Art of the Future/
The Future of Art

by George Fifield

THE PERCUSSED VICTIMS OF THE NEW TECHNOLOGY HAVE INVARIABLY MUTTERED CLICHÉS ABOUT the impracticality of artists and their fanciful preferences. But in the past century it has become to be generally acknowledged that, in the words of Wyndham Lewis, 'The artist is always engaged in writing a detailed history of the future because he is the only person aware of the nature of the present.' Knowledge of this simple fact is now needed for human survival. The ability of the artist to sidestep the bully blow of new technology of any age, and to parry such violence with full awareness, is age-old. Equally age-old is the inability of the percussed victim, who cannot sidestep the new violence, to recognize their need of the artist. To reward and to make celebrities of artists can, also, be a way of ignoring their prophetic work, and preventing its timely use for survival." —Marshall McLuhan, *Understanding Media*

Anticipating the future of art may well be an impossible task. Could anyone have predicted Action Painting or Pop art before the fact? Though discussions on the role of irony or representational art in the twenty-first century are fun, they are ultimately fruitless.

But art is, by its very nature, a prediction. According to Marshall McLuhan, "the artist picks up the message of cultural and technological challenge decades before its transforming impact occurs. He, then, builds models or Noah's ark for facing the challenge that is at hand." Ezra Pound simply said that artists were the antennas of the race.

This is not to say that artists can see the future better than others or are even looking for it, at least not in the sense that science fiction writers try to peer over the horizon of the now. Good art isn't prophesy. But the effects of new technology can be invisible and artists, at their best, are so acutely attuned to the present that through their art we can come to understand technological and cultural challenges before they occur. It is in this sense that James Joyce's stream-of-consciousness prose and Cubist painting clarified the explosion of information technologies like radio

and newsprint and their effect on perceptions of reality.

This idea of cultural awareness was one of the essential qualities of the avant-garde. The phrase avant-garde first came to describe "advanced" culture in the nineteenth century: the avant-garde leads and the rest of us follow. But today the word has degenerated until it has become synonymous with anything that is merely shocking. The controversy surrounding the recent exhibition of new British art, titled *Sensation*, which caused such a fuss when it was shown at both the Royal Academy and at the Brooklyn Museum, demonstrates how the two notions have become confused. At the cusp of the millennium, let us remove the phrase avant-garde from those who merely seek to disturb Rudolph Giuliani and his ilk—too easy to do—and use it instead to define those artists who act as an early warning system of the effects of new cultural and technological changes. This is the quality that marks the artists featured in this piece.

Predictions about technology are easier than predictions about art. One simple rule is never to say that anything is impossible. Arthur C. Clarke once said: "When [anyone] states that something is possible he is almost certainly right. When he states that something is impossible, he is very probably wrong." Another rule is that things change; the pendulum swings both ways. At the moment, we live in a technophilic society where science and technology are in the ascendant, but technophobia will just as surely return, as it did in the fifties. The Arts and Crafts Movement at the end of the last century constituted a reaction against the worship of the machine. Though rejecting the shoddiness of machine-made products, the movement in fact represented a synthesis of mass production and handcrafting that resulted in a new naturalistic style incorporating organic materials.

Perhaps the wheel is already turning. Etienne Delacroix teaches computers and art at both the Center for Advanced Visual Studies at MIT and at the Studio for Interrelated Media at the Massachusetts College of Art. But Delacroix's courses radically subvert the typical approach to teaching technology. Instead of using off-the-shelf equipment, he asks his students to build their own computers, often in an old suitcase or wooden box. Then he and his students draw (with pencil on paper!) and feed the resulting images into their computer in the form of data, making them as intimately aware of the structure and dynamic of a computer system as a traditional art teacher of paint and clay.

"The young students in the artistic community benefit from an active space where sophisticated awareness of computers as a 'raw expressive media' [can] be explored," he explains. Thinking of computers as "raw expressive media" is a radical approach for most artists.

Artists approach digital technology in three basic ways: as a tool; as a communication device; and to make interactive systems. Software like Adobe's Photoshop or Fractal Design's Painter represent the computer-as-tool, mimicking the processes we were already familiar with in analog technology.

Most of the art made with these tools is output via printer or VCR and is meant to exist outside the computer. Still, however many metaphors we use to make these products seem familiar, the act of creation that takes place within the computer represents a profound change from creation in the real world.

Three-dimensional art is just entering this digital-tool environment and offers a fresh look at the transition from analog to digital that music, graphics, photography, and video have already undergone. Only recently have 3D scanning (input) and 3D printers (output) become accessible to artists. Accessibility is always a primary issue for artists interested in new technologies. With these new devices, artists can bring objects into the computer, work on them within special 3D CAD/CAM software and output them as sculpture. To the artist, the important part of all this is the digital working environment—the software. Here, sculptors find themselves in a virtual space without the limitations of gravity and friction, or even of the distinction between inside and outside. Changes may be applied to multiple objects with a single keystroke. And most miraculous of all are the simple "undo" and "save as" commands. Before computers, creation was a linear process. Now it is a great branching evolution where old paths can be revisited in an instant, and multiple procedures can be compared side by side.

Sculptor Michael Rees works solely in CAD software, sending out the data files to be printed elsewhere. And though he has no physical interaction with the final object, he explains the appeal: "Working in CAD is closer to the thought of sculpture than any process imaginable. It is a language within which whatever one can describe, one can build. The ability to visualize complex structures within structures without the constraints of the properties of those objects is extraordinary. For example I can't put a tomato inside of a rock and see them both, I can only imagine it. In CAD, the tomato is in the rock."

The Internet, the most far-reaching communication tool since Gutenberg's movable type, is only thirty years old. The invention of a graphic browser (MOSAIC) to explore the World Wide Web happened merely five years ago. Yet in this short time we can already see the cellular growth of the great electronic skin that will cover the globe. Along with the rest of the world, artists are flocking to this great digital communication system. In fact, artists were there from the beginning, even before e-commerce or pornography. Some of the first Websites were set up by artists at computing centers like the University of Illinois at Urbana-Champaign when the first Web browser was invented. Before that, artists explored FTP and Usenet groups to create art and initiate conversations. Now artists are providing experimental content for the next generations of the Internet.

The Internet is many network systems: e-mail, Usenet, the World Wide Web. For the most part, it has been built from the bottom up by its users, not from the top down. Mass media, television, and radio, by contrast, are controlled by a few and access by artists is restricted. The Internet enables conversations among people that were simply not possible in the era of mass media. Hyperlinks subvert hierarchy. The big success stories of the Internet involve person-to-person communication, like e-mail, or person-to-person sales, like Ebay, or sites like MP3, which allows musicians and customers to link up without any intervening corporate structure.

Back in the '70s, Nam June Paik said that in the future all artists would have their own television stations. This is coming to pass in the form of personal art sites on the Web. There they can seek and identify specific audiences from a worldwide pool and use the interactive fabric of the Web as substance for their art. Original interactive Website art, while slower and still less detailed on the Net than CD-ROM art projects, is the popular choice because of the almost infinite

potential audience.

As a result, the role of the art institution is changing dramatically on the Internet. Museums and galleries have gone from presenters of art to archivers of past Web events. Museums like the Walker Art Center are finding that they are asked to host obsolete Websites, which can mean an expensive commitment to maintaining obsolete operating systems and software. The Walker Art Center now hosts ADAWEB, one of the first online art sites, in the form in which it existed two years ago. The next step in the development of the Web is greater bandwidth. Already a consortium of leading research institutions is working on Internet2, a high-bandwidth network. On September 9, a video stream of High Definition Television (HDTV) was sent from the Stanford University to the University of Washington over the new high-bandwidth Internet2 backbone. Artists at universities like Rensselaer Polytechnic are already preparing projects that will include HDTV and virtual reality interactive environments.

A recent high-bandwidth, virtual reality art project at Boston University's Office of Information Technology is called

Spirited Ruins. This is a collaboration between engineers and numerous artists from many institutions. *Spirited Ruins* is a virtual environment built by artists and presented on an Immersadesk system. This is large wall-sized screen that, when viewed through special glasses, appears as a full-color, three-dimensional environment. It is linked to the Alliance network of the National Center for Supercomputing Applications (NCSA). This network connects numerous computing centers at participating institutions over high-bandwidth connections. When you explore the interactive world of *Spirited Ruins*, you can encounter other explorers (in their VR guise as little aliens creatures).

The various environments in *Spirited Ruins* have all been designed by artists. One of my favorites is a beautiful space designed by printmaker Deborah Cornell and her husband, musician Richard Cornell. In a huge glowing universe, floating shapes similar to Australian petroglyphs can be explored by maneuvering (flying) toward and through them. As you approach a shape, ethereal sounds well up. The music is the product of proximity, not time. You create your own musical score by traveling through virtual space from one beautiful shape to another.

Throughout history, artists' imaginations have been limited by having to build their worlds in static paint or words or by notes on pieces of sheet music. These new environments are complex, dynamic systems, virtual worlds in which people can interact with their surroundings and with each other. Imagine such a virtual world designed by Brueghel or Hieronymous Bosch.

Artists are populating these worlds using the same mechanism that shapes life in the real world: evolution. Artificial life is a means of creating complex design with little effort. Karl Sims has spent his life as both a scientist and an artist building environments where both random changes in generations of artificial creatures and the selective decision making of the art audience work together to create sophisticated and never-before-seen visual treats. In his more scientific experiments he has used principles of natural selection to generate virtual creatures, each composed of simple boxes, that evolve to accomplish locomotion feats like crawling and swimming. These solutions are devised by the creatures themselves as the more successful pass on adaptive tricks to their progeny.

Exploring nature's own design strategy is a popular theme among artists. Christa Sommerer and Laurent Mignonneau are a husband and wife team who have designed numerous interactive environments where viewers evolve art creatures and then supply (or withhold) vital nutrients. Their most recent project, *Life Spacies*, was produced for the InterCommunication Museum (ICC) in Tokyo. Visitors at the ICC and those on the Internet can interact with each other through artificial creatures created by typing and sending an e-mail message to the Life Spacies Website. As soon as the site receives a creature-creation message, the new organism starts to live in the environment. On-site visitors can interact directly with the creatures by touching and catching them. Viewers must also feed the creatures, using as nutrients the letters that created them in the first place—you are what you eat. Left to their own devices and given enough of the alpha-bits to eat, they will proceed to mate and their offspring will evolve further in random directions.

The similarity between language and genotype was understood very early by artists. In 1973, William Burroughs likened language to viruses. With the explosion of computers and the Internet, computer viruses work in the same self-replicating manner as the common cold in a biological system or the odd turn of phrase in our, you know, like, linguistic culture. An artist who has been working with this concept for many years is Joseph Nechvatal. Throughout the '90s he has been scanning his paintings into a computer and then using a viruslike code to corrupt the data. This corrupt data then becomes the basis of a new painting, involving artist and code in a symbiotic, creative and evolving relationship.

I will make one prediction. There is a technology that is still basically in the science fiction stage, not yet accessible to artists but almost infinitely powerful: nanotechnology. For the moment, nanotechnology remains the material of physicists and engineers, but it is has the potential to transform the world—both for good or ill. Nanotechnology is defined as the construction of machines smaller than a few hundred nanometers, or billionths of a meter. These sophisticated machines will be built of atoms; computers can be constructed that are no larger than a grain of salt. Scientists refer to this as "matter as software" or "smart matter" because it can pass design instructions on to other matter. In the future when we want a new product we will send down the code onto sheets of "smart matter" plastic that will rearrange itself to form the object we seek, be it cell phone or sculpture.

This is such a natural medium for artists that, even though the technology is decades away, I am surprised projects have not already surfaced. Today we can manipulate code in a computer and output the results on paper or videotape—but then the effect of the code is at an end. In the near future our code will transform matter itself. And the code will remain, adapting to changing conditions, reacting to its environment and to the input of those who come in contact with it. ∎