arena”) called Lively. UK-based Gartner Research predicts that as many as 80 percent of all Internet users will work or play in virtual spaces within the next three years.



### Digital Full-dome Theaters

These surround-video dome theaters are the most powerful group immersive portals on the planet. With more than 400 theaters worldwide (more than IMAX), ranging from small

inflatable domes to large digital planetariums, they are also becoming the most popular immersive venues. Because digital domes are fully interactive (unlike conventional theaters), they allow real-time journeys through scientifically accurate models of the known universe, virtual teleportation to other times and places, and artistic journeys into realms of consciousness. With a high degree of visual immersion, full-dome theaters can invoke what astronauts call the Overview Effect, a numinous experience induced by seeing Earth from space.

Such an experience is the basis for my latest full-dome production, *Bella Gaia*, created by artist-producer Kenji Williams. A trial run, which featured four live violin performances with Kenji, sold out at the Denver Museum of Nature and Science. Instead of talking about mystical experiences, we can now deliver them on a mass scale.



### Spatial Augmented Reality

Using a combination of cameras, video projection, and tracking devices, entire architectural spaces can become sentient, responding to gestures and providing unique interactive experiences for users—

without cumbersome goggles or gloves. Spatial augmentation essentially takes the virtual world of the computer “out of the box” and projects it onto a group environment. It’s the closest thing yet to *Star Trek*’s holodeck.

—Ed Lantz is an interfaith minister, a photonics engineer, and an immersive-cinema pioneer specializing in transformative media (see [www.vorteximmersion.com](http://www.vorteximmersion.com), [www.spherical-media.com](http://www.spherical-media.com), and [www.harmonychannel.com](http://www.harmonychannel.com)).

media—what Clark and Dryer call “cybernetic media”—can elicit multiple sensory experiences. According to Clark, LightDancer can have “an enlivening effect on the brain and expand a more multidimensional scope of perception into a unified wholeness, where unity both transcends and embraces sensory diversity.” In short, this art form provides a catalyst for potentially transformative states of awareness, which can also be applied to group experiences. Based on numerous first-person test-market accounts, Clark and Dryer claim a range of wellness-inducing properties for the LightDancer experience, and they plan extensive neurological, physiological, and biochemical studies to objectively test their technology.

**As producer of an “animeditation” DVD called *Metasphere: The Altered State of Heart***, I worked with musician Brian Thomas Lambert and visual artist James Guy to design and create an open-eyed visual meditation piece. It helps viewers get in touch with the idea of the subtle energy body and the chakras through experiencing an artistic interpretation of a kundalini experience rendered in Flash animation ([www.metasphere.org](http://www.metasphere.org)). Visionary engineer and inventor Ed Lantz broke new ground in this field when he founded and launched the Harmony Channel in 2004 on Comcast to showcase videos designed to evoke specific harmonizing moods ([www.harmonychannel.com](http://www.harmonychannel.com)). Lantz is also the progenitor of “immersive dome theater space,” a next-generation cinematic experience and emerging technology with multidimensional features that is now in more than 400 theaters worldwide (see sidebar).

**Renowned virtual animation artist J. Walt Adamczyk** is also experimenting with new media forms in both theatrical spaces and domes. As he explained, “I’m re-inventing animation as a solo performance art, using techniques from virtual reality, video games, illustration, CGI, puppeteering, and electronic music. I aim to share with an audience the joy of the act of creation and to demonstrate that *everything is possible*. As demonstration of that bold claim, I present entire programs of real-time creation in which I create improvised sculptures, dancing figures, and entire virtual worlds in an integrated musical theatrical experience. Certainly, new technologies allow me to do this,

*continued on page 37*

# When you invest as an IONS Circle member, you help support a powerful shift in consciousness.

*Circle members enjoy many special benefits, such as these adventures:*



## **Launch of Shuttle *Discovery***

**Kennedy Space Center  
Cape Canaveral, Florida  
Hosted by Edgar Mitchell**

**February 11–14, 2009**

Enjoy backstage tours, VIP launch viewing, and inspired dialogues.

The invitation to join this trip is a benefit for Founder's Circle members (\$10,000 and above annual membership level).



## **Journey to South India**

**Travel with Shantum Seth**

**January 28–February 15, 2009**

Savor new cultures, explore sacred historical sites, and visit hands-on service initiatives with other Circle members.

The invitation to join this trip is a benefit for Circle members (\$1,000 and above annual membership level). Enrollment limited to 15.

For more information on the IONS Circle program, excursion details, and registration, contact Deborah Breitbach at 707-779-8216 or [dbreitbach@noetic.org](mailto:dbreitbach@noetic.org).



*continued from page 31*

but only because I choose to use technologies in this way. After all, tools and technology without intention are merely toys. We each can decide what we want to do with technology, and we can make the worlds we want. *We* make technology, and *we* decide the goals of technology. What do we want technology to bring us? How do we want the world to be?"

## **OPENING THE GATEWAYS**

In their earliest expression, the arts were closely aligned with spiritual truths—for example, when used in ritual or in dedication to gods and goddesses. Now more than ever, we have the opportunity to reclaim the sacred power of the arts and to bring more awareness to creative expression that could yield tremendous benefits for humanity. Today's artists and content creators can now produce media that reflect the totality of the human experience. Ancient perennial wisdom, which for so long had been available only in books or in verbal transmission by way of spiritual teachers, mystery

schools, and secret societies, can now be beautifully disseminated to a broader audience through digital storytelling, filmmaking, music, and other arts; recorded on CDs, iPods, and DVDs; woven into our electronic games; and sent across the world via the Web. The gateways have opened wide.

Although the role of technology is vital in bringing us newly emergent art forms and innovative opportunities to expand our consciousness, it is still the visionary expression and intentional use of these tools by creative individuals that will help to evolve humanity toward a more peaceful and compassionate future. And lest we forget: The organic power and simplicity of the human voice in song, an instrument played, a dance expressed, a tale well spun, a poem recited, or an image or object appreciated will continue to hold the potential of turning our lead into gold. 🌐

**KATE McCALLUM** is an artist, writer, musician, producer, consultant, teacher, and founder both of *c3: Center for Conscious Creativity* and of *Bridge Arts Media*, a transmedia production and consulting company based in Los Angeles. For more information, go to [www.consciouscreativity.org](http://www.consciouscreativity.org) and [www.bridgeartsmedia.com](http://www.bridgeartsmedia.com).

