Video Chi

by Paul Ryan

Following Yeats, the poet Seamus Heaney insists that "the will must not usurp the work of imagination". (Heaney, 1995) Heaney's book, *The Redress of Poetry,* is a fine explication of how various poets have negotiated the boundary between will and imagination. In Heaney's own case, the negotiation involves maintaining a joyful inventiveness in his art despite the moral call of his countrymen in a time of serious political struggle. Like love, art cannot be forced. Forced love is false. Forced art is propaganda.

As an artist who has worked to interpret nature with the video over the past twenty eight years, I have a quarrel with the neoluddittes about the boundary between politics and art. My artistic imagination has formed a mental image of a healthy culture that integrates electronic communication. Neoluddite nihilism toward electronics leaves no room for such artistic imagination. In other words, I think the neoluddite will to withdraw from modern technology threatens to usurp the work of imagining and creating a healthy culture that includes electronics.

The common ground I share with the neoluddittes is the desire for sustainable cultures. A sustainable culture takes care of itself without putting future generations at risk. At the Rio Earth Summit in 1992, convened by the United Nations, participants agreed: modern culture, as

we know it, is not sustainable. We deplete soil, exhaust fisheries, pollute air, foul waters and warm the planet. To take care of ourselves, we put future generations at risk. The neoluddite movement is an attempt to reduce the risk to future generations by abandoning modern technology. I see the possibility of creating sustainable cultures using electronics.

This neoluddite agenda is gathering some political momentum. In November of 1995, the International Forum on Globalization held a teach-in at Riverside Church in New York City. Three hundred people were expected. Eighteen hundred came. Prominent among the cast of stellar speakers including Ralph Nader, Jeremy Rifkin, Vandana Shiva, Martin Khor and Randy Hayes were a number of self identified neoluddites such as Kirkpatrick Sale, Helena Norberg-Hodge and Jerry Mander. Mander himself is at the center of organizing the Forum on Globalization for North America. Omitting any consideration of art, this top down forum focused on the social, ecological and political costs of economic globalization. Admittedly, the light of revelation did come from the altar. For example, more than one speaker cited the fact that the richest 365 billionaires on this planet own as much as the poorest two billion people. At times, however, it seemed the altar of light was darkened by neoluddite doctrine being proclaimed from a bully pulpit.

My concern as an artist, and a teacher, is that the encircling gloom of neoluddite rage not extinguish the kindly light of imagination, both for myself and for the next generation. The neoluddite commandment "Thou shalt not use electronics" makes instant sinners out of many young members of our species. If a student grows up on television, loves the internet and want to use his or her electronically nurtured intelligence to

help create a sustainable society, this doctrine leaves that student nowhere to go but bad.

Let me be clear. I am not defending the current state of electronic technology and communication. Global commercial television does destroy cultural diversity. The manufacture, use and disposal of electronic technologies often involve issues of health, social justice and environmental degradation that cannot be ignored. Obviously, we must take responsibility for these pathologies. Against the refusniks, however, I insist there are ways to create cybercultures where the circuitry of human to nature connections is rich enough to identify and eliminate, or significantly mitigate, these sorts of negative consequences. For example, I have designed an environmental television channel that would enable people to monitor their local ecology so that they can create a community of intelligence about how to maintain their ecology. (Ryan 1993) After a century of experience with electronic technologies we know that the latest and greatest gadget is not a magic wand. It is well to school the young about the pitfalls of the brave new wired world. But to shackle them with a neoluddite doctrine that is destined to degenerate into an inoperative moral conceit? To fail to mark the boundary between legitimate political protest against destructive technologies and the unimaginative path of terrorism taken by the Unabomber? Mistake. The seventh generation will not honor us.

During the Global Forum, neoluddites claimed that electronic technology, by its very nature, cannot be used to create sustainable culture. It is specifically in this claim that I see neoluddites as pretenders to the future, usurping the work of imagination. Rather than admit a failure to imagine

how this phenomenon of nature we call electricity could become part of culture, they preach a doctrine deadening to any effort to create culture that includes electronics. Yet if we turn from moralization to imagination, we can see how a medium such as television could be used to connect us to nature and help create sustainable cultures.

As I said, my effort to think imaginatively about television and nature is grounded in my work as a video artist. The kind of perception and thinking proper to video differs radically from the kind of perception and thinking proper to print. At the Global Forum, Mander pointed out that when you read the mind operates in the range of brain wave frequencies known as beta. In beta, the eyes continually "choose" to jump from this cluster of words to the next cluster of words and the mind can simultaneously make judgment about those words. By contrast, he reported- rightly- that watching television puts you in an alpha frequency. In alpha, the eyes do not move and the mind does not make choices or judgments. Mander argued, however, as if there is no such thing as thinking without constant choice and therefore television viewing must, perforce, be mindless. This is the prejudice of a Western mind conditioned by print.

A lecturer at the East West Institute in Hawaii once provided a succinct description of the difference between thinking in beta- prominent in the West- and thinking in alpha- prominent in the East. The lecturer, an Asian Professor, started his talk with a slide of Rodin's Thinker; slumping over, holding his head up with his fist, evidently worried about this or that. "In the West", he said, "You call *this* thinking. In the East", he changed to a

slide of Buddha; sitting in a lotus position, joyful, wide open to everything, "we call *this* thinking".

Of course, commercial television assaults the alpha state with a barrage of rapid fire edits that would undo the mindfulness of Buddha himself. *Meditation interruptus.* In effect, these edits are substituted for the eyes' natural capacity to move abruptly from focusing on one scene to focusing on another scene. Commercial programmers appropriate control of choice and manipulate television viewers when they in the vulnerable state of alpha. The remote control does give the television viewer a token ability to jump from one barrage of edits to another, but it does not get you off the battlefield. In total abstinence from commercial television for five years, working as a artist, I was able to cultivate a way of thinking in alpha with video. This way of thinking begins with the peculiarities of video perception.

Video Perception

When you put the viewfinder of a video camera to your face, you are literally doing what the artist, William Blake, described as looking "through the eye" and "not with it". (Kazin, 1971) Your eye is in between the camera and your brain. Whatever the electronic camera takes in passes through your eye to the brain. Rather than jump and judge as in the beta state proper to print, your eye can quiet itself and let the electronic impulses from the camera pass through to trigger synapses in the brain. If a tree falls in front of the camera, the eye in the viewfinder

can hold still and let that event happens synaptically in your brain. Recently, I held an infant boy near a window so he could see gusts of wind whipping though trees. His eyes did not focus on this or that detail. Rather they opened wide and simply let the wind events pass through to his brain. The innocent perception of children, celebrated by Blake, has a technological counterpart in the video camera.

In most cameras, the video image that passes through the eye to the brain is black and white. While the rods in our eyes see black and white and attend to outline and movement, the cones in our eyes see color and attend to volume and stability. Because of this difference, what passes into the brain from a black and white video image emphasizes the outline of events, the morphology of what is happening. When I teach video camerawork to novices, the first thing I do is ask them to produce two minutes of hand held continuous tape. Inevitably, upon playback through a color television, their hand held video camera appears to move too fast. This is because the black and white image in the viewfinder keys off motion and outline while the color in the playback makes the television viewer want to slow the camera movement down so he or she can pay more attention to volume and stability.

Attention to motion and outline can be activated in recording still objects as well. When what is in front of the camera is not moving, you can, in a sense, turn the set of static differences before you into a event that references yourself by moving your own body, by scanning a static field. The moving camera turns the static object into an event. The term "scanning" is much more appropriate for video camera work than the term "shooting", a term borrowed from the world of film, which borrowed

the term from the world of firearms. Shooting implies selecting a target and pulling the trigger. Scanning implies searching for events in the alpha state. Once you find an event, the video camera allows that event in the outside world to simultaneously "happen" in your brain, like a fist happens in your hand.

Another peculiarity of video perception is the absence of parallax. Parallax is the apparent difference in the position of an object when seen from two different points that are not on one straight line with the object. If you close one eye, point and look at a far away object, you are seeing the object on one straight line: eye-finger-object. If you then close that same eye and open the other eye without moving your finger, the object will appear to shift its position. In fact, the object does not move its position. The apparent shift is the result of seeing the object along two different lines from the two different points occupied by your two eyes. This apparent shift is parallax. Normally with two eyes open we take advantage of parallax to gauge how far away from something we are, that is, we judge distance. Looking through a video camera with one eye, and closing the other eye, leaves you without the advantage of parallax. You cannot, in fact, use your two eyes to triangulate the object you are looking at. By triangulation, I mean locating the object in the cross hairs created by our two eyes. Lifeguards are trained to use a technique of triangulation to locate the position of a drowning victim. The technique involves using two fixed points on shore to triangulate the point on the water surface where the victim was last seen. The triangulation of an object in space contributes to our normal tendency to identify and name objects and then jump to another object to name and classify that object. This process of naming, classifying, jumping and judging is part of our

common everyday awareness, perhaps most in evidence when we go shopping.

A video camera enables you to push the envelope of your perception beyond anything premeditated into a way of seeing that is free of triangulation, naming and classifying. As painter Bob Irwin says "Seeing is forgetting the name of the thing one sees." (Weschler, 1982) Because the video recorder assumes full responsibility for remembering what is perceived, the videomaker can take perceptual risks: he or she can forget to remember what is being perceived and cultivate a Zen state of watchfulness for whatever can be found through the viewfinder. While this watchfulness can also be cultivated to some extent with film, there are significant differences in the materiality of the two media. Film gives you twenty four still frames a second, one after another, with discontinuous gaps between frames. One image is over before the next one begins. While frames can be assigned to the video stream, technically the video image has neither frames nor gaps. With video, the scan lines that create an 'image' are continuously interlacing with the scan lines for the next 'image'. Digital technology enhances this capacity to generate a 'streaming' continuous video image. One image flows into the next, supporting the alpha state with a continuous flow of electrons.

One pioneer video artist, Al Robbins, now deceased, developed a technique of punctuating the tapes he shot with trigger cuts every few seconds. He explained this technique as a way to keep himself from becoming mindlessly fascinated by what he saw in the viewfinder—as if he were repeatedly slapping himself on the head to make sure he wasn't dreaming. Robbins did not trust the Zen/alpha state. He cultivated a

meta-Zen state. The beauty of the tapes he made demonstrates that meta-Zen is not a contradiction in terms, at least in the case of Al Robbins. He kept his mind active and alive behind the camera by constantly interrupting himself. Robbins invented a unique way of moving between alpha and beta. To watch his tapes is to learn a different way of seeing.

Unlike Al Robbins, I came to trust the alpha state. At first, I learned this trust while practicing meditation during the four and a half years I spent as a member of a Roman Catholic monastic order after high school. Working with video reactivated some of these alpha skills and prompted me to take up the study of T'ai Chi Chu'an. I developed a handheld, continuous camera style based on flowing T'ai Chi movements. The T'ai Chi enabled me to "meditate in motion" through the camera. Moreover, I was challenged by the sheer capacity for duration of perception a half hour or more of videotape makes possible. About twelve years ago I did thirty-six continuous half-hour tapes in a variety of sites, T'ai Chi-style, without any trigger cuts. I was pushing the envelope of video perception, trusting the camera to remember for me. My Zen state was not perfect, but good enough that I could "be there" for maybe eighteen minutes of a half-hour tape done while standing in the middle of water flowing over rock. It was a quite wonderful thing to do. I was able to free my perception from the burden of language and memory and attach my attention to flowing water.

In this kind of camera work, a combination of what I am seeing through the viewfinder and my own kinesthetic intelligence guide a continuous camera movement that is more like using your finger to trace the texture

of a stone than like taking a series of snapshots of the stone. Working with a hand-held, one-eyed camera - scanning flowing water without parallax - I developed a smooth continuous camera motion that tends to return again and again to the same patterns in the field scanned. With a zoom lens, this means that the pattern you include at the beginning of a continuous camera movement, as a close up, may be returned to later, in a wide shot, during the same camera motion. Without the redundancy of two eyes providing triangular positioning in space, the one eyed video mind seeks redundancy over a duration of time. Redundancy over time is creating by returning to the same patterns in different ways at different times. Indeed, the word "redundancy" comes from "unda" meaning "wave". The video mind seeks recurring events, like the breaking of waves on the shore.

Just as in the Taoist tradition, water is for me the great teacher. And video helps me learn. In 1973, I spent a year living by a broad, rocky streambed,- studying water flow patterns. To unlearn my adult perceptual habits and return to an innocent childlike state of mind, I would strap a camera to my head and crawl around in the stream like an infant, letting the different patterns of waterflow into my brain. This experience lead me to want to collect a vocabulary of different patterns of waterflow. In 1975, I spent a year recording over thirty-five flow patterns on videotape at the waterfall in High Falls, New York. This collecting of patterns continued with a 1983 edit of flow patterns at the Great Falls in Paterson, which included five sets of seven different kinds of flow patterns. The next year I did a study of the rocky coast of Cape Ann above Boston that combined the collecting of pattens with my continuous hand held camerawork. In 1986, I crossed the Atlantic Ocean on a sixty-foot North Sea Trawler and

videotaped over thirty hours of open ocean water. This sixty day trip, with forty days and nights on the open sea, tested my skills in the extreme. Being in motion and recording motion, became a severe challenge to my one eyed camerawork. Seasickness plagued me. In trying to take in the vastness of the ocean with my tiny ribbons of continuous camerawork, I found myself clearly overmatched, like a gnat chewing on an iron bar. Out of my defeat, however, came an understanding of how to compose my camerawork in a way that is more comprehensive than continuous camerawork. This discovery is too technical to burden the reader with here, (See Ryan, 1993) but let me say that it involves using the three broad phenomenological categories generated by the American philosopher, Charles Peirce. Ironically, years of working without the triangulation of parallax had lead me to embrace a threefold phenomenology of perception. Given this threefold differentiation proper to the alpha state, I could now, for the first time in the development of my work, justify editing. I had come to understand a coherent way to make choices that respected the alpha state. I could move between alpha and beta. Based on this new understanding, I produced a twenty-seven minute study of four nature sites in New York City that has over two hundred edits. Of course, one of the sites chosen was the waterfall on the Bronx River. (Ryan, 1993)

Seeing through the camera, being able to replay what I see at varying speeds and in both directions, has given me an understanding of water I could not have gotten with the unaided, naked eye. This understanding makes me wonder, though it may sound presumptuous, how much more sophisticated Leonardo's drawings of water might have been, had he been

able to study water with a video camera. After my video studies, I can see the flow patterns of water the way a musician can hear notes.

Inscape and Chreods

The poet, Gerard Manley Hopkins, called this sort of perception "inscape". Hopkins believed, as I do, that mindful perception of a particular event in nature can yield its underlying pattern. A few examples from his journals indicate his perceptual discipline.

> The next morning a heavy snowfall...looking at the elms from underneath you saw every wave in every twig (become by this the wire-like stem to a finger of snow) and to the hangers and flying sprays it restored, to the eye, the inscapes they had lost. They were beautifully brought out against the sky... (Hopkins [1870] 1953: 119—120).

> About all the turns from the scapings from the break and flooding of the wave to its run out again I have not yet satisfied myself. The shores are swimming and the eyes have before them a region of milky surf but it is hard for them to unpack the huddling and gnarls of the water and law out the shapes and sequences of the running (Hopkins [1872] 1953: pp 126—127).

What the poet Hopkins called inscapes, the lawing out of shapes and sequences, the biologist, C.H. Waddington, called *chreods*. *Chre* means *necessary*. *Ode* means *path.* Chreods are the developmental paths or

patterns that nature will necessarily follow, as in the development of an embryo into a full human being. Waddington's notion of chreods was generalized mathematically by the topologist Rene Thom. The family of models Thom developed is known as catastrophe theory. (Thom, 1975) These models are very helpful in understanding natural events. Let me provide a brief sketch of how they work.

Imagine a section of a stream in which there is a continuous flow of smooth water. Consider four dimensions of the flowing water: length, width, depth, and rate of flow. Changes in these dimensions occur because of changes in the shape of the streambed and variations in the amount of rainfall. Catastrophe theory provides seven basic models of how changes in these four dimensions control changes in the way the water behaves. Here are three examples. 1) If the width of the streambed begins to narrow very gradually, suddenly a *fold* will appear in the water's shape. 2) If both the rate of flow and the depth of the stream increases the water may jump into the air as if jumping over a *cusp*. 3) If a twig catches the water as it comes down, you may get a droplet forming at the end of the twig before it falls to the next surface. In catastrophe theory such periodic droplet formation in-between surfaces would map on the *butterfly* model. The butterfly is a like a cusp except it has another surface half way between the upper and lower surfaces, a pocket, on which the droplet could form. Whatever way the four controlling dimensions change, there are only seven possible discontinuous surfaces on which the corresponding changes in the behavior of the water can be mapped, only seven basic “figures of regulation” for the water's necessary behavior.

In nature, combinations of the basic seven catastrophes are multiple and not readily apparent. Yet the underlying structural stability of phenomena in nature can be understood through careful observation and rigorous modeling. Each “event pattern” can be understood in terms of its 'chreod'. If any natural process is disturbed it will tend to return to the pathway necessary for its structural stability, like a flooded river returns to its riverbed. These necessary pathways of nature, or chreods, can be rigorously modeled using the seven elementary catastrophes and variations on these seven (Casti: 1988). In fact, catastrophe theory can provide models for phenomena controlled by as many as twenty seven dimensions.

Moving water is the single richest source for developing a vocabulary of “chreods” in nature. Water takes so many different shapes such as billows, droplets, backcurls, waves, fantails, and cascades. Each of these shapes exhibits a different pathway in which water can flow, a different chreod. Based on the vocabulary of chreods I've collected on video, I believe repeated video observation can help us model most processes of nature. For example, horseshoe crabs laying eggs is a natural process regulated by a chreod. In the New York City area, the crabs only lay their eggs in wet sand during the low ebb tides created by the full moon in June. This placement assures maximum protection for the eggs from predator birds and land animals. The birthing activity takes place within a necessary figure of regulation that can be understood perceptually using video and explained using our scientific knowledge of the process. Art and science can combine to help us better understand nature. We can come to understand clearly that If we destroy that figure of regulation, that

chreod— by stripping the beach of sand, for example— we have destroyed the natural process of birthing in that site.

Systematic observation of an ecology could be undertaken by video teams schooled to identify the chreods of an ecosystem. By identifying the chreods the teams could rigorously model the underlying structural stability of the various events in the ecosystem. We can then find out, through more video observation and study, how these various chreods relate to each other. The syntax of interrelationships between these chreods would, in effect, constitute the "score" for the ensemble of recurring events that configure that particular ecosystem. We would be eliciting the score from the ecosystem itself by careful observation and modeling. Once we know the score we can observe and monitor how the ecosystem actually performs or fails to perform in compliance with that score. Failure to comply would mean that we need to reinterpret our score and/or to correct any behavior of ours that is making the ecosystem incapable of performing according to its natural score.

Let me give another example. In order for videographers to record salmon spawning in a way that is faithful to the spawning process itself, they must understand the "chreods" or "figures of regulation" guiding the "performance" of the salmon. Ecological videographers must know how to read these underlying figures of regulation, or notes in nature, just as dance videographers must know the choreography of the dance they are recording. Once the underlying figures of regulation for salmon spawning in a particular river are identified and put together, i.e. composed into a score, then videographers who know the notational system and that particular score can record and monitor the salmon run year after year,

generation after generation. If a particular performance of the salmon as recorded does not comply with the score, then the videographers are in a position to scan the ecological system for perturbations and alert us that something might be disturbing the underlying figures of regulation for the spawning run. This should result in a revision of the score and/or a correction of some human activity that is ecologically destructive to the salmon run.

To facilitate such a process, I have imagined, and codified, a notational system, which I call Earthscore. (Ryan, 1993) Just as musician can use classical music notation to produce music, so videographers can use Earthscore to produce an interpretation of the natural world. Within the notation, it is possible justify edits as part of a process of composing an interpretation of nature's chreods. Editing would not be used to assault the alpha state, but to enrich alpha with the events of nature. Hopkins created poetry out of his inscapes. With Earthscore, the song of nature can be "sung" over television, using nature's own chreods. The Earthscore Notational System can guide the systematic production of an ongoing perception of the natural world, open to anyone who cares to tune in, transmittable over generations.

Perception, Not Language

The first person I know of to imagine constructing a sharable, public perception of the natural world was the biologist, C.H. Waddington. After a study of how modern painters,- especially Monet,- had sweated blood to see nature without language, Waddington observed that as a species we

transmit information over generations in two ways: 1) genetically and 2) through speech and writing. Waddington noted that speech and writing inevitable involve authority structures. Somebody telling somebody else what to do. The child is told "Don't touch that.". "Listen to me". "Look at me when I talk to you". The developing integrity of the child's perceptual system is stunted and the child's behavior linked up with the language commands of others. Waddington thought linking information transmission to perception of the environment, rather than speech or writing, could free us from authority based on language. (Waddington, 1971)

On a number of occasions, I have had the opportunity to put camcorders into the hands of inner city high school students, turn them loose in a city park with minimal instruction and witness the excitement that comes with the liberation of their experience from language. One group, working with the Urban Conservation Corps, did a very telling video about the differences between the south part of Central Park near the Plaza Hotel in Manhattan and the north part of Central Park near Harlem. (Urban Conservation Corps, 1989) The tape *Is This Your Park?"* won the youngsters a national prize. Video validated and enriched the perceptions and experience of these youngsters without the need to submit to a textbook interpretation of experience. While neoluddites publish their tracts in the name of sustainable culture they ignore the question of how phonetic literacy itself has rendered culture after culture unsustainable. A salient contemporary account of the destabilizing and colonizing process of literacy appears in *Of Water and the Spirit*, a biography by Malidoma Patrice Some of the African Dagara tribe. Some tells of the cruel link between the hurting stick of the teacher and learning the ABC's in colonial

Africa. The elders in his tribe, who guard their oral tradition, understand literacy as an eviction of the soul from the body. The literate person is seen as the bearer of a terrible epidemic. He is possessed by a brutality that takes without asking and kills ruthlessly (Some, 1994).

The complex process of the original introduction of the phonetic alphabet into Western culture is understood in a similar way in the myth of Cadamus. King Cadamus went into the fields, sowed dragon's teeth (the phonetic alphabet) and these teeth sprung up armed men. The myth of Cadamus characterizes the phonetic alphabet as aggressive and completely arbitrary. The letter "e" looks like nothing. None of the phonetic letters are icons of observable phenomena. By contrast, the pictographs of the Egyptians helped root their culture in ways that were related to what they saw in their everyday life. A pictograph of a hawk looked like a hawk. An "illiterate" child could recognize it as a representation of a hawk. The understanding that pictographs generated in children grew and acquired meaning gradually in the stable, observable cultural setting of the Nile. The phonetic alphabet cannot take root in a culture in the same way. Being arbitrary, it is like an army: armed to the teeth and detached from any culture of place. Modern day American Army bases in Turkey insult local Turks by importing their water from the United States, just as they import their reading material. They are detachable from the place. Of course, many artists have found way to transform these dragon teeth into astonishing configurations of art, not war. Witness the Western literary tradition. But video makes possible something else again. Communicating with video is allot like thinking in pictographs. Video can cultivation reflective intelligence based on sharing perception of commonplace events in nature without the rootless cruelty

associated with literacy. Electronics can be used to create an ecology of mind proper to a culture of place.

Monitoring ecosystems with television could also give us a way to judge technologies in general. Understanding the syntax of self correction proper to an ecosystem through shared observation, we could make judgments about whether deploying a particular technology would interfere with the syntax of the ecosystem or not. Like natural systems, technologies have their chreods, their necessary pathways, their biases. There is a difference between the technology of trouser buttons and the technology of atomic bombs. Each has a different figure of regulation. Each figure of regulation can be examined and understood just as the figures of regulation for plants and animals can be understood. If the figures of regulation for the technology accord with the figures of regulation in nature then we can judge the technology ok. If not, then no. I realize this is sketchy, but I want to suggest that there are other ways of judging technologies besides demonizing and moralizing.

Television and Reinhabitation

At the Global Forum, Mander claimed that the television medium is inherently an advertising medium. Period. According to him, this cannot be changed, although he does not really say why. To appreciate what Mander is saying, and not be trapped by his intransigence, I will cite the analysis of industrialization provided by the German Sociologist, Ulrich Beck, author of *The Risk Society*. (Beck, 1992) Beck argues that there are two phases of industrialization. The first phase focused on the distribution

of goods. Advertising arose in this context, accelerating the distribution of goods by creating desire for goods that were not necessary except in the context of a perpetual growth market. Television, originally invented by a Mormon with a religious vision named Philo T. Farnsworth, was appropriated for this task of advertising. As a former professional television advertiser who sees through the game, Mander's opposition to this use of television makes sense. Mander is defining a battleground and fighting. On a battleground, map and the territory overlap. Any serious distinction between television and advertising is denied. While such intransigence is necessary during a fight, it confuses things when the battleground shifts.

As Beck has shown in *The Risk Society*, during the second phase of industrialization, the battleground has shifted. Our concern is not with the distribution of goods but with the distribution of "bads". We struggle to avoid stress, crime, unemployment, divorce, unhealthy food, HIV, ozone depletion, and toxic waste. We are a society at risk, and television allows us to monitor those risks. CNN would not have been possible in the early days of "happy' television. Its "all news all the time" approach monitors global events for possible danger.

The bias of the television medium is not toward advertising, but toward monitoring. Yes, commercial television is being used as advertising propaganda for industrialization, but this is not inherent in the technology. My characterization of television as a monitoring medium comes from developing the Earthscore Notation and from the philosopher Stanley Cavell. In “The Fact of Television” (*Daedalus* ,1982), Cavell successfully argues that what Mander calls "the predetermining

boundaries of television"- what television allows us to do- is monitor events simultaneously with others. The events can be of any sort: sports, a state funeral, a rocket launch, an earthquake, and so on. The Gulf War, with the bombing of Baghdad carried live, is one of the most salient examples of this process of monitoring events simultaneously with others. The mode of perception proper to television as a medium is monitoring. A security guard watching multiple television screens that monitor the various entrances to a large building can be taken as an icon of the sort of perception that is unique to television. Monitoring invites scanning for events, like a Samurai warrior sleeping in a meditation state who can be awaked by some change in the normal pattern around him, or submarine radar, that scans for unusual blips on the screen.

We *watch* events on television. By contrast, we *view* film. Film projects a world view, whether it's *Gone with The Wind* with its romantic view of the post Civil War period in the South, or *Star Wars* with its technological universe of good against evil. In film, just like in painting, there are individual works that can be considered masterpieces. With television, even fictional television, the real aesthetic achievement is in the format, not in any particular episode that exemplifies the format. In this formal aspect, television is not unlike a series of songs embedded in a liturgical context; for example, the Gregorian chants used at evening prayer in Western monastic culture. It is not any particular song that is valued but the song as part of an ongoing liturgy. It is not any specific show or episode of the weekly dramatic series “NYPD Blue” that the audience values, but the ongoing series of events conveyed through a consistent format. The format is successful because it acknowledges the condition of monitoring proper to television. The audience monitors an unending

series of dangerous events through a complex web of strained relationships among officers in a city police station. The officers are heroes not because of daring exploits but because they maintain their humanity while monitoring urban man's criminal inhumanity to man.

In explaining the disapproval and fear of television that is evident in certain educated circles, Stanley Cavell points to highly literate people who claim they don't watch television and severely restrict their children's TV diet. He argues that this is clearly a case of “kill the messenger," a displacement of the fear of what is being monitored onto the monitor itself. Moreover, Cavell points out that what is actually being monitored is the increasing “uninhabitability of the world."

What I am asking you to imagine is the use of television as a tool of "reinhabitation". Ecologies can be seen as ensembles of recurring events: the ebb and flow of an estuary, the changing of leaves, storm patterns, the cycle of fresh water lakes, the migration of birds and animals and so on. The bias of television is well suited to monitoring such an ensemble of events, or chreods, simultaneously with other people. We can dedicate television channels to monitoring regional ecologies. I have produced a design template for such television channels using the Earthscore Notation. In this design, humans and ecosystems are considered part of one encompassing self correcting circuit. The programming on the ecochannel follows this circuit. Differences in the ecology make differences in how the ecology is represented over the ecochannel. These differences in turn make differences in how the ecology is interpreted by different people. In turn, these different ways of interpreting the ecology are used to create a community of intelligence about how the community

as a whole can best behave toward the ecosystem that supports their life. For example, the cycle of food cultivation, distribution and consumption could be followed closely, and improved for sustainability, using this design . (Ryan 1993) Because of the costs involved in creating and maintaining a television channel, I am now adapting this design so that it can be implemented using a web site.

Mander's mistaken mantra that advertising is the quintessential bias of television plays into the fear Cavell associates with television, the fear that what we are monitoring is the irreversible destruction of earth as a human habitat. Understanding the monitoring capacity of television can help prevent us from being paralyzed by the specter of irreversible destruction and formulate a genuine response, using satellite, television and the internet, that redefines the human as part of a thriving planet. Rather than play into the fears of uninhabitability, television can be used as a tool of reinhabitation.

For television to be truly used as a tool of reinhabitation, we must deepen our understanding of the difference between film and television beyond the key insight provided by Cavell about the difference between projecting a world view and monitoring events. The confusion between film and television is one of the main impediments to imagining what a fully realized sustainable electronic culture might be. In this final section, I will try to untangle this confusion by contrasting montage with monitoring.

Montage and Monitoring

The French "monter" means "to mount". Our word "mountain" comes from the same root. A montage is a composite picture made by combining or "mounting" several separate pictures together. With a nod to the French deconstructionists, we can say that a montage combines a number of separate "hills" so that together they stand out "like a mountain". A film is a montage of moving images cut or edited together into one sequence that the editor hopes will stand out in the minds of moviegoers like a mountain against a plain.

One of the recent stand out films produced by Hollywood, *Jurassic Park*, is a montage about the disastrous consequences of recreating the DNA sequence of dinosaurs. The medium of film and the message of *Jurassic Park* fit together very well. Using all the tricks of the editing trade, our emotions are manipulated by shocking sequences of humans being stalked and eaten by dinosaurs, dinosaurs created by the hubris of men who presume to splice together the genetic sequences of extinct species. The message of *Jurassic Park* is that we do not understand the evolution of life well enough to tinker with its sequences. Unfortunately, what we are doing is much more than tinkering. Predictions are that if current trends continue, by the year 2050, one out of four species on this earth will have been edited out of existence by the hands of man. (Tangley: 1992) Millions of species left on the cutting room floor by those who would montage into existence an ignorant fantasy of life on earth as a monospecies movie of humans by humans and for humans. If we want to perish from the earth, this is certainly one way to do it.

Satellite images gathered by remote sensing of the earth and transmitted over television differ significantly from the images produced with the medium of film. Film images are pictorial. You can see them on the film itself. Satellite images are digital composites created by electronic scanning. Film images are prepackaged montages projected on the walls of caves we call movie theaters and pay to sit and watch with strangers. Hovering over the whole earth, satellites can scan the entirety of planetary processes in a comprehensive way and deliver the images to our home in ways that do not rely on montage. Mountains are mountains. Hills are hills. There is no need to splice together hills to make mountains. Each has its position in the dynamic equilibrium of the biosphere. Remote sensing invites contemplation of this dynamic equilibrium that can lead to ways of living in accord with the dynamics that shape this equilibrium. Manipulating satellite composites created by electronic scanning into montages or "false mountains", makes no sense. If the weather channel on television suddenly started cutting up their satellite images into "exciting" montages, we would be properly shocked.

In film, a director cuts together a series of moving images from different viewpoints and projects a view of the world for the film audience. The great Russia master of montage, Eisenstein used film to projects a world view based on the dialectics of Marx. This world view has come apart with the end of the cold war. We are now looking for a new view of the world.

I submit that we cannot come to such a new understanding of the world if we do not shake the montage tradition of thinking in terms of edits and splices. Please understand me, I am not trying to denigrate the achievements or the importance of film. But we need to spend less time

looking at the shadows on the dark cave of the movie house screen and more time in the sunlight monitoring the evolving earth. Satellite images over television can help develop the contemplative state of mind we need. I think it's time for montage thinking to yield center stage. It's time for a change. However great the vision of a film director, it is still the vision of one person being marketed to the many. Eisenstein himself saw film being displaced by television.

> "Then there is the miracle of television-a living reality staring us in the face, ready to nullify the experience of the silent and sound cinema, which itself has not yet been fully assimilated.
> There, montage, for instance, was a mere sequence (more or less perfect) of the real course of events, as seen creatively reflected through the consciousness and emotions of an artist.
> Here [with television], it will be the course of events itself, presented the moment they occur. " (Eisenstein, 1970)

With satellites and television we can now have many eyes looking out of many heads at events over the whole planet. We can be on intimate terms with the immensity of the whole earth. We can coordinate our seeing, develop a shared perception of the planet and let a new social order grow out of that perception. Admittedly, the move from shared perception to proper governance will not be easy, but it is possible. The ecochannel design I described above models one possible approach. We need to be asking how do the ecosystems of the earth behave and how should we behave in compliance with those systems? The earth itself, as we see and understand it better and better through satellites and television is, in fact, the ground for whatever "new world order" emerges.

We can understand the dreams of the earth for the human species and not submit to the perceptual imperialism of privileged men projected onto movie screens. Let the private world views of our great film directors projected in the dark caverns of our movie theaters become detritus for our species, that is, fragments of organic perception which we recycle as we imagine and craft a pluralistic view of the whole earth.

I contend that montage thinking goes hand in hand with manipulating the earth out of human hubris and contributing to our destruction as we see in *Jurassic Park.* By contrast, monitoring is a kind of contemplation that leads to action within a context. Many of the ills of the planet that we are now aware of such as rainforest destruction, ozone depletion, and desertification have become understandable through contemplating images produced by remote sensing. Contemplation of these images has lead to identifying the ills and working toward correcting them. For example, the Rainforest Alliance uses satellite images in its work. The bioregional movement was inspired, in part, by transnational scientific information collected by satellites in the early sixties. The North Pacific Rim, celebrated by bioregionalists, owes its bioregional identify, in part, to satellite images of salmon migration along this rim.

There is one final point I want to make about the difference between montage and monitoring. Occasionally filmmakers include the experience of seeing a film within the film itself, especially in the Italian tradition which has given us such wonderful films as *IL Paradiso*. But film within a film is for the most part an exception, and you never view the film on the actual set where the film was made. By contrast, with satellite scanning via television, such as with the weather channel, we are almost always

looking at images that include the place where we are. We are mapping the world in a new way that includes ourselves, our homes, and our lives in a very direct way.

This realm where the map and the territory overlap is a very complex area of human experience, as we are painfully reminded by the recent war over how to relate map and territory in the former Yugoslavia. Many consider this non-metaphoric overlap of map and territory the realm of the sacred. In the Catholic sacramental tradition, the bread and wine *is* the body and blood of Christ. There is no admission of metaphor. In colloquial terms, this realm is where we "get serious", where "the rubber meets the road". If the map and the territory are mismatched, a kind of fallacy of misplaced seriousness results. Misplaced seriousness distorts the sacred.

When the Europeans came to America, they overlapped their Sacred Scripture onto this continent. They did not see the biological syntax of self correction proper to this continent,- they say the promised land. Words that were written in a Mediterranean desert bioregion was used to guide life in the Eastern Woodlands. As the mismanaged landscape of America continues to suffer, this Scriptural mapping is revealed as a case of mistaken identity. The map and territory did not match. Love Canal appears in a land where the residents hold as sacred the belief that God is Love. In contrast to this scenario, I can imagine the people on this continent using electronic communication to identify and monitor the natural chreods that support their life places. I can imagine living with these chreods in a relationship to nature that is truly sacred.

In closing, let us return to Hopkins, who,- in relation to nature,- had what Goethe called, “exact imaginative sympathy” .

> The ash tree growing in the corner of the garden was felled. It was lopped first: I heard the sound and looking out and seeing it maimed there came at that moment a great pang and I wished to die and not to see the inscapes of the world destroyed anymore. (Hopkins [1873] 1953: 128).

Our capacity to inscape natural patterns has been enormously enhanced by video. Perhaps, as a community of humans we can use video and television to develop the capacity to inscape nature in the way Hopkins did. Perhaps we could all become poets of the planet.

> I thought how sadly beauty of inscape was unknown and buried away from the simple people and yet how near at hand it was if they had eyes to see it and it could be called out everywhere again. (Hopkins 1953: p 126).

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