THE LIFE AND DEATH OF MEDIA

By Bruce Sterling

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Hello, my name's Bruce Sterling, I'm a science fiction writer from Austin, Texas. It's very pleasant to be here in Montreal at an event like ISEA. It's professionally pleasant. As a science fiction writer, I have a deep and abiding interest in electronic arts. In multimedia. In computer networks. In CD-ROM. In virtual reality. In the Internet. In the Information Superhighway. In cyberspace. Basically, the less likely it sounds, the better I like it

These are topics that I dare not ignore. It would mean ignoring the nervous system of the information society. The laboratory of information science. The battlefield of information warfare. The marketplace of the information economy. As well as one of the strangest areas of the art world.

When Jules Verne invented science fiction, Jules Verne was a stockbroker. Almost by accident, Jules Verne discovered that nineteenth century France had a large market for techno-thrillers. Jules Verne discovered and fed the tremendous 19th-century cultural appetite for romantic, futuristic technologies like the hot-air-balloon, the electric submarine, the airborne battleship, the moon cannon.

Today, at the close of the twentieth century, I feel a great sense of solidarity with my spiritual ancestor Jules Verne when it comes to topics such as virtual reality, and telepresence, and direct links between brain and computer. Even as I stand here before you, I can scarcely restrain my natural urge to inflate some of these big shiny high-tech balloons with the hot air of the imagination.

But ladies and gentlemen, I have seen this done for so long now, and for *so many times,* and to so many different technologies, that I can no longer do it myself with any sense of existential authenticity. I must confess to you quite openly and frankly that I am having a crisis of conscience.

In the year 1995, do information technologies really *need* any more hot-breathing promotion from science fiction writers? I would suggest otherwise. Take AT&T's famous "You Will" campaign. AT&T's public relations campaign has reached millions of people — even though AT&T have just announced plans to fire ten thousand of their own computer people.

Have you ever wondered if AT&T has any real idea what they're doing? Do you think that AT&T has any real idea what

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they'll do to us, once they arrive in that future that they are selling to us? Did you ever wonder what AT&T really wants? You Will!

But at least AT&T makes nice looking science fiction commercials with great set design. Let's consider Canada Bell. Canada Bell is making an incredibly arrogant attempt to trademark the term "The Net" — a term which has been common parlance worldwide since at least 1986. Canada Bell should be sued for that kind of hubris, and in fact they *are* being sued, or at least opposed in court.

Symptoms like this make it clear that the good old techno-booster role of science fiction writers has been taken over by a new professional class of public relations hucksters and intellectual property attorneys. Science fiction writers are no longer needed to serve as handmaidens for these blundering colossi.

Nowadays, science fiction writers should fulfill another role. Science fiction writers should be examining aspects of media that cannot be promoted and sold. Aspects of media that corporate public relations people are *afraid to look at* and deeply afraid to tell us about. We should be attempting to achieve a coherent understanding of media.

I'm not saying, mind you, that we're actually going to do this fine and noble thing. I'm merely saying that's what's needed. Given that tremendous challenge, science fiction writing is a rather meager response at best. At our best, maybe we science fiction writers can act as harbingers or catalysts, but what is really needed at this historical juncture is a serious general global assessment of our technosocial condition. Before we install the latest hot-off-the-disk-drive version of Windows For Civilization 2.0, we ought to look around ourselves very seriously. Probably, before leaping in postmodern ecstasy into the black hole of virtuality, we ought to make and store some back-ups of the system first. Our society would do this if we had a momentary attack of common sense. But never mind, that's just a passing suggestion.

Rather than dwelling on that, let me tell you how I reached this artistic crisis of mine. Two months ago, I finished a new science fiction novel. It's a novel about virtual reality artists in Europe in the late twenty-first century. I think people in today's digital art community will recognize this novel as my little valentine for them. This is a novel set a hundred years from today, in which I pretend that digital arts people like the people from ISEA have become the planet's art establishment. I know this is a very far-fetched notion, but you can get away with that sort of thing in science fiction novels.

The novel was a lot of fun to write. I thought it was very inventive and clever and it left me absurdly pleased with myself. Unfortunately, I got to thinking seriously about digital art while I was writing this book, and this forced me confront some of my own limits.

I'm not thinking hard enough about media. The approaches I have been using are too shallow, too glittery, too facile. I have to get a better grip.

Media is a commodity. Media is something that is sold to us. Media can be something that we are sold to, even. Media is an everyday thing. You can buy bandwidth in job lots. You can watch television, buy books, videos, records, CDs, but that's not it. That's not what's interesting.

Media is an extension of the senses.
Media is a mode of consciousness.
Media is extra-somatic memory. It's a crystallization of human thought that survives the death of the individual.
Media generates simulacra.
The mechanical reproduction of images is media.
Media is a means of social interaction.
Media is a means of command and control.
Media is statistics, knowledge that is gathered and generated by the state. Media is economics, transactions, records, contracts, money and the records of money.
Media is the means of civil society and public opinion.
Media is means of debate and decision and agitpropaganda.

None of these are a full working definition of the term "media," but they are a list of the qualities of this phenomenon that I find really relevant and compelling.

To treat this matter seriously, I need a far better understanding than I have. We're getting in really deep now, ladies and gentlemen; we can't trifle with this thing any more. As a society, we have bet the farm on the digital imperative. I need to speculate from new principles and new assumptions. I want a new synthesis, I want to really know and understand how media live and die.

Maybe I'll get my heartfelt little wish, and maybe I won't. But now I want to tell you how I plan to go about attempting this.

First, I want to destroy the Whig version of technological history. In the Whig version of history, all events in the past have benevolently conspired to produce the crown of creation, ourselves. In the Whig version of media history, all technological developments have marched in progressive lockstep, from height to height, to produce the current exalted media landscape. This is a very simple story. It's convenient and it flatters our self-esteem. Its very cheering to supporters of the media status quo (if there are any supporters left), but it can be proven untrue.

It can be proven untrue by disinterring and dissecting dead media. One understands evolution by studying the fossil record. The arcane, the offbeat, the forgotten. The failures, the lost and the buried, the media- maudit. The dead precursors of later suc-

cesses. Some forms of media are rendered obsolescent, but others are murdered. Some innovations are pushed very hard by clever and powerful people with lots of money, and yet they still fail. I find that particularly interesting.

I'm not alone in my interest in this topic. My friend and colleague Richard Kadrey is also a science fiction writer, and together we have launched an effort called the Dead Media Project. We're using the Internet to bring people together to catalog and study extinct forms of human communication. We're in the media autopsy business. We're into media forensics.

At the moment our scholarly efforts are very modest. We are currently engaged in a simple roll-call of the dead — disinterring and listing dead media.

My interest in dead media doesn't mean I've lost interest in forms of media that are struggling to be born. I spend a lot of time on the Internet these days. For instance, I made an entire book of mine available on the Internet — a book called THE HACKER CRACKDOWN. In the past, I've used the Internet as a vanity press — to publish and spread articles and speeches and critique. The Dead Media Project is my attempt to involve the Internet community in a new and different aspect of book production - - the beginning of a book, the raw research, the conceptual stages. This time I want the public in on the book *before I've written it.*

In fact, I don't even *want* to write this book — The Dead Media Handbook, a field guide for the communications paleontologist. Someone else should write this book, quite possibly someone in this audience. I don't particularly want to create it — I just want to read it, absorb its useful lessons, and then go on to my normal business, which is writing science fiction novels.

I believe that the DEAD MEDIA HANDBOOK will in fact be written, even if I have to break down and actually write it myself. But there will be a price to be paid for the production of this book, and that price will be the necessity of abandoning intellectual property.

I think this is a fine idea for a book, but rather than hiding it, I plan to publicize it widely. It's not a trade secret; I don't care how many people know I'm working on it. I have nothing to gain by poring over this in secrecy. All the notes and research in the Dead Media Project will be available to anyone who joins the research effort. It will be a public- domain source of knowledge contributed by independent scholars working pro bono. This information will be free.

If this scheme works, it will work in the way the Internet works: through prestige, netiquette and acts of intellectual generosity. I think that books can and even should be constructed in the same way that the Internet is constructed. I'm going to give it a try.

I know that many people are working in media studies from a variety of different scholarly approaches, and I respect those efforts. But they're not yet scratching my visionary itch. I don't think that overarching syntheses or ideological summations are in order yet — I think what is needed now is *fieldwork.* Commentaries, coming in from all corners of the compass, from all over the world, via modem. Maybe the central mystery of media can be paste-bombed into submission — nibbled to death bit by bit.

I strongly suspect that people of your backgrounds and accomplishments can help me in this project, so I'm frankly begging you to help me.

The Dead Media Project has only been public for about a month and a half, but I want to share with you some of my preliminary discoveries. I rather suspect that they may have some modest relevance for people in ISEA.

Let's consider cinema. Cinema is not a dead medium — cinema is a hundred years old, and obviously alive, and more or less well. At least, it's still generating plenty of revenue in those squinchy little multiplex theaters. But cinema killed quite a few other media. The magic lantern, the phenakistiscope, the phantasmagoria, the praxinoscope, the zoetrope, the mutoscope, the fantascope. If you look closely at the evolution of cinema you can see that cinema is not a monolith, it's a radiation of species. E J Marey's "chambre chronophotographique." The Edison kinetoscope. Anschutz's tachyscope. The vitagraph, the cinematographe, the theatrograph, the animatograph, the Urbanora.

Cinema as a medium did not make a sudden triumphant leap from silent movies to sound. People were attempting to jam sound into cinema from almost the beginning. We remember the much-publicized triumphs like THE JAZZ SINGER, but we have been taught to disregard the numerous experiments that died on the barbed wire of technological advance. The Edison kinetophone. Gaumont's Chronophone. The synchronoscope. The movietone. Phonofilm. The graphophonoscope. The vitaphone.

These mutant forms of talking and singing cinema weren't ignored because they failed to work. In a lot of cases they worked just fine. Nobody who invented these devices ever set out to build a failure. The truly failed experiments never even made it out of the lab. These dead species of cinema were always imagined and proclaimed to be the cutting edge, the state of the art, and they were generally unveiled in a state of wild enthusiasm and a furious drumbeat from the press. They died because of contingency, not destiny.

Take Gaumont's Chronophone, for instance. The name sounds rather arcane and silly, but that is not a technical judgment. Cinevision, Cinerama, Odorama — do these names really sound any less silly? How about Apple QuickTime, or CU-SeeMe, or Yahoo? But hey, those can't be silly — those are

modern! "I hope you're not trying to suggest that someday people will laugh at *us.* Hey man, we're cyberculture — we'll never be obsolete." Some media shed a few dead species, but the genus goes on living.

Other media are murdered

Have you ever heard of the quipu of preColumbian Peru? If you have, it's a minor miracle. The archives of Incan quipu were burned by the Spanish conquerors, after the Council of Lima in the year 1583. There are about 400 authentic quipus left in the entire world. Every last one of the quipus we possess nowadays was dug out of a human grave.

Well, not quite every last one. I happen to have a brand-new quipu here in my pocket. I was doing quite a bit of reading about quipu, so I decided I'd make one.

The word quipu means 'account' in the Quechua language, so the quipu was basically a kind of accounting device and calculator. This is a fabric network to carry data. This was the only recording medium that the Incas had. It served all the recording functions of their society.

No one today seems to have any real idea how these quipu worked. They all looked more or less like this one — they had a thick fabric backbone, with a series of dependent fringes. But the fringes could also have fringes. Sometimes there were as many as six subdirectories coming off the backbone of the network. They had a variety of different knots. They had quite a wide variety of colors. People have only the vaguest ideas what the colors may have signified.

This is a very small quipu. The largest remaining quipu weighs about forty pounds and has well over two thousand dependent cords. No one has any idea what this device signifies or what message it carries. It was buried with a Peruvian gentleman who was modestly well to do, but doesn't appear to have been particularly prominent.

The Incas had no idea that the planet harbored any civilization other than their own. As far as they were concerned, these quipu were the absolute apex of human intellectual accomplishment. And one must admit they have a lot to offer. They're very light — wool and cotton — they're portable and durable. Crushproof. No problem with power surges or headcrashes. A good thing they were portable too, because one of their primary functions was the census.

It appears that everyone without exception in the Inca realm existed as a knot in a quipu somewhere. The Incas were great masters of ethnic cleansing. They thought nothing of ordering thousands of people out of their homes to distant realms as pioneers and settlers. Everyone simply loaded all their possessions onto their backs and left immediately. Thanks to the quipu, there was simply no way they would ever be missed by the authorities.

The Inca economic system was a centralized command economy. A third of the nation's economic output was stored in vast ranks of stone cells. Everything down to the last sandal was recorded on quipu.

I don't think there was ever an alphabet in quipu. I don't think that the Inca were literate in that fashion, because their empire was only a hundred years old. There was nothing to pronounce that you could find on a piece of string. But there may have been genealogies in string — heirarchies, maybe family trees. Maps, even — three days' journey, they forded a blue river, they fought a red battle — you can imagine how usefully suggestive this might have been. Maybe you could attack language even more directly with a quipu: meter, stress, quantity, pitch, length of the poem — why should this be hard to believe? In English we sometimes call telling a story "spinning a yarn."

These Incas were fine textile makers. They had a lot of wool and cotton, the government made them grow it, and their women spun yarn every day of their lives. When a quipucamayoc read one of these recording devices, I don't think his lips moved. There was nothing crude or halting or primitive or painful about the experience — a quipu is certainly a more tactile and sensual and three-dimensional experience than a book.

The quipu was a medium. It was a way to cast the world into an entire new form of order. It was a medium invented by and for a very careful and methodical people, people who liked to fit huge boulders together so snugly that you couldn't slip a knife-blade between them. For the Incas, this was the Net — a net that caught their population in a sieve that dominated the whole material world, a sieve that no one could escape.

You know, in today's ultramediated world, I think it's quite a good idea to go into a quiet room with a quipu. Go to a room and shut off the electricity. Don't look at the quipu with scorn or condescension. Just hold it in your hands and try to pretend that this the only possible abstract relationship, besides speech, that you have with the world. Really try to imagine what you are *missing* by not comprehending all economics, all governmental business, all nonverbal communication, as a network of colored yarn. Think of this as a discipline, as an act of imaginative concentration, as a human engagement with a profoundly alien media alternative.

It's truly pitiful how little is known or remembered about the quipu, a dead medium which was once the nervous system of a major civilization. And yet that is by no means the only form of knot record. There's the Tlascaltec nepohualtzitzin, the Okinawan warazan, the Bolivian chimpu. Samoan, Egyptian, Hawaiian, Tibetan, Bengali, Formosan knot records. So far, I know almost nothing about these beyond their names. I'd like to learn more. If I learn more and you're on my list, I'll tell you about it.

Before I began the Dead Media Project I had no idea that native North American wampum could be historical records. I always thought that wampum were a kind of currency. Maybe, like the quipu, wampum were both currency and record at the same time. Imagine if *our* currency were a medium. Maybe our currency *should* be a medium. If you're an experimental media artist, why don't you start writing poetry on twenty- dollar bills and see what happens? Maybe you should just write the address of your favorite web site on money, and see what happens then as the bill travels from hand to hand. Peculiar notion, isn't it — communicating *with* money? Maybe we've just been *trained* to find that notion peculiar.

I'm eager to learn more about wampum. I hope someone can tell me about them, and share that information with likeminded people. My email address is bruces@well.com. That's bruces, with an s at the end. Go ahead and write me, don't be shy. We're all in this together — our net heritage belongs to all netkind! We can distribute all the data we like nowadays, there's nothing stopping us except for the RCMP, the FBI, the SPA and the Church of Scientology. Maybe these DISKS will help you! (begins flinging Dead Media Project floppy disks into audience).

These are just harmless text files, ladies and gentlemen. Probably Virus Free! I use electronic text, because the typewriter is dying now.

In the early days of typewriters, what wonderful names they had: Xavier Progin's "Machine Kryptographique" (1833), Guiseppe Ravizza's "Cembalo-Scrivano" (1837), Charles Thurber's "Chirographer" (1843), J B. Fairbanks' "Phonetic Writer and Calico Printer," and so forth. A minor horde of typing machines, many of them scarcely recognizable as such to the modern eye. Soon they'll all be gone. Swept away by the computer.

The computer. Its tide is so inexorable. Its power is so immense. Its triumph is so complete. What do we mean exactly when we say: "I've modernized. I own a computer"? Are we really in possession of a machine less mortal than Guiseppe Ravizza's Cembalo-Scrivano?

This computer is a Macintosh Powerbook 180. An impressive machine, isn't it? I dote on it, personally. I admire that name — PowerBook. It says a lot about the kind of rhetoric our culture cherishes in the 1990s. The name "PowerBook" somehow suggests that this device can *last* as long as a book, though even the cheapest paperback will outlive this machine quite easily.

PowerBook is a good name, but not a really pretty name. Personal computers have had much prettier names. Like the Intertek Superbrain II. It must have been extremely difficult not to buy an Intertek Superbrain II, even though that machine is absolutely as dead as mutton.

Forgive me while I indulge in a brief sentimental roll-call of vanished glories. The vast and every-growing legion of dead PCs. The Altair 8800. The Amstrad. The Apple Lisa. The Apricot. The Canon Cat. The CompuPro "Big 16." The Exidy Sorcerer. How can a sorcerer end up dead on the junkheap? That's not supposed to happen, we're not even supposed to *think* about that. A computer is a sorcerer with a superbrain, it's not supposed to be lying in a landfill with great-grandma's victrola. The Hyperion, the Mattel Aquarius. The NorthStar Horizon and the Osborne Executive. The Xerox Alto and the Yamaha CX5M.

But wait! There's more! Dead mainframes! Dozens and dozens of fantastically complex and expensive dead mainframes. Dead supercomputers. Dead operating systems. We all know that yesterday's operating systems are far inferior to today's Windows 95. Windows 95 is an operating system which is refreshingly honest, because it has an expiration date written right on it. We know that operating systems are of absolutely critical importance in computing, but how often do we honestly recognize that?

Suppose you compose an electronic artwork for an operating system that subsequently dies. It doesn't matter how much creative effort you invested it that program. It does not matter how cleverly you wrote the code. The number of manhours invested is of no relevance. Your artistic theories and your sense of conviction are profoundly beside the point. If you chose to include a political message, that message will never again reach a human ear. Your chance to influence the artists who come after you is reduced drastically, almost to nil. You are inside a dead operating system. Unless someone deliberately translates you into a new one — with heaven only knows what liberties of translation — you are nailed and sealed inside a glamorous sarcophagus. You have become dead media. Almost as dead as the quipu.

This is, of course, the dirty little secret of the electronics industry, and therefore it is the mark of Cain for electronic art. When we are surfing the web in 1995, we are surfing on a vast dark sea of dead computers. We have to surf, you see — because we are just a white scrim of foam up on the surface. The waves of machines rolling in beneath us are moving in with the hideous relentlessness of Moore's Law, doubling in power every eighteen months, one order of magnitude a decade. If you are working on a cutting-edge computer today you are working on one percent of the cutting-edge computer you will have twenty years from now.

And beyond that — the awe-inspiring prospect of teraflops, gigaflops, petaflops. Here's the latest issue of SCIENCE magazine, with a truly hair-raising article called "Computer Scientists Re-Think Their Discipline's Foundations." I recommend this article highly. This isn't something I made up, mind you — this is stuff that people at Princeton and Argonne National Laboratory are making up. Quantum Dot computers, ten thousand times faster that today's fastest microchips. Optical computers,

one hundred thousand times faster. Holographic data storage, one hundred thousand times faster.

Sometimes you think that computation has to slow down — that it has to bureaucratize — become more like a normal industry. But then you're confronted with yet another awesome vista of absolute possibility!

You see ladies and gentleman, we live in the Golden Age of Dead Media. What we brightly call "multimedia" provides an a whole galaxy of mutant recombinant media, most of them with the working lifespan of a pack of Twinkies. Mastering a typical CD-ROM is like mastering an entire new medium by using a frozen watch-cursor. And then the machine dies. And then the operating system dies. And then the computer language supporting that operating system because as dead as the Hittite language. And in the meantime, our entire culture has been sucked into the black hole of computation, an utterly frenetic process of virtual planned obsolescence.

But you know — that process needn't be unexamined or frenetic. We can examine it whenever we like, and the frantic pace is entirely our own fault. What's our hurry anyway? When you look at it from another angle, there's an unexpected delicious thrill in the thought that individual human beings can now survive whole generations of media. It's like outliving the Soviet Union once every week! That was never possible before, but for us, that is media reality.

It puts machines into a category where machines probably properly belong — colorful, buzzing, cuddly things with the lifespan of hamsters. This PowerBook has the lifespan of a hamster. Exactly how attached can I become to this machine? Just how much of an emotional investment can one make in my beloved three thousand dollar hamster?

I suspect that the proper attitude — one that more and more people will share in the coming millennium — is a kind of Olympian pity. We are as gods to our mere mortal media — we kill them for our sport.

Ladies and gentlemen, let me implore your pity and understanding for dead media. If you're really electronic frontier people, then in all justice, you ought to eat what you are killing. Let's try to see the greater sense of tragedy and majesty in this whirlwind we're creating. Perhaps this realization will free us from the hypnotism of our own PR. I dare not suggest that it will make us better artists — but at least it may help establish where we are and what is coming. Somehow, it might help us survive. It might even help us prevail.

You've been very kind to hear me out for so long. Thanks very much for listening.