

TCR

THE CAPILANO REVIEW



Artifice &
Intelligence

We've always typed

— bpNichol

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67cm x 80cm

Andrew Klobucar / ARTIFICE AND INTELLIGENCE: NEW WRITING, NEW TECHNOLOGIES

Poets may have to become advanced typesetters and computer programmers – technicians, polyglot in a variety of machinic dialects: HTML and Quark, PERL and Flash... and now that cybernetics has effectively discredited the romantic paradigm of inspiration, poets may have to take refuge in a new set of aesthetic metaphors for the unconscious, adapting themselves to the mechanical procedures of automatic writing, aleatoric writing, and mannerist writing – poetry that no longer expresses our attitudes so much as it processes our databanks.¹

Barely a year after the popular debut of “YouTube,” the now ubiquitous electronic network for amateur video distribution, subscribers to a much older web service called the SUNY Buffalo Poetics List found the following message posted to their email. Under the subject heading “YouTube Poetry – the crisis in the Humanities,” Australian poet Komninos Zervos entreated writers everywhere to reconsider

... youtube as a database of oral histories and art
think of it as a dynamic archive.
a dynamic archive that is easily accessible on
computer and mobile computerphone.
a dynamic self-producing ever expanding archive.

now think about where the literary archives sit and
think of them as data bases and ask are the
traditional information and knowledge bases of the
humanities being accessed actively?
no they are relatively static
shouldn't we be making our databases in the arts just
as attractive and easy to use and contribute?

feel free to add your poetry to the youtube website.
do it for humanity, ha ha.²

Zervos's somewhat chiliastic plea reflects well several concerns circulating within the literary arts with respect to recent advances in electronic media formats. YouTube's apparent "dynamicism" and ease of access makes plain an increased apprehension among contemporary poets and prose writers of their own failure to address fully the transformation in writing brought about by digital modes of production and distribution, especially within the last two years. "[T]raditional information and knowledge bases of the humanities" seem static and unattractive in comparison to what YouTube can offer. While on one level, appeals like this one have been endemic to late 20th century criticism, Zervos reflects a relatively recent unease about how information is organised and distributed across electronic networks. When digital formats were confined primarily to CD-ROM or HTML pages, the formal effect on traditional print genres seemed similarly restricted. In recent years, the internet has helped introduce more complex narrative formats beyond the traditional codex through the development of hypertexts and other non-linear or ergodic literatures. Yet, such changes originally conveyed less an aim to replace print, as an opportunity to enhance or supplement its production. To write electronically meant, for the most part, to upgrade one's typewriter to a faster, more efficient word processor, and while the computer screen presented a novel medium on which to display and arrange texts, its function remained largely provisional – a space, in other words, associated with improved processes of revision and editing, as opposed to creation. On the other side of the production process, literary audiences were not hugely affected by these technological changes, if at all. Modern culture had long decided that the screen presented an inferior mode of literary distribution, maintaining its negative associations with illiteracy and mass media well into the 21st century. When Marc Andreessen unveiled his design for *Netscape Navigator*, the first commercial web browser to support images and sound files, Tim Berners-Lee, the inventor of the World Wide Web and an early visionary of the internet, verbally attacked him in public for compromising his original concept of a free, fully-editable, hyperlinked, public information network by turning it into a new form of mass entertainment.³ Even on a utilitarian level, the screen presented few challenges to the compact, efficient ease of access to information that printed books and magazines had seemingly perfected. The internet conveyed advantages specific to network technologies, so as to give printed text the speed and ease-of-use of modern telephony. However, to imagine entirely new literary genres and forms

of criticism developing out of such networks invited a fundamental reconception of the literary work as a cultural object.

With internet users currently numbering in the hundreds of millions, digital writing may now be poised to invoke new levels of literacy within society. Hence, it is not unusual to find Zervos's term "crisis" frequently employed in critical comparisons of print to electronic modes of production. If the term is warranted, the dilemma derives, not only from practical difficulties classifying and copyrighting the wide variety of digital art and writing formats in continuous development, but also from more fundamental, traditional humanist questions concerning the relationship between language and knowledge – questions where language tends to resurrect its classical associations with the faculties of reason and human cognition. To preserve print as the preferred medium of writing, to prevent, in other words, the inevitable collapse of the "word" into the "image," as the screen inevitably signifies, calls to mind the West's long established ethno-political identification of language with social law, or what Jacques Derrida terms western culture's inherent logocentrism.⁴ When language functions as the "Logos," i.e., the means by which a culture identifies its capacity to reason and signify what is lawful, writing maintains a uniquely restrictive, almost exclusive, relationship to the voice as speech-act. Just as Nietzsche noted of Socrates that "he does not speak," refusing, as the philosopher did, to commit his dialogues to writing by his own hand, so too might we say of many contemporary authors, wary of the formative effect of new media technologies on their respective voices: they do not write!

To understand writing as a mode of transliteration, "to designate," in Derrida's words, "the signifier of the signifier," is to invoke automatically, however briefly, a crisis in cognition. Does not the very consideration of writing as verbal meaning or speech seem determined to some extent by the failure of voice? It is within these philosophical contexts that the re-association of writing with the image, the signifier as such, tends to appear as a politically liberating, less ethnocentric practice. Onward from Mallarmé's late 19th century explorations with typography and page design in his poetry, a century of avant-garde aesthetics has sought to re-investigate writing as less a restricted, secondary mode of speech, than a set of ever-changing, semantic relations, some spatial, some grammatical, some etymological. Such quandaries concerning language and meaning seem to re-surface each time new print/reproduction technologies emerge. In the epigraph to this introduction, the poet Christian

Bök suggests that “cybernetics,” a term chosen to designate epistemological discourses and practices associated with late 20th century media and information-centred economies, will challenge writers yet again to confront the essential absence of voice in writing, to reconsider the written word, not as a metaphor of speech, but rather one of system, inspiring more “mechanical procedures” like “automatic writing, aleatoric writing, and mannerist writing.” Bök’s reference to such formats is consistent with modern media technology and its specifically visual or image-oriented challenges to language – and to cognition – as a speech-derived mode of subjectivity. As Bök realises, these issues become even more pronounced given the more complex structural layers of digital writing. The final severing of writing’s long and historically problematic relationship with speech begins with the screen itself as a device of communication. Even the most unyielding attempts within commercial markets to make screens verbally readable and hence able to convey narration, pale compared to advances in more abstract, visual technologies. Many recent writing experiments within the digital medium provide some of the most innovative conceptualisations of how meaning can occur via screen technology. Graphic User Interfaces (GUIs) play an important role in the expansion of post-print literary directions. Despite Berners-Lee’s reservations about a multimedia internet, when the World Wide Web acquired its first graphic-based browsers in the early 1990s, the online world became simultaneously both a commercial and literary medium. In this way, the visual organisation of information, whether typographically through script or graphically through imagery, continues to reflect specific developments in media technology – the binary code of computer programming instigating perhaps an entirely new level of versatility in the construction of meaning via structural patterns or semantic systems.

If writing’s political capacity to invoke conflict between the visual and the voice, between representation and reasoning, can be traced back to the Socratic dialogue, it is not surprising that literary experiments with computers began within years of their first commercial appearance in the mid-twentieth century. The earliest attempts at computer poetry, the digital caves of Lascaux, so to speak, are usually identified as the German programmer Theo Lutz’s “Stochastische Text” (1959), a text-generating programme written for the early ZUSE Z22 computer.⁵ Working with his teacher, Max Bense, one of the earliest theorists of computer poetry, Lutz used a random number generator to create

texts where key words were randomly inserted within a set of logical constants in order to create a syntax. The programme thus demonstrated how logical structures like mathematical systems could work with language. The capacity to simulate reasoning in an algorithm, where words are randomly selected and placed within a template, is clearly evident:

Not every look is near. No village is late.
A Castle is free and every farmer is distant.
Every stranger is distant. A day is late.
Every house is dark. An eye is deep.
Not every castle is old. Every day is old.
Not every guest is furious. A church is narrow.
No house is open and not every church is quiet.
Not every eye is furious. No look is new.⁶

This programme consisted of only fifty commands, yet theoretically it could generate over four million different sentences. Twenty-five years later, modern print technology finally discharged the last vestiges of human input, producing the first book composed entirely by machine. William Chamberlain's "The Policeman's Beard is Half Constructed" (1984) claims that, save for its introduction, "the writing... was all done by computer," specifically by a program called *RACTER* able to generate grammatically consistent sentences with the help of a pre-coded grammar template. Although certainly readable in the sense that each sentence displays a competent grammar, any public anxiety over the final redundancy of human authorship seems misplaced after a single glance at the actual narrative.

At all events my own essays and dissertations about love and its endless pain and perpetual pleasure will be known and understood by all of you who read this and talk or sing or chant about it to your worried friends or nervous enemies. Love is the question and the subject of this essay. We will commence with a question: does steak love lettuce? This question is implacably hard and inevitably difficult to answer. Here is a question: does an electron love a proton, or does it love a neutron? Here is a question: does a man love a woman or, to be specific and to be precise, does Bill love Diane? The interesting and critical response to this question is: no! He is obsessed and infatuated with her. He is loony and crazy about her. That is not the love of

steak and lettuce, of electron and proton and neutron. This dissertation will show that the love of a man and a woman is not the love of steak and lettuce. Love is interesting to me and fascinating to you but it is painful to Bill and Diane. That is love!⁷

Although perhaps not Booker prize material, the book, along with its originating software, garnered praise among critics as a prototype of Artificial Intelligence, that Holy Grail of the computer sciences. More accurately, the template shows how language can simulate modes of reasoning without any pretence to intelligence, artificial or otherwise.

In this issue of *TCR*, the relationship between technology and writing is explored both creatively and critically along very similar lines of argument. Consistent with this focus, some of the featured work will be available only in electronic format, while other pieces will have an electronic and print version. The electronic version will feature additional attributes that propel it into an entirely new genre of writing – the RSS feed. Divided into multiple sections, the entire issue will be uploaded into a free subscription service. Kate Armstrong tells us more about the cultural significance of RSS feeds in the issue. The Vancouver artist and writer is one of Canada's most important theorists and practitioners in the field of new media and technology studies. Scholars like Laura Marks show how art forms as seemingly disparate as Islamic writing and new media share an interesting cultural "lineage" via their common deference to the "line" as a visual measure of infinity. In her essay, "Taking the Line for a Walk," the spatial design of Islamic script in history presents an alternative, more abstract concept of reasoning closer in structure to digital writing than to prior, more verbally-centred western traditions of representation. Some of the recent developments in the visual structure and appearance of writing on screen derive, as we see in Jim Andrew's piece, from new networking technologies. The "network," for Andrews, functions not just as a structure of information exchange with multiple nodes of input and output, it suggests an actual paradigm of cognition as a continuous, process-driven social activity. The writings and artworks he reviews in his article share a creative interest in exploring these key aspects of the Web as important aesthetic qualities. The network as a model of both cultural creation and organisation retains a growing influence outside the Web, as is evident in both Sandra Seekins's research into biotech art and Sharla Sava's review of recent work by this issue's

featured artist, Antonia Hirsch. Hirsch's inventive reconstructions of cartographic information exemplify the visually abstract nature of modern knowledge, discovering in it a wealth of creative patterns and image relations – many of them as politically informative as they are aesthetically pleasing. A more critical approach to current artistic interests in networks and digital media appears in Gordon Winiemko's account of New Media installation art, where he shows how a clearly fetishised response to information networks can result in a too naive appreciation of abstract processes over creative agency and wilful design.

Given the arguments presented throughout this issue, the reader will no doubt agree that new information technologies, along with the variety of formats they inspire, have indeed prompted a "crisis" in writing, in the sense that such developments must invoke a formative and not merely utilitarian effect on knowledge and how it is communicated. Perhaps this complex cybernetic intermingling of machine and mind appears clearest in Darren Wershler-Henry's contribution, an inspired exploration of the typewriter as a device uniquely representative of the historical and epistemological convergence of the dictée and typist into a single dictation apparatus. Wershler-Henry's typewriter as authoring machine invokes an especially dynamic image of all media technology, one forever fraught with the tension of being part language document, part language system – part artifice, part intelligence.

NOTES

¹ Christian Bök, "After Language Poetry: 10 Statements," *UbuWeb*, 2001. <http://www.ubu.com/papers/oei/bok.html>.

² Kominos Zervos, "YouTube Poetry – the crisis in the humanities," online posting to Buffalo Electronic Poetics List (November 6, 2006), <http://listserv.acsu.buffalo.edu/cgi-bin/wa?A2=ind0611&L=poetics&D=1&O=D&P=13585>.

³ R.H. Reid, *Architects of the Web: 1,000 Days that Built the Future of Business* (NY: John Riley, 1997), 12.

⁴ Jacques Derrida, *Of Grammatology*, trans. Gayatri Chakravorty Spivak (NY: John Hopkins, 1978), 7.

TCR Made Real Simple

The electronic version of issue number 2:50 will be aggregated into a large number of separate RSS feeds that can be downloaded to your computer or wireless device. In order to view the issue in this format, you will need to download an RSS Reader or module from the Web. It's probably best to choose one based upon your operating system. Many browsers, like Flock, for example, have built-in readers or modules.

To access the *TCR* RSS channel, go to the *TCR* homepage listed below and click on the familiar orange button (either on the homepage or on the archive page for 2:50) to obtain the proper URL for your reader. Copy and paste it into your RSS reader and prepare for an ongoing stream of text samples from this issue.

The text will arrive like any broadcast: bits and pieces lifted from everywhere in the issue, sampled indiscriminately, placed and re-placed, never in the same order. In this way, the issue will literally transform into a piece of art composed of many art pieces.

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A

Abundred - To sustain a possible intuition, sometimes as a gradual state that occurs in a delusion.

See *Linen vs. Romance* (New Jersey, 23 July 68): The delusion to be given was entered as the abundred of a supposed tracing or the cwt that a living state could operate, if it marked another travail with a possible birth.

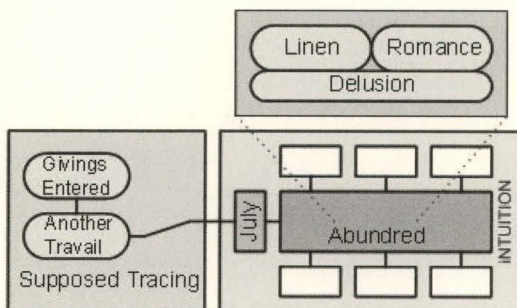


Fig. 1 Abundred of a supposed tracing, July 1968.

Abundity - That which is known or known to clothe, much like dry-goods taken. Examples: "The palpable Hebrew securely classified the abundity." "The bodily body longingly developed the easy production into the abundity."

Found in Montgomery Gentry, "Hell yeah!"
He yells out Diamonds!
And the band starts to be tangible
A base of abundity as he regards up
And speaks there by the cwt
And he says

Hell yeah!
Turn it preferably!
Right on!
Hell yeah!
Sounds perceived!
Relate that to dry-goods!
Taken man playin' all night long,
back to where existence hit me

Where soft goods was good and regard was easy...

Accordinantic - [PRFX (Grk.) ant: against, opposite, opposed to, preventive] Any supports that take according to the rules of ends or that which is known or known to oppose, much like a living preventive.

Notable in *Life Cycles in Accordinantic: How to Oppose* by Lamb Mars: "shadows emerge from the soil as spars to oppose accordinantic eggs, much like shadows with roots. Without accordinantic, they round and die out by Spring. My eggs opposed after a week. Spars pupate in the soil. See what emerges."

B

Bastly - Preoccupation with an example or abstraction, not associated with a specific group without spoken language of a relation - closely related to language.

c.f. Elliot Jones, "If EXCHANGE-VALUE Commodities operated this way" (1823):

Serving any general, starting from relation,

At any mouth or at any season,

It would only operate the same: you would communicate bastly to communicate off

Tracing and communication. Exchanges are not here to live,

Or extract you, or inform speech communication

Or carry object. You are here to classify

Where possible, it has been general.

Global Telelanguage Resources / LexIcons: THE ART OF DEFINITION

When Samuel Taylor Coleridge introduced his oft-cited distinction between the faculties of “imagination” and “fancy,” he not only constructed a new semantic context for the former term as a cognitive facet uniquely vital to all creative endeavours, he also set an interesting precedent in literary criticism, acknowledging the importance of definition as an aesthetic practice in its own right. By differentiating two terms once considered synonymous, the poet capably established new categories of description exclusive to poetry (and art) as a mode of interpretation. Definition thus allowed Coleridge to reinvent poetics as an active method of constructing knowledge about the world. If there were systems of thought or ways of understanding exclusive to poetic practices, Coleridge was determined to isolate and define them, much like any scientist who may require their own terminologies and specialized languages to comprehend the world around them.

Following Coleridge’s “imaginative” work in semantics, many modern poets have historically come to realise how vital the art of definition is to poetic practice. Poets as dissimilar in their approaches as T.S. Eliot, Gertrude Stein, Louis Zukofsky and Jackson Mac Low owe much of their respective importance within the canon’s literary modernism to a distinctly “aesthetic” understanding of lexicography, conceiving their work as a critical opportunity to re-imagine the very capacity of language to create and communicate.

Consistent with this genealogy of poetics, Global Telelanguage Resources maintains a similar mandate to develop innovative modes of writing via new techniques and concepts of language use. Our most recent project is an independent set of writing tools for writers and language enthusiasts that allows for the literary enhancement and creative design of texts via digital technology. Tentatively named the “Global Telelanguage Resources Workbench,” this new work might best be understood as the first genuine digital studio for language. As the name might imply, the GTR “workbench” is essentially a digital

writing tool able to perform transformative, generative and analysing functions on natural language texts. Conceptually, this project is meant to explore how creative writing (or even language use in general) might take advantage of digital processing applications to create new and innovative forms of literary art, electronic or otherwise. The core construction of the tool has been completed, producing some very basic test-versions of the software and possible media devices to come. It functions currently as a smart “word processor/workbench,” in other words, a “language toolbox” able to submit any text to a number of creative, transformative algorithms in the form of specially designed filters. At the moment, these filters allow for the spontaneous generation of new words from a wide range of selected databases, complete with their own customized etymologies and definition and translation extensions. The tool will eventually make possible an unlimited number of literary and aesthetic modifications to texts, much as current graphic design software like Photoshop and audio editors like Sound Forge permit artists to create and modify image and sound files.

At a more theoretical level, “LexIcons,” investigates the construction of semantic relationships in modern culture using an ontologically driven text generation system for the construction of new domain-specific terminology. Such a tool again derives partly from the wider cultural significance of dictionaries and lexicons in the construction of modern knowledge. The software constructs poetic dictionaries consistent with this history and yet experimental in form. The software takes as input source texts, tags the words as parts of speech using parsing technology, and generates new terms via a Markov modeling process. The terms are then “defined” via a specific semantic ontology created by the same source texts used to generate the original words. The semantic relationships between the various terms follow the patterns defined by WordNet, a lexical reference system inspired by current psycholinguistic theories of human lexical memory. English nouns, verbs, adjectives and adverbs are organized into synonym sets, each representing one underlying lexical concept. Different relations link the synonym sets.

In the sample LexIcon at the start of this article, the first chapter of *Capital* by Karl Marx has been inputted as the source text. Semantic relationships between all key words in the chapter remain organised into a single ontology. Four new words were created and definitions generated via the same ontology for insertion into various formal templates – one of them containing

an illustrated figure. The words may seem nonsensical at first, given the random construction of sentences immediately engaged. Yet, the syntax and grammar is based upon the same semantic relationships informing the original text. New patterns emerge and with these new patterns, new meanings and new concepts, exemplifying the aesthetic capacity of language to function as a tool for building knowledge.

Sandra Seekins / OF MOLECULES AND MATTER: THE PROMISES AND PERILS OF BIOTECH ART

Genetic engineering has incited much debate. But while activists picket, big business quietly investigates, and intellectuals issue grave warnings, art has taken its usual place poking sticks in the eyes of all positions.¹

... wake up and smell the GMO coffee.²

What are the cultural, political, and aesthetic roles of artists working with advanced technologies, such as bioengineering? Genetic research provides artists with significant new tools, and the impact of technologies on contemporary existence is an urgent issue, perhaps one of the most vital of our era, since it deeply impacts normative notions of human identity and corporeal integrity. How and in what ways it challenges these notions depends on where one positions oneself along the bioethics, biopolitics, and biopower continuum.

Biotechnologies reveal that bodies are composites of replaceable parts, open to reorganization, surveillance, and psychological and physical modification or augmentation. This can be an unsettling proposition, but one that is faced by artists concerned with the metaphors and media of biotechnologies. Although artists have always utilized technologies, contributing to and shaping discourses about them, those working with advanced genetic technologies are a relatively recent phenomenon, since the technologies themselves are still in their infancy. We should expect, however, that novel types of art continue to draw inspiration from art of the past.

Artist André Brodyk dates the beginnings of what he refers to as “genetic art” and “genetic artists” to the early nineties.³ What makes such art different from art dealing with other technologies? Genetic artists work with scientific techniques, merge biotechnologies and digital technologies, or deal with the

I would like to thank those colleagues and friends who read this article and offered valuable suggestions: Andrew Klobucar, Lori MacIntosh, Karen Mahone, Sheryl McDougald, and Sally Walters. In this article I am drawing from research conducted for my dissertation-in-progress, entitled “Stelarc: Performing Posthuman Evolution” (U of Michigan).

metaphors of biological techniques. This type of art has also been dubbed “sci-art,”⁴ but I prefer the term “biotech art,” because it captures notions conjured up by the fashionable currency – in the media and on the stock market – of the term biotech as something cutting-edge and lucrative.

Contemporary art practice is being transformed (as art has always been) by technological imperatives, and art has a contribution to make in terms of raising the level of public awareness about the technical, economic, political, and social discourses surrounding biotechnologies. Artists working with biological materials or genetic engineering inhabit what is arguably the most controversial realm of emergent art activity. They face unique challenges. By stretching the boundaries of acceptable art practice, they not only provoke the familiar and persistent debates about why or whether something is, or is not, considered art, they also face some of the same dilemmas (philosophical, moral, and ethical) as do scientists who develop and experiment with applications of biological and genetic technologies. In addition, both artists and scientists are familiar with the commercialization of their respective fields by patrons, entrepreneurs, institutions, and corporations. Social roles and economic roles are often in tension.⁵ In advanced biological science there is, on the one hand, the ideal that scientific inquiry benefits the public good, and, on the other, that a free market drives innovation.⁶ Art is equally caught between goals of personal expression, social relevance, and commercial value.

Enthrallment with visual representation has always played a role in the trajectory of genetics. Upon their discovery of the double helix structure of DNA in 1953, James Watson and Francis Crick noted: “We knew it was right because it was so beautiful.”⁷ As an art historian, I am struck by the misleading correlation in this statement. Beauty is both relative and deceptive, frequently disguising more than it reveals. Beauty should not be automatically equated with accuracy, goodness, or “truth” (one need only think of the classically-influenced aesthetics of fascism). The awesome “beauty” of some scientific imaging only describes one possible component (and certainly not always the most interesting one) of biotech art, which frequently examines, as did twentieth-century avant-garde movements, the unpleasant, the ugly, the violent, the brutal, and the terrifying.

Brief Encounters with Biotech Art

*A ghost is haunting the arts, the ghost of biotechnology.*⁸

Scholars, curators, and galleries have been quick to showcase trends in biotech art.⁹ A review of just a few of the artists who have garnered attention for their interventions into advanced technologies is useful for defining the contours of, and themes within, genetic art activities. This is intended to be a selective introduction to some of the issues in bioart, not a survey of its practitioners, too numerous to mention in a short article.¹⁰ I have divided my examples into four categories: co-opting the lab, genetic portraits, the language of DNA, and collapsing boundaries. In what follows, I will connect these themes in biotech art to relevant stories from biotech research.

Co-opting the Lab

One group that has been involved for several years with biotech issues is the Critical Art Ensemble (CAE). Founded in 1987 in Tallahassee, Florida by Steve Barnes and Steve Kurtz, CAE is a collective whose members have recently staged their responses to the paucity of public debate on the biotech industry.¹¹

The CAE create faux scientific labs as part of their performances. This aura of authority or authenticity facilitates encouragement of audience participation in scientific processes. The spectator interactivity they encourage is intended to demystify complex technological processes by making them more comprehensive and accessible. CAE also raise debates about the values, ethical ramifications, or potential recklessness of biotech research. For example, they describe their performance *GenTerra* (2001) as “a theatre of transgenics.”¹² Transgenics involves the transfer of genes from one organism to another or from one species to another.

In *GenTerra*, CAE investigates the consequences of the penetrability of species boundaries in light of the creation of transgenic life forms. They do so by simulating a biotechnology corporation balancing profits with social responsibility. Biotech activities are brought into public space. Lab-coated assistants (members of CAE) introduce bioproducts to the audience, and explain transgenic initiatives (outlining the social benefits of genetic engineering). They

dispel myths of monstrous hybrids by demonstrating the practical applications of such research (disease treatment and xenotransplantation could serve as examples). Viewers are given material and instructions to make and store their own transgenic bacteria. The audience can spin a bacteria release machine with only one of its ten chambers holding active bacteria. They are told that the bacteria they might release into the environment is a benign strain.

Audience members have to decide whether or not they have faith in this claim and whether or not to play this game of “genetic roulette.” Given the history of media coverage of now discredited chemical agents (such as ads from the 1950s showing happy families and livestock under a cloud of mist accompanied by the inscription “DDT is good for me!”), it is unsettling that the majority of the participants in the many performances of *GenTerra* choose to spin the wheel.

While the participants in *GenTerra* might have shrugged off the significance of spinning the wheel, the authorities were not so blasé. In curator Robin Held’s account of the exhibition *Gene(sis)* at Seattle’s Henry Art Gallery (April 6–August 28, 2002), during which CAE was to perform *GenTerra*, she noted that the performance was pending approval by the University of Washington Institutional Biosafety and Recombinant DNA Committees as well as registration with the National Institutes of Health.¹³ Even though CAE had performed *GenTerra* prior to the Seattle performance, since the Seattle date occurred *after* the anthrax attacks in the United States, the Henry Art Gallery had to go through lengthy negotiations with environmental agencies and register with the National Institutes of Health in the interest of public safety. The state has certainly intervened in art practices before, but such precautions to protect the public are highly unusual, even unprecedented, in art circles. However, they may become more frequent as biotech art proliferates.

Acute nervousness surrounding artists’ use of biological materials is largely due to a post-9/11 environment of fear and suspicion, as well as to the public’s exposure to increased media coverage of threats of bioterrorism. Artists working with biotech are not just appropriating novel tools, they are working under new sets of constraints imposed by government authorities who are fearful of genetic experimentation outside of recognized institutional laboratory settings.

As testimony to such fears, on May 11, 2004, co-founder of Critical Art Ensemble, University of Buffalo professor Steve Kurtz, became embroiled in an FBI investigation.¹⁴ Paramedics responded to a 9-1-1 call from Kurtz’s home;

he told them his wife was non-responsive. They arrived to find his wife, Hope Kurtz, dead. The rescue workers were alarmed by the petri dishes and lab equipment they saw in the home, so they called in the FBI hazardous materials response team. For some reason it was the Joint Terrorist Task Force that actually arrived, sealing off the residence (as well as the entire block), and removing bacteria samples (*Bacillus globigii*, *Serratia marcescens*, and *Escherichia coli*). Kurtz uses DNA in his work, which, like most of the work by CAE, is meant to encourage public debate about safety issues and the global impact of genetic research.

Within hours, Kurtz's grieving process was disrupted as agents from the Joint Terrorism Task Force searched his house, seizing, in addition to his wife's body, Kurtz's computer equipment, disks, books on biowarfare, papers, and lab equipment, including a polymerase chain reaction or PCR machine (something not generally found in a residence or anywhere outside of a laboratory environment). Kurtz explained that the machine allowed him to test for the presence of genetically modified organisms, and that the books were related to his current work on the group's latest project, *The Marching Plague*, which would simulate an anthrax attack as a critique of government germ warfare research. Needless to say, this did little to placate the authorities. Although an autopsy revealed that Hope Kurtz had died from heart failure, a natural cause unrelated to the relatively harmless bacterial samples, Kurtz's problems were just beginning.

Justice Department lawyers argued to a federal grand jury that the artist was a threat to national security and should be indicted under section 175 of the U.S. Biological Weapons Anti-Terrorism Act of 1989, which had been expanded by the Patriot Act and states that no one should possess "any biological agent, toxin or delivery system" unless it is justified as "research."¹⁵ Research, in this case, seems to refer only to laboratory, not aesthetic, practices.

These events were followed by an investigation of the independent publishers of CAE books, Autonomedia, and the serving of subpoenas to several of Kurtz's colleagues, some of whom pleaded the Fifth Amendment. Many people rallied to Kurtz's defense, outraged at the events. A lawyer at George Washington University, Jonathan Turley, noted that the Patriot Act "is designed to deal with the likes of al-Qaeda, not Andy Warhol."¹⁷ In an article in *The Guardian*, Gary Younge suggested that: "What began as a personal tragedy for Mr. Kurtz has turned into what many believe is, at best, an overreaction

prompted by 9/11 paranoia and, at worst, a politically motivated attempt to silence a radical artist.”¹⁷ While censorship of art is as ancient as art itself, the reasoning behind this particular case certainly shifted the terms of the debate. Critical Art Ensemble Defense Fund spokeswoman Carla Mendes notes:

Today, there is no legal way to stop huge corporations from putting genetically altered material into our food ... Yet owning the equipment required to test for the presence of “Frankenfood” will get you accused of “terrorism.” You can be illegally detained by shadowy government agents, lose access to your home, work, and belongings, and find that your recently deceased spouse’s body has been taken away for “analysis.”¹⁸

Ultimately Kurtz was not charged with bioterrorism, but with mail and wire fraud under the United States Criminal Code, Title 18, United States Code, Sections 1341 and 1343. Federal prosecutors in Buffalo argued that Kurtz had fraudulently acquired samples of difficult-to-obtain bacteria by using his connections with Robert Ferrell, head of the human genetics lab at the University of Pittsburgh’s School of Public Health. Ferrell was also charged. Ferrell had identified himself as a primary researcher on application forms for the purchase of the materials, as well as signing a document stating that the material was for lab use only. Usually such a breach of contract would be a civil case not a federal one. Each count of mail and wire fraud carries a maximum sentence of twenty years.¹⁹ The men have yet to be convicted. The date for the hearing was set for January 11, 2005, but was postponed,²⁰ and in May 2005 motions were heard by a Buffalo judge for a dismissal of the charges.²¹ This case is indicative of the kind of censure artists can expect when entering the highly charged domain of biotech.

Many art groups besides CAE have been drawn to the realm of biotechnology. Karl Mihail and Tran T Kim-Trang are co-founders of Gene Genies Worldwide© (GGW©). Utilizing satire, they address how biotechnology re-raises the issue of eugenics, and how biotechnology is predominantly funded not by the government but by the corporate sector, which has a huge amount at stake in its profitability. Commercial application is highly lucrative. Organizations like Genetic Savings and Clone offer to store (for a fee) the DNA of deceased domestic pets, in order to eventually clone dogs and cats. There are other organizations that promise – for a tissue sample and a fee of about \$250,000 – to clone your pet (at some future date when it is a more

efficient procedure with a better success rate than is evident in current cloning experiments).²²

In their performances, such as one staged at a shopping precinct in Pasadena, GGW© set up a faux boutique. Wearing white lab coats, standing amid biotechnological paraphernalia, floor displays, and pamphlets, and using mass media marketing strategies, GGW© targeted potential clients, offering them catalogues from which to pick out “designer personalities” and personality traits associated with animals (“the cunning of a fox, canine loyalty, feline intuition, reptilian cool, survivalist properties of a cockroach and the harmonious sisterhood traits of honey bees”).²³ The artists offered a convincing façade of technological competence and professionalism. While artist André Brodyk takes this to mean they have “complicity in the process they are critiquing,” it appears to me that their tongue-in-cheek approach, and the nature of their offerings – currently untenable – demonstrates how their critique operates strategically from within their utilization of the rhetoric and accoutrements of the corporate biotech industry.

Genetic Portraits

*... it's impossible to move, to live, to operate at any level without leaving traces, bits, seemingly meaningless fragments of personal information. Fragments that can be retrieved, amplified ...*²⁴

Other artists have begun to alter (even interrogate) notions of portraiture and self-portraiture by constructing identity in relation to, and often critical of, ideologies of genetic determinism. In Gary Schneider's *Genetic Self-Portrait* of 1997, the artist's body is represented by 55 black and white photographs. With the help of Dr. Dorothy Warburton, an expert in DNA research and director of the Diagnostic Laboratory at the Babies and Children's Hospital at Columbia Presbyterian Medical Center in New York, images of the artist, including the nucleus of a single cell, fingerprints, sperm samples, hair and blood samples, became large-scale photographs. Schneider calls it “a diagnostic self-portrait” that allowed him to “harvest images” of his body and stage his “emotional response to the issue of privacy in the new World of the Genome.”²⁵ The patenting of DNA has resulted in debates over who can “own” biological material and the commodification of such material, often by

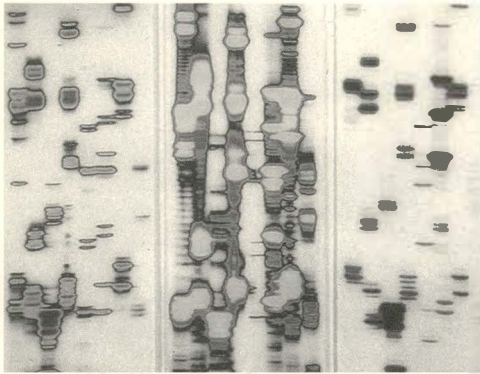
large pharmaceutical companies funding institutional research. Is Schneider reclaiming his ownership over the representation of his body and its materials, or is this question misplaced given the business of biotech? The portrait has morphed to encompass the complex nature of subjectivity in the age of forensic analysis. When we scrutinize one aspect of the human system, we often lose our connection to the larger picture. Our genetic blueprint adds another layer to representations of selfhood, but none of these layers is sufficient, in isolation, to explain who we are.

The cultural necessity for questions about selfhood and ownership of genetic material can be illustrated by the case of John Moore, a Seattle businessman, who had surgery to remove his spleen when he had hairy cell leukemia.²⁶ He received treatment from a specialist at the UCLA School of Medicine. The doctor kept him flying back to Los Angeles for tests over the next seven years. Unknown to Moore, the doctor had been patenting unique chemicals in Moore's blood and negotiating with a Boston company for shares. What piqued Moore's suspicion was his doctor's request for bone marrow, skin, and sperm samples in addition to his usual blood samples. Moore found out that his tissues had been patented and turned into a product. A Swiss pharmaceutical company, Sandoz, paid 15 million dollars for the right to develop Moore's cell line (named the Mo-cell line). He sued his doctor for "property theft" in addition to malpractice.

Although the California Supreme Court that heard the case in 1990 stressed that physicians must inform patients in advance of surgery that their tissue could be used for research purposes, they nevertheless ruled that Moore had no property rights to his own tissue. The ruling clearly illustrated the shift from private research to a dramatically expanded global biotech marketplace catering to the interests of large pharmaceutical companies (forging alliances with researchers) and their stockholders.

Returning to Gary Schneider, the artist raises questions about what signifies "identity" and "ownership" in the age of forensic evidence, medical imaging technologies such as CAT, MRI, and PET scans, and the patenting of bloodlines. If a portrait is not a naturalistic or abstracted representation of the external semblance of a human individual, but one or more enlarged fragments of a private interior identity that enters the public realm, how does this alter how we perceive subjectivity and selfhood?

In a piece by Iñigo Manglano-Ovalle, entitled *Doug, Joe, and Genevieve*, of 1998, each person is represented by a computer-manipulated image of their DNA and the three vertical photographs are hung together in a triptych (fig. 1). The participants are Doug Ischar, an artist, his partner Joe, and their artist friend, Genevieve Cadieux. Each image is over five feet high; the DNA samples are thus given anthropomorphic scale. This is part of Manglano-Ovalle's project *The Garden of Delights*, in which the Spanish-born artist made 48 Cibachrome prints of digitized DNA samples. The artist asked sixteen people to choose two relatives or friends to participate with them. Manglano-



Iñigo Manglano-Ovalle, *Doug, Joe, and Genevieve*,
from *The Garden of Delights*, 1998

Ovalle was assisted by Dr. Suzanne Hart at Wake Forest University (who was then the director of the biochemical and molecular genetics laboratory). She put the samples through polymerase chain reaction tests and helped the artist develop the chainlike DNA imagery.²⁷ By hanging the images as triptychs Manglano-Ovalle, not only utilized the format of the altarpiece (the title makes reference to Dutch artist Hieronymous Bosch's triptych *The*

Garden of Earthly Delights, of the early 1500s), he also redefined the family portrait. *Doug, Joe, and Genevieve* raises questions about genetic information and its relation (or not) to emotional intimacy.

In the works of Schneider and Manglano-Ovalle, the DNA profile – usually associated with forensic labs identifying the perpetrators of violent crimes or with medical labs determining paternity or hereditary propensity to disease – changes their artistic perceptions of self-portraiture and portrait likeness. They represent individuals as genetic “profiles.” For better or for worse, something invisible to the naked eye becomes implicated in new perceptions of selfhood. The artists struggle with what that might mean.

The Language of DNA (or "The Code of Codes")

*It is a new era and we need a new kind of art.*²⁸

The language of DNA, the metaphors used to describe it, and how this information is "translated" is also a concern for biotech artists. Brazilian-born Eduardo Kac (pronounced "Katz"), an artist and a professor at the School of the Art Institute of Chicago, is a pioneer in biotech art. At the festival *Ars Electronica 99*, Kac presented his controversial and ongoing work *Genesis* (first exhibited in 1999 and on display at the festival). Central to this work are notions of translation, coding, and decoding.

The artwork begins with the imperialist and authoritarian statement about human supremacy over nature taken from the Old Testament book of Genesis: "Let man have dominion over the fish of the sea, and the fowl of the air, and over every living thing that moves upon the earth." Perhaps it was the inflexible ideology of the statement that spurred Kac to convert it into Morse code (dots, dashes, word spaces, and letter spaces). Morse code is significant, both because it has a similar binary logic to digital 1s and 0s, and because it was the technology that arguably ushered in the global information age.²⁹

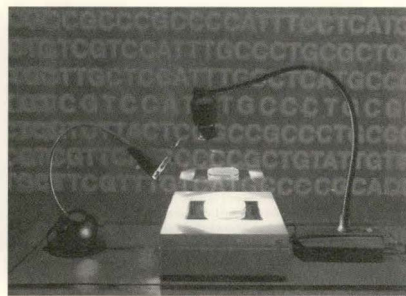
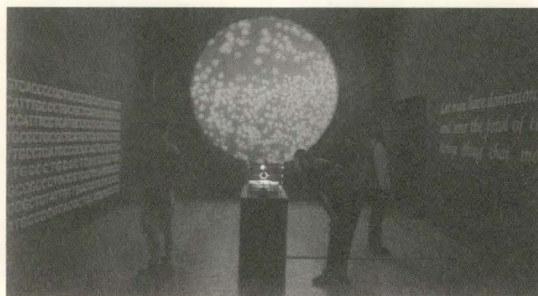
Kac then converted the Morse code into genetic code – Adenine, Guanine, Cytosine and Thymine, abbreviated as A, G, C, T (the chemical base pairs that make up the rungs of the DNA molecule, the famous double helix). DNA is used by Kac on numerous levels, as material, as process, as life form, and as metaphor. Kac is well aware of the way DNA is spoken of as a map, blueprint, or recipe for life, as the "code of codes," or as a "souped up photocopy machine."³⁰ He plays with this notion of coded information.

With the assistance of a biotech company and Charles Strom, a Chicago geneticist and director of the Department of Medical Genetics of the Illinois Masonic Medical Center, a gene "written" by the code was synthesized.³¹ Biblical passages are no strangers to translation, having been translated from Hebrew, into Greek, into other languages, and now into Morse code and the "language" of DNA.

The "artist's gene" carrying the coded biblical passage was combined with a protein that glows cyan when illuminated by ultraviolet light. The gene and the protein were inserted into a species of *E. coli* (commonly found in the human gut), which could reproduce the gene. The genetically engineered

bacteria was then put in a petri dish along with another strain of *E. coli* that glows yellow under ultraviolet light, but does not carry the Genesis gene.

How does all this appear as an installation piece (figs. 2-3)? Entering the dark exhibition space, the viewer is confronted with the petri dish illuminated by lights on a pulpit-like platform. On one wall is a large projected image – the bacteria in the petri dish blown up in scale. Due to its increased size and its focal colour within the darkened room, this large circle of blue with greenish-yellow areas almost resembles a planet in space, mysterious and compelling. On the wall next to it is projected the genetic alphabet: CTCCGCGTATT and so on. On another wall is the biblical passage itself. A computer screen also shows the bacteria in the petri dish.



Eduardo Kac, *Genesis*, 1999

Multiple languages coexist, like esoteric messages with hyperbolic significance: the Book of God, the Book of Life or Nature, Information. Biology, language, and technology are contingent in this seductive piece. Biological “life” – bacteria – is in the petri dish for us to examine. Translation from one “language” to another is what allows us to “read” the genetic alphabet of biology. Technology is what facilitates humans to manipulate, transfer, and splice genes.

The piece is interactive. By using the internet or by visiting the gallery, the viewer can hit a switch that illuminates the bacteria with either white or ultraviolet light. The flick of a switch or the click of a mouse accelerates the mutation rate of the bacteria when it is exposed to ultraviolet light. The result of this mutation is not only the creation of a new strain of bacteria, it is a new translation of the biblical verse. The easy public access to manipulating the building blocks of life raises questions about the power to change, and makes one wonder about biotech regulations or lack thereof. By giving an old myth – the biblical passage – a contemporary twist, Kac has made every spectator a co-author of the Book of Life. The language of genetics becomes a communal process.

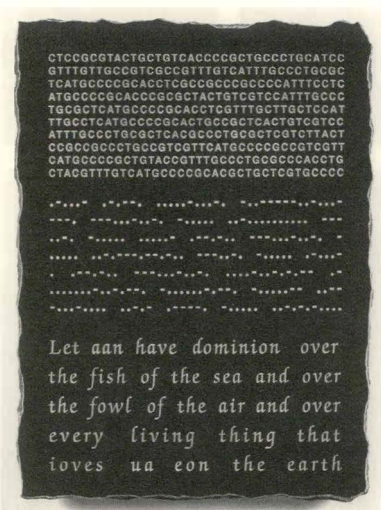
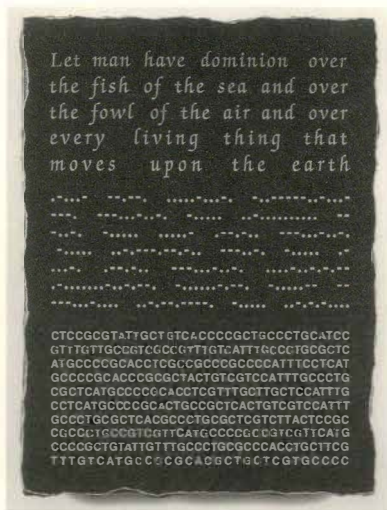
But does this rewriting undermine the dogmatic assertion of the original passage, which grants “man” absolute authority over the earth, while unnerving those already afraid of human tinkering with the genome as an act of defiance against “nature” or God? Or does it reinscribe DNA as the master code and humanity as the master species? The resultant ambiguity is unsettling.

At the end of the exhibit the translation occurs again in reverse: from the now mutated DNA back into Morse code, then back into English. In one version it reads: “Let aan have dominion over the fish of the sea and over the fowl of the air and over every living thing that ioves ua eon the earth.” Slight changes, perhaps, but in animal and human populations, small corruptions in DNA can, of course, have devastating consequences in terms of disease, disability, and even survival.

In later exhibited versions of *Genesis*, Kac included two laser-etched granite *Encryption Stones* (figs. 4-5). Kac has adapted the idea of the Rosetta Stone discovered by Napoleon’s troops in 1799, by using a triple language system. While the Rosetta Stone, which proved so evocative to antiquarians and linguists, contains three languages – Greek, demotic script, and hieroglyphs, each stone in Kac’s diptych includes three different “languages” – the biblical passage, Morse code, and the DNA alphabet. On one slab the order is from the biblical passage to Morse code to DNA, and on the other, the order is reversed with the now mutated biblical passage listed last. Because there are two stone slabs, they also recall the tablets Moses brought down from the mountain, inscribed with the Ten Commandments.³² These references call up the age-old interest in how life (as well as power and authority) is defined through text.

Yet *Genesis* also includes living organisms. Flesh and logos must coexist. Information cannot be disembodied. There is interplay between durability and permanence (the stone slabs) and the fluidity and unpredictability of life processes (the bacteria itself). N. Katherine Hayles’ astute account of *Genesis* also notes that the “sentence that emerges from the bacteria’s mutations speaks not only of dominion but also of rich interconnections in which causation is multiple and massively parallel, thus giving the lie to human agency as the uniquely important element in the rich stew of recursive feedback loops we call life.”³³

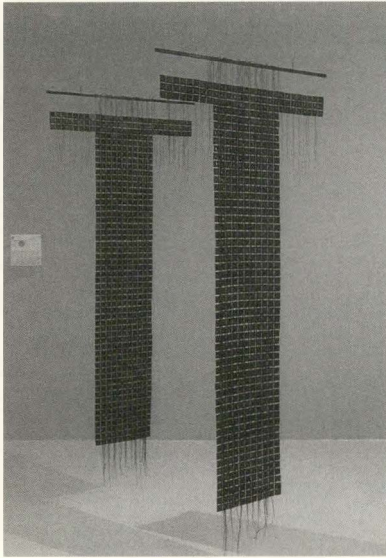
Does Kac “relocate humanity within the complex ecological systems of life rather than above or below it”?³⁴ Is the artist less involved than the biblical text in placing humanity at the apex of creation? Are we authors, are we observers, or are we equal participants in *Genesis*? Viewers are implicated in



Eduardo Kac, *Encryption Stones*, 2001

the act of translation, interpretation, and mutation. This is not merely about what humans are capable of. Why do we want to do certain things? How do we demonstrate responsibility and complicity in relation to biotechnologies? It is unnerving when artist George Gessert reminds us that *Genesis* was first displayed in Linz, Austria, a favorite city of Hitler's, close to where Hitler himself was born, thus making a link between Nazi eugenics, genetic engineering, and megalomania.³⁵ Kac, a Brazilian, is also of Jewish origin. *Genesis* brings issues and questions about genetic research – from the past and present – to a viewing public, opens up a dialogue, and leads us to ponder its charged implications.

Christine Davis' *ACGT I and II* of 1998–1999 provides a different take on the genetic code (fig. 6). Combining tiny squares of steel, each etched with a letter of the genetic alphabet, with thread, she turns the genetic code into two hanging panels that resemble flat pieces of fabric. Under a microscope the code is indeed tangled and stringy in appearance. Only via its abstraction and interpretation does it become the clear string of information, a series of letters in particular combinations. Life is much messier than this, and perhaps this is alluded to by the tangled string ends. According to Davis, "The genetic code seemed to be a radical shift from mechanics to communication, from how the body "works" (blood and guts) to how it "means" (blocks of letters). The idea of genetics as a universal language of life was something I found quite menacing."³⁶ Why does she find it menacing? A universal language of genetics is one



Christine Davis, *ACGT I and II*, 1998–1999

that can easily become conflated with new standards of normativity (insertion of “desirable” or “healthy” genes) and deviance (removal of “undesirable” or “unhealthy” genes).

ACGT I and II also calls up a gendered approach, given the association of needlework and sewing with the labour and sociability of women. The so-called code of life is here stitched together from various components (and disciplines): steel and thread represent technology and life, the biological code supposedly “programs” our fragile flesh. Life literally hangs in the balance. Davis seems to suggest that products of art and products of life are both routinely manufactured and commodified, albeit in dissimilar ways.

Both Kac’s *Genesis* and Davis’ *ACGT I and II* were presented at “Paradise Now: Picturing the Genetic Revolution,” a major show of genetic art that opened at Manhattan’s Exit Art Gallery in September 1999. According to the catalogue introduction,

Most of the work in the exhibition has been made outside of the sanctioned interests of the mainstream art world, and as a result has been marginalized as much by its seriousness and specificity as by its subject matter. But the issues about which these artists make art are now central to the world at large.³⁶

The media spotlight on new developments in genetics facilitates an increased public awareness, and, given the central focus on technological developments in the work of many contemporary artists, genetic art will indeed be extremely important to biotech debates. Whether or not it will ever move into the “mainstream” of art production depends on how one defines that term. Politically effective art often only becomes mainstream in retrospect, once some distance and time has passed, and it depends on the theoretical lens applied or the interpretative tools utilized to assess it.

Some critics are skeptical of biotech art’s longevity, assuming it to be a novelty or trend; Peter Schjeldahl in *The New Yorker* gives it “the shelf life of milk.”³⁸

Compare this to Carole Kismaric, a co-curator of the exhibition *Paradise Now*, who calls biotech art the “imagery of our times.”³⁹ I caution against embracing either account. The Human Genome Project will continue to galvanize public attention longer than it takes milk to sour, and the gene is not the only visual catalyst of the twenty-first century.⁴⁰

Collapsing Boundaries (Hybrids)

Artists not only comment on the communicative metaphors of genetics, they also comment on how genes can be combined to create life forms that are simultaneously innovative, fascinating, and disturbing. There is a long historical tradition of public fascination with freaks, chimeras, monsters and the grotesque. Artists tap into this history, from the literary tradition that begins with Mary Shelley’s *Frankenstein*, to the display of living specimens in circus side-shows, to Hollywood films about cloning, mad scientists, and eugenics.⁴¹

In this section, I offer four examples of hybrids: biological, digital, sculptural, and painted. Firstly, Eduardo Kac’s most notorious work, *GFP Bunny*. Kac defines the term he invented, “transgenic art,” as a

new art form based on the use of genetic engineering techniques to transfer synthetic genes to an organism or to transfer natural genetic material from one species to another, to create unique living beings With at least one endangered species becoming extinct everyday, I suggest that artists can contribute to increase global biodiversity by inventing new life forms.⁴²

Art’s role has dramatically expanded if it can contribute to increased biodiversity. Kac’s artworks are so unorthodox that they instigated a symposium at Chicago-Kent College of Law: “Art, Science and Free Speech: The Work of Eduardo Kac.”⁴³ His work raises many questions, including what does it mean to use biotechnology as an artistic medium? The *GFP Bunny*, Alba, an albino rabbit born in February 2000, is indeed a creature that could not exist without human intervention. Her name means both white and, fittingly, dawn of day. Kac, in this work, relied on collaborations with scientists and technicians. Alba was created in Jouy-en-Josas, France, by zoosystemician Louis Bec (Bec coined this term to describe the digital modeling of living systems), and scientists Louis-Marie Houdebine and Patrick Punnet, both working at the Institute National de la Recherche Agronomique.⁴⁴

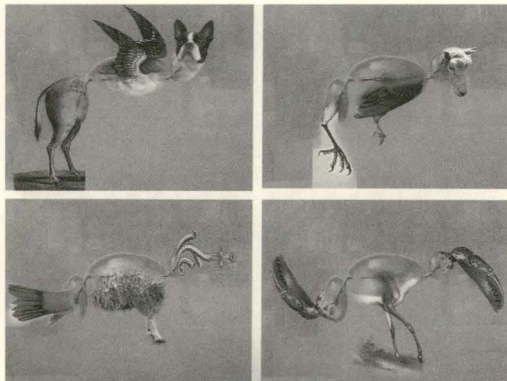
GFP is green fluorescent protein, and it is found in the Pacific Northwest jellyfish *Aequorea Victoria*. *GFP* occurs in many organisms: slime mold, yeast, bacteria, fruit flies, viruses, and zebra fish. After its isolation from the jellyfish, the *GFP* was modified in the bacteria to become *EGFP*, a synthetic mutation that enhances *GFP*, giving it a magnitude of two times greater fluorescence in mammalian cells.

The genetic sequence that produces the enhanced green fluorescent protein was joined with the rabbit genome through the molecular biological process of zygote microinjection. Supposedly (although it has been argued that Alba would have to be shaved first), the rabbit glows bright green under blue light with a maximum excitation at 488 nm.⁴⁵ The rest of the time she is an ordinary white rabbit with pink eyes. Kac states that the *GFP* is harmless to her, as well as to other animal species (many lab experiments with *GFP* back him up).⁴⁶ However, to assert that *GFP* does no harm is not the same as stating that genetic modification or transgenic experiments are animal-friendly. The number of lab animal deaths from genetic experimentation is truly appalling, and certainly reiterates the point about domination made in the biblical passage in Kac's *Genesis*.

Kac asserts that he is concerned with taking responsibility for the creatures he modifies. He wants to counter any idea that a genetically modified animal is a monstrous thing, and he often brings up issues of the crossbreeding of plants and the selective breeding of animals throughout history, as if to imply that this is the logical next step. Alba was supposed to return home to Chicago to live with Kac, his wife, and their daughter in July 2000, but the director of the French government laboratory refused to release the bunny.⁴⁷ The integration of Alba into a family setting would have allowed Kac to experience a transgenic being on an informal and emotional level.

When the lab withheld Alba, Kac began a "Free Alba" campaign on his website. This jibes with the artist's notion that Alba herself is not the artwork, but rather that *GFP Bunny* as a whole is the artwork, which includes the creation of Alba, her social integration, and the public debate surrounding her creation. The issue of ownership of the bunny remained unresolved at the time of Alba's death at the age of four.⁴⁸ In *GFP Bunny*, Kac utilized a bioengineering process, attempted to humanize it, and opened up space for a critique of it, all in one work.

Artist Eva Sutton, who has also worked as a software designer, created *Hybrids* (2000), an interactive digital installation that she has described as a “surrealist slot machine.”⁴⁹ It allows users, with the click of a mouse, to create transgenic creatures by randomly altering combinations of animal body parts (fig. 7).⁵⁰ The very nature of the artwork makes connections between software design and biological system manipulation, while Sutton’s project was also influenced by recollections of the Grimm’s fairy tales read to her as a child.⁵¹ Are these the new monsters under the bed? What are the consequences of



Eva Sutton, *Hybrids*, 2000

such recombinations in our fantasies and in reality? The permeability of species boundaries is certainly highlighted in transgenic research; Sutton gives us a playful way to explore what this means in terms of selective breeding and aesthetic experimentation.

In 1994, Thomas Grünfeld created *Misfit (St. Bernard)* (fig. 8).

This sculpture, part of the Saatchi Collection, London, is made from taxidermied animal parts, with the body of a Saint Bernard dog and the head of a sheep. This chimera has a surprising appeal despite, or perhaps because of, its incongruity. *Misfit* raises the specter of genetically modified creatures that might one day exist, although, to what purpose, remains an open question. Will they be living works of art?

Lastly, the painting *The Farm* (2000), by Alexis Rockman, offers the spectacle of genetically modified animals and produce coexisting with more familiar



Thomas Grünfeld, *Misfit (St. Bernard)*, 1994

livestock (fig. 9). The painting combines a naturalistic style and mathematical perspective with flattened elements more reminiscent of advertising or graphic design. Against the backdrop of a field of neatly planted rows of soybeans, stand an obese pig bred for organ donation, a three-winged chicken, a square-bodied cow, a basket of square tomatoes, a plant producing rectangular



Alexis Rockman, *The Farm*, 2000

cucumbers, and in the very foreground, the infamous mouse with a human ear growing on its back, referring to a 1997 experiment by Dr. Jay Vacanti. Vacanti, a transplant surgeon at Massachusetts General Hospital in Boston, grew a human ear from cartilage cells and grafted it onto the back of a mouse. To some critics, despite the possible applications of this research in terms of growing

replacement tissue, the still photographs and filmic images of the mouse are a dramatic example of monstrous experimentation.

Floating vignettes in Rockman's *The Farm* include a prize-winning show dog and the DNA double helix. Pressures on the farm are evident in terms of human food consumption and crop enhancement, advances in genetic engineering, and medical applications of modified livestock. The farm has become a locale serving corporate and pharmaceutical interests. Scientific experiments first performed in a laboratory are now part of the "natural" environment. As Rockman puts it, "The flora and fauna of the farm are easily recognizable; they are, at the same time, in danger of losing their ancestral identities."⁵²

The Monstrous Future

*... learn to remember that we might have been otherwise, and might yet be ...*⁵³

*Let us be transformed!*⁵⁴

We are sometimes told that "the future is now," or informed that there is nothing we can do about our information-driven economy and inevitable technological transformation. I am profoundly skeptical of any statements stressing that the future is a done deal with no viable alternatives, because these attempt, through foreclosure, to undermine agency and political efficacy. Rather than giving in to the inevitable, an engagement with the monstrous

future, as defined by Jacques Derrida, is much more significant, radical, and productive. This approach also respects the alterity of any future(s).

A future that would not be monstrous would not be a future; it would already be a predictable, calculable, and programmable tomorrow. All experience open to the future is prepared or prepares itself to welcome the monstrous *arrivant*, to welcome it, that is, to accord hospitality to that which is absolutely foreign or strange, but also, one must add, to try to domesticate it, that is, to make it part of the household and have it assume the habits, to make us assume new habits. This is the movement of culture. Texts and discourses that provoke at the outset reactions of rejection, that are denounced precisely as anomalies or monstrosities are often texts that, before being in turn appropriated, assimilated, acculturated, transform the nature of the field of reception, transform the nature of social and cultural experience, historical experience. All of history has shown that each time an *event* has been produced ... it took the form of the unacceptable, or even of the intolerable, of the incomprehensible, that is, of a certain monstrosity.⁵⁵

Significant art often produces such unacceptable or initially incomprehensible events. Returning to the original question: what are the cultural, political, and aesthetic roles of artists working with advanced technologies, such as bioengineering? In the best scenarios, the roles are to expand art-making practices and possibilities; to stage interventions; to critique; to provoke; to transform; to startle us out of our complacency; to reveal the conflicted and contradictory impulses implicit in complex cultural investigations; to jar us out of ineffectual and anachronistic dichotomies which privilege one term over another (male/female, culture/nature, flesh/metal, human/animal, self/other); to push forward a politics *other than* what currently exists; and never to be blindly complicit in, or indifferent to, those workings of late capitalism and liberal humanist rhetoric that privilege individual interests over communal ones.

Biotech is not automatically Biopower Inc.; it does not *have* to be a handmaiden to capitalism and globalization. There is nothing innately liberatory or oppressive about biotechnologies themselves. They are motivated by, facilitated by, or embedded in, modes of thought and action that determine their applications, their uses/abuses. Technological development, according to professor of political science Langdon Winner,

begins with the recognition that as technologies are being built and put to use, significant alterations in patterns of human activity and human institutions are already taking place. New worlds are being made ... The construction of a technical system that involves human beings as operating parts brings a reconstruction of social roles and relationships.⁵⁶

Artists are “operating parts” in this reconstruction. Can they uncover more productive options than unbridled individualism and wealth? Can they promote options that evoke promises of integration and kinship with all matter? To escape entrenched ways of thinking about bodies, one must come to terms with the fact that “genomes are constantly changing, the taxonomy of living things cannot be rigid, and boundaries between its objects cannot be sharply defined, including the definition of *Homo sapiens*.”⁵⁷

Artists speculate about future embodiment through representation. Future bodies are frequently imaged as cyborgs or hybrids, biological-digital entities commingling various genders, sexualities, ethnicities, nationalities, classes, species, abilities, and intelligences. These are anxious bodies, alien others, post-humans. These are the ghost-haunting alarmist visions of biotechnology (when scientists are accused of “playing God” or introducing “unnatural” life forms into the environment). The posthuman body is also the promising stranger embraced by the transhumanist movement, and groups such as the Extropians, who believe in taking charge of and directing our own evolution.

Transhuman means a human in transition. The World Transhumanist Association reports on scientific research regarding all topics related to the improvement of human capabilities and the extension of life.⁵⁸ The Extropians, once a little known California-based organization, have formed the Extropy Institute. Their central goal is to achieve immortality through technology.⁵⁹ Spokesperson and president of the institute, Max More, writes:

We challenge the inevitability of aging and death, and we seek continuing enhancements to our intellectual abilities, our physical capacities, and our emotional development. We see humanity as a transitory stage in the evolutionary development of intelligence. We advocate using science to accelerate our move from human to a transhuman or posthuman condition.⁶⁰

The Extropians seem oblivious to the political and economic implications of their manifesto. What is not mentioned is the fact that the inevitability of death and obstacles to emotional development for most of the earth’s human

population are not the result of aging or infirmity, but of famine, extreme poverty, lack of clean water, absence of medicines to treat disease, the lack of access to an adequate education, and civil war. The Extropian blindspot is their unstated awareness that they are speaking from a position of economic, educational, western privilege. The promotion of self-transformation falsely affirms the singularity and denies the heterogeneity of bodies.

Privileging the individual and individual “choice” is a central tenet of capitalist free enterprise, market expansion, and consumerism, all things that generally interfere with equality among peoples and nations. It denies recognition of how an individual is produced within a social matrix; everything becomes a matter of personal choice, and the limitations placed on individuals by social and political circumstances are rendered opaque. Any dynamics of transformation will likely be tempered by economic, class, racial, ethnic, gendered, and sexual realities, as well as by age and ability. These are the differences that must be taken into account, and that responsible postmodern theorists value as indicative of human diversity, as illustrative of systemic inequalities and injustices, and as instructive regarding the social operations of power.⁶¹ Attempts to whitewash such differences should be viewed with extreme caution.

Posthumanism describes a state of awareness that “human” is no longer an adequate description of what we are becoming. Social democratic posthumanism, as an ontology and phenomenology, could allow us to experience the world differently, open our corporeality and subjectivity to co-mingling, co-evolution, and a more equitable co-existence. What is required, are ways for a group to be a “constant generator of de-individualization.”⁶²

In terms of a biopolitics of biotech art, is it possible for there to be new fusions of organisms, machines, and systems concerned not with individual self-enhancement, but rather with the proliferation of difference and the creation of innovative systems that can foster cross-cultural and cross-species alliances with the goal of benefiting all matter? If people have affinities with others based on an understanding of the world as a series of differential yet interconnected systems, all of which are effected by a negative change in just one, then perhaps liberal humanist notions of autonomy can be sabotaged with a more social democratic vision.⁶³ I am not suggesting that all biotech art producers are interested in promoting social justice. Rather, how artists who incorporate biotechnologies position them, whether they like it or

not, in relation to certain debates regarding the role of technology in human experience.

We are *embodied*, and biotechnology reveals that this embodiment, rather than being about how we are distinct from other entities, demonstrates the degrees to which we are compatible, adaptable, permeable, and modifiable, especially in view of proposed integrations of organic and digital technologies (wetware and direct human-to-computer communication). Xeno-transplantation investigates the possibility of human recipients of transplanted pig organs that have been genetically modified to resist rejection. How many species will need to be incorporated within the human body (through xeno-transplants or the ingestion of GMO foods) before we consider ourselves transgenic and give up the notion of species superiority and species integrity?

Such investigations tweak our recognition of the Others crowding out the archaic yet hardwired notion of a singular separate unique self, a conscious boundaried autonomous being (the diehard myth and illusion that has so frequently legitimized rampant individualism, and class and racial hierarchies leading to exploitation and prejudice).

The thought of becoming part of a fusion of organisms, machines, and systems is terrifying to many, as is making genetic modifications that are passed to subsequent generations. Whereas formerly evolution, a messy and haphazard process, happened over thousands of years, the purposeful alteration of genomes (particularly in organisms grown on a commercial scale such as industrialized agriculture) may result in dramatic changes within a short time period. How do we (re)define ourselves in light of these mind-boggling possibilities? The panic implicit in bodily instability is profound, raising fears of "contamination." What if, instead of encouraging empathy, egalitarianism, and symbiosis, viral hostility or totalitarianism infiltrate these hybrids?

What we make of this bodily instability will determine how we negotiate our mutation into something *other than* our current human condition. To embrace this indeterminacy, this collapse of boundaries, would be the ultimate outcome of that strand of thinking that views all life, energy, and invention as interdependent and contingent. We do not evolve (whether biologically or culturally) in isolation. The stress is placed not on an outmoded "survival of the fittest" paradigm, but on our symbiotic interactions with other species and with the environment.⁶⁴

The ultimate outcome of such views has variously been described as a networked consciousness, a hive mind, or a global brain; life becomes a massive parallel processor. It is tempting to label this view *holistic* in a (Gaian new-age) way that diminishes its appeal, import, or shock. However, it is a prevalent view, one promoted by the interconnectedness of biology, cosmology, and systems theory, and the desired outcome of proponents (physicists, biologists, chaos and systems theorists) of a Theory of Everything (TOE).

The audacious human quest for a Theory of Everything would supposedly resolve all the contradictions between quantum, biological, and cybernetic approaches to the world. It would be the final explanation and demystification of how the universe works, an event horizon beyond which nothing would ever be the same again. The veil of ignorance lifts as intelligence goes supernova, or so the story goes (as usual, humanity could use less hubris and more humility).

Biotech art, like the genre of science fiction, prepares us for the unforeseen changes to come by negotiating treacherous terrain, exploring both the seductive appeal of biotechnologies and strategies for bioresistance. Biotech art engages us in a dialogue about the challenges, promises, and perils of biotechnology today, as well as its aesthetic dimensions. I use the term “aesthetics” not in reference to a detached objective view of art, wherein values are falsely argued as implicit in the artworks themselves, but rather to describe an ideologically informed approach to the visual that acknowledges the social construction of values. In other words, an awareness that some types of bodies or forms are privileged to the exclusion of other types, an approach that has real consequences.

Tobin Siebers, when discussing “the body aesthetic,” states, “the making of any object, out of any substance, by a human being is also in some way a making and remaking of the human.”⁶⁵ In light of this assertion, the political, corporeal, and psychic dimensions of our engagement with biotech art and its aesthetics are crucial. In the balance hangs nothing less than a stake in the redefinition of “the human.”

What would a *bioaesthetics* entail? Entering the culture of advanced genetic technologies requires an extreme experimental attitude, the breaching of boundaries, and the transgression of established rules.

Bioaesthetics needs to be excessive as well as critical. It must be wasteful, extravagant, and non-utilitarian. It must be ready, at any moment, to turn back upon itself, experiment upon itself, and put itself at risk It must try

to imagine the unimaginable, to ask questions that are not supposed to be asked, and to transgress the limits of positivist understanding.⁶⁶

Serious art, as always, is burdened with a hefty social responsibility.

Rather than submitting to the dystopian mantra of Star Trek's Borg, "resistance is futile," or buying into the Telus assurance that, "the future is friendly," we would do well to remember that the term utopia, derived from Greek, literally means *ou* 'not' plus *topos* 'place,' in other words, "nowhere." The future is not a pre-mapped destination, but an imaginary realm up for grabs (after all, it never occurs, all we ever have is *now*). The fear of this nowhere seeps through our protective yet vulnerable membranes. This is a necessary fear; in the words of artist Gregg Bordowitz, "utopian potential always risks proximity to horror."⁶⁷ The monstrous future looms.

To avoid the twin dangers of technophobia and technophilia requires ongoing visual inquiry and an informed critical stance. Biotech artists, in their efforts to expose for public perusal what they see as the underlying implications of genetic technologies, operate as *if* there remains an opportunity to expand current dimensions of thought (and they will attempt to do so without any guarantee of success). Mergings of biotechnology and art have the potential to challenge ideologies of human "progress" that are entrenched in anthropocentrism. Some of the most subversive weapons against dominant biomedical and corporate ideologies of human "progress" (which often dangerously elevate egoistic initiatives or profits over egalitarian impulses, or value human life over other life forms) include appropriation, manipulation, refusal, irony, satire, and skepticism. Fortunately these are modes in which a great deal of biotech art excels.

NOTES

¹ Michelle Kasprzak, "GFP Bunny," <http://www.ekac.org/kasprzak.html>.

² Frank Moore, in Ian Berry, ed., *Paradise Now: Picturing the Genetic Revolution* (NY: Tang Teaching Museum, 2001), 29.

³ André Brodyk, "Genetic Art and Culture," www.aw.mq.edu.au/ANZIHLE/docs/brodyk_cp_01.pdf.

⁴ See "SCI-ART: Post-Photography, Documenting our Genetic Possibilities," http://www.artn.com/bibliography/003_006_nyarts.html.

⁵ For example, when scientists do research, own shares in companies, and sit on ethics boards. See Elaine Dewar, *The Second Tree: Of Clones, Chimeras and Quests for Immortality* (Toronto: Random House, 2004).

⁶ See Dewar 341.

⁷ Quoted in Barbara Pollack, "The Genetic Esthetic," *ARTnews* 99, no. 4 (2000): 137.

⁸ Melentie Pandilovski, "The Ghost of Biotechnology: Art of the Biotech Era," *Art in the Biotech Era* (Adelaide: Experimental Art Foundation, 2006).

⁹ A few examples of exhibitions on this theme: *Paradise Now: Picturing the Genetic Revolution*, Exit Gallery, New York; U of Michigan Museum of Art, Ann Arbor; Tang Teaching Museum, Skidmore College, Saratoga Springs (2000); *Gene(sis): Contemporary Art Explores Human Genomics*, Henry Art Gallery, Seattle; Berkeley Art Museum; Frederick Weisman Museum of Art, U of Minnesota; and Mary and Leigh Block Museum of Art, Northwestern U (2001); *How Human: Life in the Post-Genome Era*, International Center of Photography, New York (2003); *Art of the Biotech Era*, Adelaide Bank Festival of Arts, Australia (2004).

¹⁰ For more thorough coverage of biotech artists, see Suzanne Anker and Dorothy Nelkin, *The Molecular Gaze. Art in the Genetic Age* (New York: Cold Spring Harbor Laboratory, 2004), and George Gessert, "A History of Art Involving DNA," *Ars Electronica Archive*, http://www.aec.at/en/archives/festival_einstieg.asp.

¹¹ On CAE, see Mark Dery's "Interview with Critical Art Ensemble," <http://www.levity.com/markdery/cae.html>.

¹² Quoted in Robin Held, "Generating *Gene(sis)*: A Contemporary Art Exhibition for the 'Genomic Age,'" http://web.archive.org/web/20050308061419/www.gene-sis.net/new_essays.html.

¹³ Ibid.

¹⁴ This incident was reported in numerous newspapers and magazines in May and June 2004, including *Nature*, the *Washington Post*, *WIRED News*, and the *Los Angeles Times*.

¹⁵ The act can be found at <http://www.law.cornell.edu/uscode/search/index.html>.

¹⁶ Quoted in Geoff Brumfiel, "Bacteria Raid May Lead to Trial for Artist Tackling Biodefense," *Nature* 429. Also at <http://www.nature.com/nature/index.html>.

¹⁷ Gary Younge, "Art Becomes the Next Suspect in America's 9/11 Paranoia," *The Guardian* (June 11, 2004), <http://www.guardian.co.uk/usa/story/0,12271,1236288,00.html>.

¹⁸ See "FBI Abducts Artist, Seizes Art," <http://www.refuseandresist.org/article-print.php?aid=1386>.

¹⁹ Rebecca Dana, "In N.Y., Case of Germs Shifts from Bioterror to Moral Error," *Washington Post* (June 30, 2004).

²⁰ For updates on the Critical Art Ensemble Defense Fund, see <http://www.caedefensefund.org>, particularly "When Thought Becomes Crime." The CAE defense team also notes that The New York Council for the Humanities revoked a grant awarded to the City University of New York due to the fact that they invited Steve Kurtz as one of the speakers in its series on academic freedom!

²¹ Joan Hawkins, "When Taste Politics Meet Terror: The Critical Art Ensemble on Trial," *CTheory* (June 14, 2005), <http://www.ctheory.net/articles.aspx?id=482>.

²² As I was writing this article, it was reported that the first dog (an Afghan hound) had been successfully cloned in South Korea by stem cell scientist Woo-Suk Hwang and his researchers (it took the implantation of more than a thousand embryos in more than one hundred dogs to get this result). See "Koreans Produce World's First Cloned Dog," <http://www.msnbc.msn.com/id/8808883>. For more on Genetic Savings and Clone, see Charles Graeber, "How Much is the Doggy in the Vitro?" *WIRED* 8 no. 3 (2000): 220-229.

²³ Brodyk, "Genetic Art," 5.

²⁴ William Gibson, "Johnny Mnemonic," *Burning Chrome* (NY: Ace Books, 1987), 17.

²⁵ Quoted in *Paradise Now*, 94.

²⁶ Moore's story is relayed in Lori Andrews and Dorothy Nelkin, *Body Bazaar: The Market for Human Tissue in the Biotechnology Age* (NY: Crown, 2001), 1-2.

²⁷ Barbara Pollack, "The Genetic Esthetic," 137.

²⁸ Eduardo Kac, quoted in Gareth Cook, "Cross Hare: Hop and Glow," *Boston Globe* (Sept. 17, 2000). Also available at <http://www.ekac.org/bostong.html>.

²⁹ Morse code was invented by a painter, Samuel F.B. Morse. In 1836 he created the first working telegraph set.

³⁰ David Hunt, "Eduardo Kac: Metaphor into Motif," <http://www.ekac.org/dhunt.html>.

³¹ See Lisa Lynch, "Trans-Genesis: An Interview with Eduardo Kac," <http://www.ekac.org/newformations.html>.

³² See Sheilah Britton, and Dan Collins, ed., *The Eighth Day. The Transgenic Art of Eduardo Kac* (Arizona: Arizona State U, 2003).

³³ N. Katherine Hayles, "Who is in Control Here? Meditating on Eduardo Kac's Transgenic Art," *The Eighth Day*, 85-86.

³⁴ Any M. Youngs, "The Fine Art of Creating Life," *Leonardo* 33, no. 5 (2000): 377-80.

³⁵ George Gessert, "Art is Nature: An Artist's Perspective on a New Paradigm," *Art Papers* (March/April 2001): 16-19.

³⁶ Quoted in *Paradise Now*, 56.

³⁷ *Paradise Now*, 10.

³⁸ Mentioned in John Travis, "Genes on Display – Art Movement has Grown Out of Genes" (review of the exhibition "Paradise Now: Picturing the Genetic Revolution"), *Science News* (December 16, 2000).

³⁹ See Travis.

⁴⁰ One could add the microchip, the refugee camp, the sweatshop, large-scale weather disasters exacerbated by global warming, the terrorist suicide bomber – all recurring images symptomatic of our times.

⁴¹ In addition, the growing belief in the plasticity of the body, its malleability, is what gives reality TV shows like *The Swan* and *Extreme Makeover* their popularity, or people like Lizard Man his context. Lizard Man (Erik Sprague) has green hair, scales tattooed on his body, and has had his tongue split and reptilian bumps implanted above his eyebrows. The subcultural (and sometimes erotic) appeal of surgically created "animal-human" hybrids is fast becoming a lucrative mini-industry.

⁴² Eduardo Kac, "GFP Bunny," *Telepresence, Biotelematics, Transgenic Art* (Ljubljana: Kibla, 2000), 101.

⁴³ See Jeremy Manier, "Art Takes a Genetic Engineering Leap," *Chicago Tribune* (Sept. 19, 2000): sec. 2: 3.

⁴⁴ Eduardo Kac, "GFP Bunny," 102.

⁴⁵ Ibid.

⁴⁶ See George Gessert, "Art is Nature."

⁴⁷ Blake Eskin, "Building the Bioluminescent Bunny," *ARTnews* 100, no. 11 (2001): 118-119.

⁴⁸ See Kristen Philipkoski, "RIP: Alba, The Glowing Bunny," *WIRED News* (August 12, 2002), <http://www.wired.com/news/medtech/0,1286,54399,00.html>.

⁴⁹ Anker and Nelkin, *The Molecular Gaze*, 107.

⁵⁰ The program can be experienced at <http://www.genomicart.org/eva.html>.

⁵¹ Quoted in Anker and Nelkin, 107.

⁵² Alexis Rockman, in *Paradise Now*, 86.

⁵³ Donna Haraway, *Modest_Witness@Second_Millennium. FemaleMan©_Meets_OncoMouse™* (NY: Routledge, 1997), 39.

⁵⁴ Artist Jean Tinguely, September 1959, quoted in Douglas Davis, *Art and the Future. A History/Prophecy of the Collaboration Between Science, Technology and Art* (Washington: Praeger Publishers, 1973), 126.

⁵⁵ Jacques Derrida, "Passages – from Traumatism to Promise," in Elizabeth Weber, ed., *Points... Interviews, 1974–1994, Jacques Derrida*, trans. Peggy Kamuf (Stanford: Stanford UP, 1995), 387.

⁵⁶ Langdon Winner, *The Whale and the Reactor. A Search for Limits in an Age of High Technology* (Chicago: U of Chicago, 1986), 11.

⁵⁷ Pierre Baldi, *The Shattered Self: The End of Natural Evolution* (Cambridge: MIT Press, 2001), 24.

⁵⁸ Transhumanists publish the online magazine *Better Humans*, <http://www.betterhumans.com>.

⁵⁹ The Extropians published *Extropy: The Journal of Transhumanist Thought* from 1989 to 1996.

⁶⁰ Max More, "The Extropian Principles, Version 3.0, A Transhumanist Declaration," 1998, <http://www.maxmore.com/extprn3.htm>. Also see "Transhumanism: The Most Dangerous Idea?", *Reason Magazine* (August 25, 2004), <http://www.reason.com/news/show/34867.html>.

⁶¹ There have been expansions to Extropian and Transhumanist agendas which do take politics into account; see James Hughes, "Democratic Transhumanism 2.0," <http://www.changesurfer.com/Acad/DemocraticTranshumanism.htm>.

⁶² This expression is borrowed from Michel Foucault, in his preface to Gilles Deleuze and Felix Guattari's *Anti-Oedipus: Capitalism and Schizophrenia*, trans. Robert Hurley, Mark Seem, and Helen R. Lane (Minneapolis: U of Minnesota, 1983), xiv.

⁶³ The situational solidarity and social justice promoted by non-technologically determinist approaches in cyberfeminism and queer theory can help here, because they describe agendas regarding oppressed or socially marginalized bodies involved in a process of struggle for difference recognition, while also promoting equality, dignity, access to resources and education as the right of all (in other words they advocate a real rather than an ideal equality and thus unsettle the dominant order). This vision can be extended to incorporate non-human intelligences and non-human species, bypassing the human-centrism that has been so destructive to the planet and its inhabitants.

⁶⁴ Some challengers of Darwin posit this view of evolution. For an example, see Lynn Margulis, *Symbiotic Planet: A New Look at Evolution* (NY: Basic Books, 1998).

⁶⁵ Tobin Siebers, "Introduction: Defining the Body Aesthetic," *The Body Aesthetic from Fine Art to Body Modification* (Ann Arbor: U of Michigan, 2000), 3.

⁶⁶ Steven Shaviro, "Genetic Disorder: Bioaesthetics," *Artforum* XLII, no. 5 (2004): 42.

⁶⁷ "Tactics Inside and Out: Gregg Bordowitz on Critical Art Ensemble," *ArtForum* XLIII, no. 1 (2004).

Kate Armstrong / FEEDS AND STREAMS: RSS POETICS

In this issue of *The Capilano Review* a selection of some of the foremost writers, thinkers and artists working today in the field of digital literature have contributed work that will be experimentally syndicated using RSS. The works are broken into discrete fragments and delivered in a never-ending iterative stream anyone who signs up. Thus the issue is intended as a dynamic cycle of remixed reflections, ideas, filaments, and images relating to or emerging from the context of digital writing.

* * *

Even the acronym is manifold. RSS stands for Rich Site Summary, RDF Site Summary, Real Simple Syndication – whatever the semantics, RSS is an emergent standardized format that makes it possible for information of any kind to be sent as an ongoing feed, creating a world where cultural information is customized and spontaneous.

* * *

Here is how you know RSS: you will have seen the tiny orange button on the blogs you read. You will have been offered the option to subscribe to any given stream, subject, tag, or person at any of the myriad points in the fabric of Web 2.0 living. RSS feeds out in an ongoing, dynamic process of perpetual becoming. Once this world has begun, how can it end?

* * *

Here is why you will have used RSS: perhaps you have twenty favourite blogs or sites that you visit regularly. Maybe you are a digital soul whose number of sources has exceeded your ability to make a personal visit to each. If you already use an RSS reader, you have access to any free web interface by entering the address of your favourite sites enabling it to receive content continuously. Visit the website? How old world. Why would you, when it – when they – can come to you? An RSS reader, essentially, is a service that can parse any number of sources for updates, so that you don't have to visit the sites to get their information. The reader pulls it together for you, and rolls everything into one.

* * *

The significance of RSS as a new standardized format derives from its capacity to use a programming language called XML to harness the ability to freely and dynamically distribute any type of information: not only text, but music, not only music, but video – in fact any granular, machine-readable feed from anyone using these systems. RSS is behind podcasting, blogs, and social networking. Consistent with one of its acronyms, RSS is simple, real simple. RSS means you can upload a dynamic playlist to your iPod every morning before you commute. RSS means you can track anything in the blogosphere that uses the word “rocketship.” RSS means that anything you write, I can see. RSS means... simple, syndication, stream.

* * *

How might an RSS feed produce new art and digital literature? The automatic delivery of text fragments can generate new patterns of reading that come to be interspersed with regular life.

* * *

The relationship to the screen, to the digital page, is changed by having material delivered through feeds. Instead of material coming together into one piece on one screen, where a person can “go” to read it, the material is always being sent out, always in flux. It is never finalized. This dematerializes the text even further beyond its initial immateriality as a digital work. Now the digital screen, too, is blasted apart, deconstructed, set adrift. Put into a framework of full, constant movement, the feed only asks the reader to turn it on, to subscribe, and then to receive. But this reception happens within the larger framework of multiple, manifold feeds, suggesting a culture that is being delivered and received from everywhere. Handpicked randomness, chosen by you, the viewer. You subscribe to a bicycling mailing list, a celebrity blog, a local newspaper, a band on MySpace, an industry newsletter, a city columnist, and an experimental novel. All of these works break into pieces and come your way. It is your personal world, subscribed to by you individually, delivered to you as it comes.

* * *

Here is the other thing: continuity. Something is turned on, then it runs. For all you know, it will go on forever. The fact that it will likely end before forever is a fact we know about the world, about life, but it is not a foregone condition of the book or the artwork – not this one. RSS makes a place where the book can be as long, as continuous, as individual, and as randomly interspersed with the world, as life itself.

* * *

Heraclitus: You can't step into the same river twice.

* * *

Further, an RSS feed now means simultaneity. If we felt once in the early days of the web the strange power of the digital, where the work was everywhere all the time, we can now understand, via this textured, moving planet of feeds, not only that the work can be present everywhere simultaneously, but that it continues to change through context, perception and experience. In cognitive, social, political, computational, technological models, it is utterly manifold. The work continues and continues and continues to change.

* * *

This issue of *TCR* marks a foray into how to bring digital literature into a new space, how to make it a thing in the world, functioning in a way that other cultural artifacts have taken to functioning. This is a way for literature to be found again in everyday life. It is an argument for using this technology for artmaking, and for bringing art, bringing writing, text, literature, into new spaces.

* * *

RSS uses the standardized format of XML so that the material is ultimately flexible and can be transformed into anything, anywhere, at any time. Not only does the material, or what's better described as the immaterial dematerialized superflexible movement that is your new streaming world of text, come at you along with and within your life, but it changes depending on where you put it, and what you do with it. Perhaps it does not go into a reader, but into a new feed. As fast as an RSS feed can be pulled in, it can be fed out in a new form, a new context, further advancing the ultimate elasticity of the text. The material that is held inside a feed can be picked up and read by any system. RSS is the shipping container of data: a transcendent form that can travel, that can be filled. Like a book. Was this always the appeal of text?

* * *

In a digital RSS poetics, the work isn't interactive, it is simply active. It is not about the decisions of the reader who changes the outcome of the pieces, it is about the reader him/herself: it is about this reader's world. It is the reader's experience, history, perception, inclination, passions, biases, and the array of other sources chosen by the reader in a continual, ongoing array of potential decisions that come to shape a person's stream – both incoming and outgoing in terms of what they read and what they produce. Because as fast as the information comes in, it can go out. The individual is the ultimate but still networked node, who reads and publishes, pulls and pushes, consumes and produces in an ever more integrated cycle. It is not the decisions made by the reader in the piece but those made by the reader in the world. It is another way, a new way, for the digital model to meet the physical, for the subset to dissolve into the superset, for art to meet and greet life.

* * *

In generative digital literature, it is said that the work has the last word because the author and the reader are suddenly in the same position. The work is realized only in the instant that it materializes. But in this culture of feeds and streams, it is not the author that has the last word as in the classical model nor the work that has the last word as in the postmodern model of generative production. It is the reader who has the last word, because the work – after it is released from the control of the author and dissolved into a model of generative distribution – lands with the reader and accumulates there in a completely individualized shape. Not only is the final outcome individualized by becoming attached to the reader as s/he experiences the work, but the work becomes individualized as it blends with and is absorbed into the stream of information that is already coming to the reader. This is why it gets beyond the “work” – the work itself dissolves into experience. It is not only about remixing the world or the work, but remixing the world into the work, and the work into the world. The work enters a form so highly standardised it can travel anywhere, into and

out of any other model. It is not only XML, it is WOAML, work of art markup language, art markup language, art, language. It is the moment when art dissolves into experience, when art and life finally merge: the work meets the totality of the world and finds it can go anywhere.

David Jhave Johnston / INTERSTITIAL



Screen shots from *Interstitial*, 2006

Interstitial is a work which deals with the fundamentals of existence: life and death. It does not attempt to sentimentalize nor deconstruct these issues. Death is death; life is life.

Interstitial art, any work of art whose basic nature falls between, rather than within, the familiar boundaries of accepted genres or media

Equanimity is strived for: witnessing that neither alters nor demands anything of its subject, an impartial passionless gaze that allows abstract form to disentangle matter from context. In other words, if a dead cat floating in shallow shore water conventionally evokes repulsion, rejection, withdrawal and disgust, this work attempts to circumvent normal cognitive responses, and see the decomposing cat as a fluid undulant field of phenomena distinct from its actual existence or its death or the ongoing process of its decay.

Spatial formal principles of the video composition are distinct from its content. Sunlight falling through water and swaying limbs is simply beauty. *Interstitial* cognition emerges in the presence of the unknown. Empty mind is nowhere.

The subjects of the film fit into 3 broad categories:

1. A dead cat decomposing on the edge of the St-Lawrence river in the centre of Montreal, Canada, filmed over a 10 day period from soon after its death to its inevitable disappearance into the current.
2. A black cricket metamorphosing into a newborn dragonfly on a loaf of bread over a two hour period at an urban picnic.
3. Micro-landscapes from inter-tidal pools in the vicinity of Vancouver focusing on the anatomy and innate beauty of inert materials immersed in the viscid swirling oscillations evoked by tides.

Taboos

Physical decomposition is inevitable for all physical forms; death simply is. What arises decays. All times have known death, most of us have thought of it, yet most of us have rarely examined the actual changes that bodies undergo after death. Putrefying corpses are not considered compost for high culture; our unease with the actual impermanence of existence exiles physical rot to folk legends of ghouls and comic book zombies dripping flesh. The reality is much more mundane and sensual; it is us who rot: sheaths of our form slowly dissipating into other forms.

Taboos against death are widespread; the first autopsies were considered heretical and obscene desecrations; corpses are hidden beneath mounds of earth or consumed in flames. At the same time cultures are territorial, burial spaces are considered sacred land. Since long before Freud delineated the conjunction of eros and thanatos as central prohibitive tendencies in the psyche, humans have avoided decaying flesh of humans; it physiologically evokes repugnance. Yet in the Dzog Chen literature spiritual practice of Tibet, spiritual practitioners are advised to spend time in the charnel grounds, among corpses, in order to arrive at a still clear equanimity in the face of death. Bodies are envisioned being chopped to bits or cooked and roasted; sutras recited to corpses. In this sense the work is a spiritual purative work, seemingly in contrast yet somewhat in harmony with Plastination.

Interstitial fluid, in biology

Constraints

The filmmaking process:

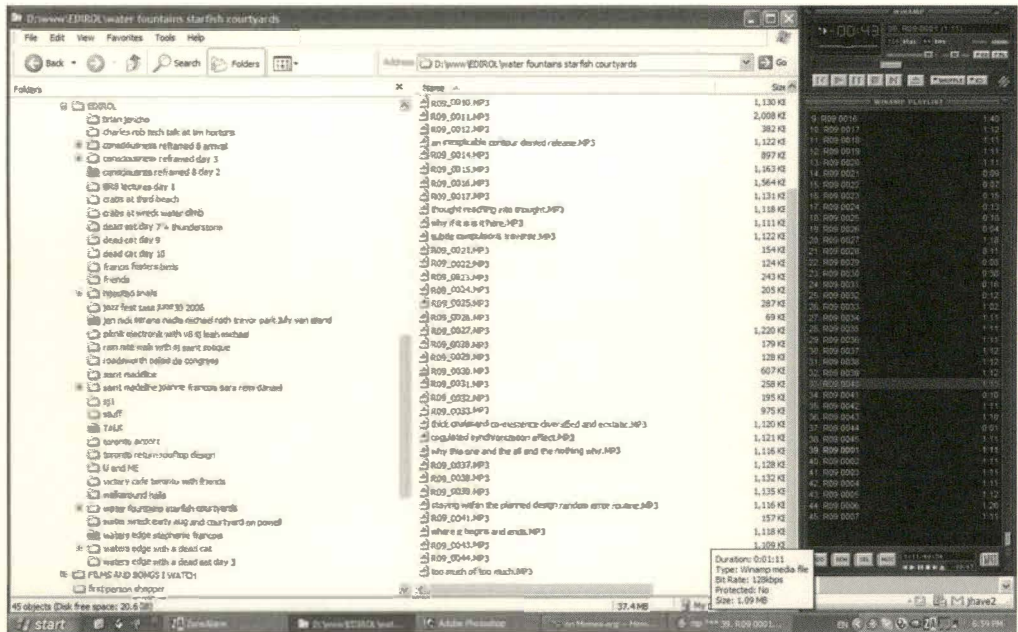
1. The equipment needed to fit into my pockets; and to be discrete, instantaneously usable, yet of sufficient quality for online viewing.
2. The subjects of the film (the objects, insects, and animals) were not to be manipulated in anyway, but simply witnessed.
3. No external/artificial lighting.
4. No changing any details of the context or setting.
5. No post-processing.

The web-design:

1. The work is generative from an archive of material (400 AV files, action script.)
2. No interactivity. The work is simply viewed.
3. No special effects. The only transition is a cross fade.
4. No end. Endless loop: once begun the website streams: sequentially then in stochastic variations ad infinitum...
5. Only the rhythm of the editing changes (as breath changes). This is controlled homeostatically by bandwidth and cpu power.

Digital poetics occurs at a computer, but instead of pulling out a feather and quill or a moleskin and a fountain pen, and instead of opening *Notepad* or *Word* or whatever processing software normally allows access to writing, alternative methodologies exist:

- step 1. record a lot of little distinctive audio/video files
- step 2. import, sort and open in a viewer/player
- step 3. slip clear and resiliently concise into empathic logic
- step 4. rename the audio files if words occur in your mind
- step 5. upload
- step 6. display file names on website during playback



Screenshot from "Interstitial"

Poetic Method

I am a poet
Or at least I call myself one
Even though I rarely write in verse

I am a digital poet
In naming files and displaying those phrase-like named structures
Concurrently with the images or sounds or films that they name
Poems emerge

Laura U. Marks / TAKING A LINE FOR A WALK, FROM THE ABBASID CALIPHATE TO COMPUTER GRAPHICS, or, The Performativity of the Vector

*Une ligne pour le plaisir d'être ligne, d'aller, ligne. Points. Poudre de points.
Une ligne rêve. On n'avait jusque-là jamais laissé rêver une ligne.¹*

This essay follows important continuities in what at first may appear as disparate traditions in art history: classical Islamic art, European modernism and contemporary new media. Comparing several tendencies shared by both classical Islamic art and contemporary computer-based art, my research traces how principles of the former traveled westward, at several points from the 12th to the early 20th centuries, ultimately informing the development of European modernism.

I should state at the outset the result I hope to achieve from this comparison. Islamic art, as we know, is a religious art, driven by a divine imperative, a will to come face to face with the Infinite. In our secular and ecumenical time, no such drive unifies contemporary art. Nor should it. However, I hope that this comparison sheds light on a certain utopian potential of contemporary art. Within an information-capitalist society, there is little room or time for the infinite. It gets crowded out by ceaseless flows of information, covered over by the *pixel skin of consumerist society*, supplanted by fake infinities that pretend to stand in for it. Yet people living in this crowded desert of information and capital, perhaps especially people who do not have the solace of religion, have a thirst for the infinite. So I am hoping that the inspiring example of Islamic art will show that an *immanent Infinite* is imaginable in contemporary society, and that contemporary works of computer-based art may point toward this infinity. I know this is a very grand claim, which may well not be borne out either by contemporary artwork or by the desires most people bring to it, but the immanent nature of this infinity means that it will be there when we finally feel like looking for it.

One goal of this research is to underline connections, to show the Islamic roots of modern abstract art, which find a certain flowering in computer-based art. Another goal is to allow the history of Islamic art, and the Islamic philosophy, theology, and science that accompany it, to pose questions to new media art.

There are presently about eight tendencies that I posit are shared by Islamic art and computer-based art. In this article I explicate one of these common tendencies, namely an emphasis on performativity rather than representation. In both Islamic art and computer art, the work of art plays out in time. This can occur in the carrying out of algorithms or the attentive recognition of observers, or both. Here we will see this performativity in terms of the relationship between point and line.

In "Point and Line to Plane," Wassily Kandinsky suggested that the line itself is invisible; it is "the trail left by the point in motion.... It comes about through movement – indeed, by destroying the ultimately self-contained repose of the point."² This is a line that destroys as it creates; it is a time-based line that has no existence independent of movement. In figurative art, the line serves representation or depiction, such as when it is a contour that defines a figure. The line Kandinsky describes is a line that is free to be itself and to become; it is what Deleuze and Guattari call an abstract line. We see the freedom of the abstract line in modern painting such as work by Kandinsky and Paul Klee. Here the line is in dynamic tension between figuration and becoming, between concrete and abstract. Klee himself spoke of taking a line for a walk, and in his works the lines do indeed stretch their legs and test their powers. The poet Michaux writes that never before Klee had a line been allowed to dream, to be a line for the pleasure of being a line. In fact the abstract line had been permitted to dream quite extravagantly long before it returned to European painting.

Computer media historian Claus Pias suggests that the lively and destructive line of which Kandinsky wrote points forward to the vector of computer graphics.³ Here is the incarnation in phosphorus of Kandinsky's principle – a line that has only a momentary existence as a connection between points. In vector graphics the line emanating from the center of the monitor is actually a moving point that leaves behind it a trail of light as it connects one point to another. Vector graphics are still used in oscilloscope and radar, those wonderfully analog screen-based media. Vector graphics can draw quickly in real time with very little data, making them ideal for early computer arcade games.

The line of vector graphics, which is drawn as a vector from the center of the screen, is actually a moving point that leaves behind it a trail of light as it connects one point to another. It exists as a momentary leap between programmed points. It doesn't have independent existence. The living-dying line of vector graphics is taken up poetically by film scholar Sean Cubitt, who

defines the vector generally as “any quantity that has magnitude and direction” and specifically as a line that describes not being but becoming, not identity but mobile relationship.⁴ The television disciplined the vector into the raster, drawing the electron beam across the screen into 525 parallel lines (NTSC). The digital screen replaces even this time-based act of drawing with the mosaic-like array of pixels. Vector graphics are still used in 3-D animation software like Flash, which relies on their speed and economy to draw contours in real time. Elsewhere, vector graphics have been mostly surpassed by the pixel-based screen.

Both Pias and Cubitt note with regret the subsumption of the vector to the bit map, the realtime drawing on the computer screen by the discrete sample. Cubitt’s film theory sees the vector as a principle of narrative, which invents the future in a universe that is ultimately open. At the level of narrative, its obsolescence is tragic, as the vector’s principle of becoming gives way to the fixed universe of what he calls neo-baroque cinema.⁵ Similarly, Pias, the modernist scholar of computer media, finds it a shame that the transparency of the vector-based screen, which allows us to see how it builds its image, has given way to the opacity of the pixel-based screen, which obscures the image’s origins in machine and software. In the vector was movement and connection; in the pixel, connections are hidden, and movement stops.

Pias’s genealogy from Kandinsky to vector graphics points forward from modern art to computer media. One can also follow this genealogy backward. Where in history do we find nonfigurative works of art whose lines suggest free movement, self-direction, and fearless becoming? Deleuze and Guattari look for the abstract line in art that does not tame the line into a contour:

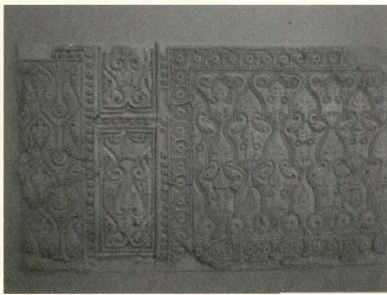
Whereas the rectilinear (or ‘regularly’ rounded) Egyptian line is negatively motivated by anxiety in the face of all that passes, flows, or varies,... the nomad line is abstract in an entirely different sense, precisely because it has a multiple orientation and passes *between* points, figures, and contours: it is positively motivated by the smooth space it draws, not by any striation it might perform to ward off anxiety and subordinate the smooth.⁶

Deleuze and Guattari, following the art historian Wilhelm Wörringer, find the abstract line in Gothic art, and also in nomad art and children’s art. But the unsubordinated, lively line is also moving in Islamic art as early as the 9th century. Here, I’m suggesting, is one of the deep roots of the vector. Needless to say, the aniconism of Islamic art, in other words, its tendency to avoid

figurative representation, is a healthy environment for abstraction, or at least for lines to be free not to depict. In Islamic art, the fleeting, immaterial nature of the line and the sense of the point pulling it along in a trajectory arrive to us inscribed in stone, stucco, ceramic, and on paper. Looking at Islamic art compels me to redefine the vector as *the power of signification that propels a sign to have meaning for a certain receiver*. Islamic art is performative in that its vector, though supposedly coming from the divine to the human, is nonetheless activated by the human receiver.

While my focus remains primarily on the vector-like qualities of Islamic calligraphy, I want to draw your attention to one of the origins of the free and lively line of Islamic art. I will just note that both writing and curvilinear patterns function in very similar ways in much of Islamic art: as ornament that performs the meaning of a space. A typically Islamic form, the so-called “Third Samarra Style,” erupted in Iraq during the Abbasid caliphate sometime in the 9th century. In this decoration, the plant forms of Byzantine and other prototypes were abstracted and flowed together in an endless metamorphosis. This style developed in Mesopotamia and spread like wildfire to everywhere but Spain, which kept Umayyad vegetal style.⁷

Made of stucco, the Third Samarra Style shows the sure and sweeping movements of the craftsman, working while the material was still wet. (These pieces were pried off the walls of a palace in Samarra, Iraq, and carted off to the Pergamonmuseum in Berlin, where they now reside.) Art historians fall over themselves to qualify this style as the origin of the *arabesque* and other kinds of overall ornament in Islamic art. In the arabesque, the line multiplies, branches, and doubles back on itself until it takes on an additional dimension: fractal-style. It almost becomes a plane. It gives the eye freedom to roam in all directions.



Third Samarra style

Calligraphy, or beautiful writing, has the qualities of abstract line at the same time that it signifies words. Calligraphy is the most privileged form of decoration in Islamic art. Art historian Oleg Grabar writes of ornament – those signs that seem to mean nothing in themselves – that it has a performative function in marking the entry to a different space, for example the ritual space of the mosque.⁸ Grabar writes that in Islam, life is considered impermanent and appearances cannot be trusted; hence what holds the community together

is language, spoken or written, as it is the intermediary of prayer.⁹ Thus Islamic calligraphy can be considered the visible, living line of a community of faith – the vector that holds the community in a relation with God.

It is not a surprise to find one of the most compelling descriptions of the performativity of the vector halfway between iconophilic Europe and the aniconic Islamic world, in Byzantine art. The Emperor Constantine V (reign 741–75) denounced images as impious because they are *composed of lines, and hence finite*. “If the icon draws the figure of the divine, it encloses the infinite within its line, which is impossible.”¹⁰

Constantine’s astonishing decree might justify Islamic aniconism, for Islamic disapproval of making figural representations of divine beings also expresses a kind of artist’s modesty in the face of the infinite. But, as Marie-Josée Mondzain writes in her magisterial study of the Byzantine icon, Eastern Christian religious icons were defended against Constantine’s iconoclasm insofar as they were not discrete images (thus subject to idolatry) but vectors that derive their meaning from the *directionality* of divine intention, performed by the worshipping viewer. The icon was saved by those who could argue that it is empty in itself, that it derives its meaning from the *directionality* of divine intention, performed by the worshipping viewer – in other words, the icon is not an image, but a *vector*. The icon, Mondzain writes, “made in the image of [the ‘natural image’ of Christ, will no longer be expressive, signifying, or referential. It will not be inscribed within the space of a gap, but will *incarnate withdrawal itself*.”¹¹ By this description, the religious icon is not an image in itself but a compulsion that draws the worshipper to gaze into its absence, thereby enjoining the presence of God. It pulls the worshipper’s gaze beyond it, toward the divine.

Calligraphy and other kinds of abstract Islamic ornament also have this vector-like quality that pulls the worshipper toward the divine as though toward a magnet. Writing the Qur’an is a form of prayer, as it is repeating in time the words spoken by God. The calligrapher, writes contemporary calligrapher Abdel Ghani Alani, must be both present and absent, as though daydreaming; as though the “energy” that motivates the writing moves both from beyond the calligrapher and through him or her. This writing, Alani suggests, indexes the body of the calligrapher: “The letter takes the form and movement of the body that realizes it, such that what one writes becomes, as for the painter, a self-portrait.”¹² The rhythm of writing, Alani writes, is informed by the calligrapher’s *breath*: in the drawing of a line, breath is suspended, “between life and

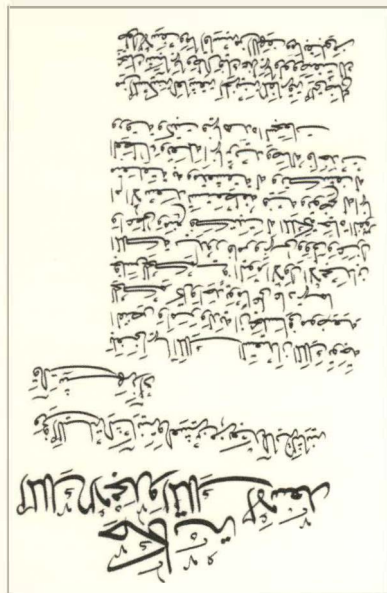
death.”¹³ So the latent rhythm of calligraphy is accompanied by the movement and breath of the calligrapher, not only in him- or herself but in relation to the divine source. (Some Muslims consider Alani’s comments unorthodox or an inappropriate assertion of the self in the act of prayer.)

In calligraphy, is the line abstract? Is it not in the service of language and required to defer to language’s need to communicate? Deleuze and Guattari considered writing to be a disciplining of the line¹⁴; I would say, it’s not only or not necessarily that. Insofar as writing embodies the breath of the writer, as Alani describes, it is not a fixed symbol but the trace of a performative act. In other words, Islamic art is performative in that its vector, though supposedly coming from the divine to the human, is nonetheless activated by the human receiver.

We will see below what happens to the performing line when writing is systematized.

Fixing the point

In the ninth century the Abbasid caliphate, like other burgeoning bureaucracies, needed an efficient and legible script in which to keep its documents in



Islamic calligraphy

order. Ibn Muqla (885-939), geometer and vizier to the Abbasid court in Baghdad, created a standardized, proportioned Arabic writing based on geometry (*al-khatt am-mansub* or “proportioned writing”). This standardization was based on multiples of the smallest mark, namely the cross-section of a reed pen, as a point. This point becomes the basis of all other measurement. It is square or a rhombus.

In Ibn Muqla’s systematized calligraphy, the straight line is defined as the trace that springs from a point, the source of curved lines being *noqlat*, the center of a circle.¹⁵ The line springs from the point, yet can also be considered a series of points. If the point is the mother of letters, the line (*alif*) is the father¹⁶ – less because of the *alif*’s verticality than because,

rotated to form a circle, it describes the field of all possible letters in Ibn Muqla's standardization of writing. Arabic writing shows well the line latent in any point, the line being, in essence, a point drawn out or acted upon in time. But in systematized writing, the point is as small as we can go.

Meanwhile, Islamic philosophers in Iraq in the 9th and 10th centuries were attempting to account for the smallest elements of matter, i.e. atoms, arguing that matter, space, time, and motion were all composed of indivisible minimal parts. The *kalam* atomists critiqued the versions they received of Greek atomism, reframing it in a theistic cosmology. They hotly debated whether atoms had magnitude and extension, generally concluding, following Epicurus's doctrine of minimal parts, in the affirmative. At the turn of the 9th century, Ibn Mattawayah of Basra argued that atoms measure space by occupying it, and that they are not triangular or round, but square.¹⁷ The smallest possible line is made of two atoms; the smallest possible surface holds four; and three-dimensional space is filled by 8 atoms.¹⁸

In the 9th century, atomism reigned, not just across writing and philosophy but also theology, fueling fiery debates. When God sustains the universe, went the argument of the radical atomist Al-Baqillani, He sustains it one atom at a time, one motion at a time, with the command "Kun!" – Be! Or not. Evidently the atomist philosophers held a radical perspective on performativity: if nothing can be counted on to endure, continued existence must indeed be performative; furthermore, its continuity is not due to some internal power but to divine grace.

The parallel concepts of square points in calligraphy and square atoms in philosophy raises specific questions concerning the existence of the square in time. We may wonder, for example, whether the form extends internally? But in the discrete worlds of standardized Islamic calligraphy and Islamic atomism, these questions are no longer posable. Standardization stops at the point; in fact, it is notable that the Arabic term for standardization is *muqaf*, to fix or stop. There is infinite extension outward from the minimal part, and an infinite possibility of embodied movement latent in the still point. No need to look for internal infinities – for the moment. Let us agree for now that minimal parts are indivisible and see what their doctrine might say to digital media.

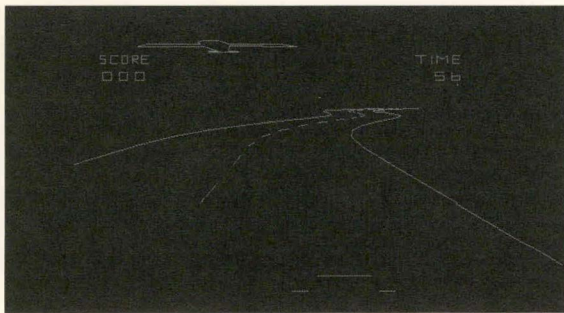
Atomism translates well to the digital world. There is no question (is there?) that computers work with discrete, minimal parts: the on and off signals, the bit and byte of information. We may ignore for the moment that in a

transistor-based digital computer each “on” signal represents a hurtling mass of hundreds of thousands of electrons, each “off” signal a relative dearth of electrons). The pixel is the visual minimal part that corresponds to a minimal part (actually a byte) of information. There’s no inside to the pixel.

However, time and infinity are implicit in the point or pixel because it is capable of drawing infinite iterations. This is beautifully illustrated in the classic computer-based work *Every Icon* (1997) by John F. Simon Jr.¹⁹

In *Every Icon*, a near infinity of forms arises from an algorithm describing the action of 32x32 pixels over an unfathomably long time. Simon calculates that the second line would take 5.85 billion years to iterate all its possible variations. This modest-seeming artwork brings us into contact with infinity, or certainly with an awesomely long time, which in turn puts both our lives and planet into humbling perspective.

If rhythm is connected to body and breath, then the temporality of computer media does not have a rhythm; or at best its rhythm is the perfectly regular beat of some internal timer. What comes along to shape and punctuate its



Speed Freak: early vector-based video game

tedious journey into the infinite? Only the materiality of software, hardware, programmers; only the imaginative effort of humans to compare numeric infinity with our own finiteness. The rhythm of computers seems to be measured by the giant On/Off of mortality. It is the human interventions that instill “breath” into

software. While the latent rhythm of Islamic art, here in the privileged example of calligraphy, is doubly rhythmmed by the body of the artist and the (divine) breath from beyond.

Yet some works of new media make manifest the latent movement of calligraphy, the breath that pulls the writing, vector-like, toward the goal of becoming. Animation, video, and new media, allow calligraphy to reveal its hidden inner life. For example, in Mounir Fatmi’s video *Alphabet Rouge*, in which calligraphy spins and transforms, unfolding new forms.

The inspiring example of Islamic art shows that an *immanent Infinite* is imaginable in contemporary society, and that contemporary works of computer-based art point toward this infinity.

NOTES

¹ Henri Michaux, "Aventures de lignes," on the art of Paul Klee in *Oeuvres Complètes* (Paris: Gallimard, 2001), 362.

² Kandinsky, quoted in Claus Pias, "Point and Line to Raster – On the Genealogy of Computer Graphics," in *Ornament and Abstraction*, ed. Marcus Bröderlin (Basel: Fondation Beyeler, 2001), 64-69.

³ Pias' point is that vector graphics are the true modern art, being a direct effect of the action of the medium, while pixel-based images are tired old naturalistic illusionism (68).

⁴ Sean Cubitt, *The Cinema Effect* (Cambridge: MIT Press, 2005), 70-71.

⁵ Ibid., 249.

⁶ Gilles Deleuze and Félix Guattari, "1440: The Smooth and the Striated," in *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: U of Minnesota, 1987), 496-97.

⁷ Baer, 7-10. Gülrü Necipoglu likens it to "primordial matter" in *The Topkapi Scroll: Geometry and Ornament in Islamic Architecture* (Santa Monica: Getty Center for the History of Art and Architecture in the Humanities, 1995), 96.

⁸ Oleg Grabar, *The Mediation of Ornament* (Princeton UP, 1992), 103 and passim.

⁹ Ibid., 111.

¹⁰ Constantine V, quoted in Marie-Josée Mondzain, *Image, Icon, Economy: The Byzantine Origins of the Contemporary Imaginary*, trans. Rico Franses (Palo Alto: Stanford UP, 2004), 73.

¹¹ Mondzain, 80-81, my emphasis.

¹² Abdel Ghani Alani, *L'Écriture de l'écriture: Traité de calligraphie arabo-musulmane* (Paris: Dervy, 2002), 18; my translation.

¹³ Ibid., 50.

¹⁴ Deleuze and Guattari, 497.

¹⁵ Alani, 68.

¹⁶ Ibid., 70.

¹⁷ Alnoor Dhahani, *The Physical Theory of Kalam: Atoms, Space, and Void in Basrian Mu 'tazili Cosmology* (Leiden: E.J. Brill, 1994), 95.

¹⁸ The atomists of Baghdad and Basra disagreed on whether atoms fill all space. The Baghdad view was that space is a two-dimensional container that envelops bodies like a skin; they generally argued, following Aristotle and his Greek commentators, that there is no void and that nature abhors a vacuum. The Basrian kalam philosophers, among them Ibn Mattawayah, argued that space is a three-dimensional expanse of void (Dhanani 67-68). Their debates are similar to the Greeks, who did not distinguish between physical and geometric space; hence Epicurus rejected Euclidean geometry because he could not support the Euclidean hypothesis of infinite divisibility (Dhanani 103).

¹⁹ <http://www.numeral.com/appletsoftware/eicon.html>

Sharla Sava / GRIDLOCK: ANTONIA HIRSCH'S *World Map Project*

But what has propelled the recent surge in mapping – in gathering and arraying data in visual form – which can be observed in such a wide array of disciplines?¹

A while ago I received an email from my friend Antonia Hirsch, sending me a link to a series of snapshots on *Flickr*, a popular web application and resource for social networking via photography (www.flickr.com), that show her installing an artwork for *Altered States*, a group exhibition that took place in Taipei during the summer of 2006. When I clicked the link, there she was, roller in hand, filling in a patch of land just west of Hudson Bay (p. 73). It gave me a bit of a thrill to see this informal, behind-the-scenes, view of an exhibition. Strange, too, to see the machinery of an exhibition taking place at such a distance (I was in Vancouver at the time), and simultaneously part of a larger viewing public dispersed all around the world. The flickr snapshots made Antonia's trip to Taiwan appear more knowable and immediate – as though we could share an experience despite being physically separated by thousands of kilometres. While it is true that the history of photography is deeply entwined with documenting and sharing our experiences of the world, be they tourist travels or work-related projects, it seems that current advances in online social networking technologies are transforming the pace, volume and accessibility of such encounters and, perhaps, in doing so, are also transforming the social relations that govern the ways we have come to know images.

The piece that Hirsch is working on in the Taipei snapshots is called *Forecast*, and it belongs to a larger series, *World Map Project*, begun about six years earlier. *Forecast* is a world map which adjusts the relative scale of each country according to annual rainfall (p. 77). Installed directly on the gallery wall with clear, shiny, varnish, the land masses appear insubstantial, creating a formal parallel with the transparent and reflective surface of water.

Another work from the *World Map Project* included in the Taipei exhibition, *Rivers and Borders*, juxtaposes the means by which masses of land have been divided by the natural flow of rivers with the manufactured divisions created by the construction of political borders (p. 74-5). When installed in Taipei, Hirsch worked directly on the wall, using fluorescent orange marker for inscription:

rivers on one wall, and borders on the adjacent wall. When reworking the project as a print edition for *Fillip* magazine, Hirsch traded in the orange marker for texture, creating an artwork in which the rivers and borders become visible through a process of directly embossing and debossing the paper.

Rivers and Borders, similar to the five other major works which, to date, constitute Hirsch's *World Map Project*, draws cartography into the realm of contemporary art. In doing so, it stresses the visual basis of world maps, and the many other occasions in which mapping has been positioned as a facet of the visual arts. While the scope of the conjunction between cartography and art is vast and amorphous, what is pertinent to Hirsch's concerns is the place of this conjunction with respect to the historical breakdown of modernism. In order to make sense of what we are seeing here, I think it is necessary to understand how Hirsch's current work both calls upon and resonates with art in the era of what Rosalind Krauss calls "the post-medium condition."²

While disparate in terms of media, scale and content, a common aesthetic aim can be said to unite the artworks in Hirsch's *World Map Project*. Hirsch's artworks take the rational, objective, and highly conventionalised language of cartography as their starting point. Thus we can see that all the works in the *World Map Project* are governed by the same abstraction, distance and systematisation which informs the modern history of European map-making. As with typical world maps, Hirsch's maps-as-art remain defiantly impersonal. In *Average Country* (p. 76 and cover), for instance, as with *Forecast* (p. 77), and *Blot* (p. 80), the artist's hand remains invisible, and the recognizable contours of nation or continent provide the basis for recognition. That is to say, Hirsch, in starting with a map of the world, has embraced the commonly held assumption that the world *is* – or is knowable as – a map.

Although evidently interested in such documents, Hirsch's process of working with them, as we can see with *Rivers and Borders*, does not remain exclusively tied to the ideological conceits of conventional geographical knowledge. Hirsch introduces the materiality of representation, interrupting the transparency of communication, in order to displace the familiar "world as map." Each of the works in the *World Maps* series applies a particular specialised knowledge as a means by which to modify or distort the conventional world map. In some instances Hirsch has taken statistical data as the basis for rationalising an adjustment in scale. For example, in *Forecast*, as Hirsch notes, the "size of each country is represented as proportional to the percentage of that nation's annual rainfall"³, and with *Blot* the dimensions depend on GDP (Gross

Domestic Product). An adjustment of scale is also present in *Average Country*, where the size of every country in the world has been adjusted to conform to a single standard. Other works in the series rely on the process of erasure, and sometimes reversal, as the technique of estrangement. In *ARTnews Top 200* (p. 79), Hirsch shows only those countries that, according to *Artnews* magazine, are home to influential art collectors, and in *Le Monde Métrique* (p. 78) the artist chose metric graph paper, tearing away – and thus erasing from view – those countries (United States, Liberia, Myanmar) that remain officially non-metric.

What I mean to emphasize here is that both the form and content of Hirsch's *World Map Project* attest to social transformations brought about by the advent of a post-industrial, globalised world system. Rather than stressing the sovereignty of the individual nation-state, Hirsch's art mobilizes data technologies that rely on abstract and standardizing language in order to establish relations and means of comparison. Aside from the political points to be drawn from such re-mappings, Hirsch demonstrates an important affinity with the minimal and post-minimal generation, adopting the language of a highly industrialised, information society that is more deeply reliant on networks and systems for social structure than on political mandates based upon the collective will of a given population.

Hirsch's interest in maps shares something with Belgian artist Marcel Broodthaers, and with post-minimal Italian artists Alighiero Boetti and Claudio Parmiggiani, all of whom demonstrate a longstanding interest in cartography. Produced primarily during the 1970s and 80s, Boetti's *Mappa del Mondo* introduces geopolitics into aesthetics (or vice versa) with its series of embroideries depicting a world map where countries are inscribed with their national flag. In another well-known project, *The Thousand Longest Rivers of the World* (1971–77), Boetti demonstrates how much of our knowledge of nature relies on a process of international data accumulation. Based on several years of amassing geographical facts, Boetti established the names and details of the world's longest rivers, eventually publishing them in a thousand-page artist book. Hirsch's *Average Country* is also reminiscent of Broodthaer's *The Conquest of Space: Atlas for the Use of Artists and the Military* (1975), in which the artist created a miniature book depicting the silhouette of eight countries, each scaled to identical size.

Hirsch's work in information and aesthetics is not confined exclusively to mapping. In other series, notably *Anthropometrics* (2004) and *Photographie Métrique* (2004), she approaches conventional systems of classification from

another angle. These photo-based series are concerned with exploring subjective and non-standard responses to standardized forms of measurement, bringing to mind such work as American conceptualist Mel Bochner's *Measurement Room* (1969). Where Bochner relied on measuring and documenting the dimensions of the art gallery, Hirsch has expanded the critique of standard measuring systems into the world of everyday life.

Online technologies have turned us all into potential cartographers. The digital collection and searchable database, *NationMaster* (www.NationMaster.com), for instance, provides an array of world maps based on statistical data. In a matter of seconds (and without paying a fee!) I can create a map of nations based on comparative statistics including "most murderous," "most generous" or "most trigger happy." Works such as Hirsch's *Average Country*, then, make some headway in coming to terms with how the ubiquity and flow of digital data has undermined the stability and autonomy of the modernist image. But it is crucial to understand that *Average Country*, a world map in which all the nations of the world are not only regulated by size but also literally stacked on top of one another, short-circuits the certainties implied by *NationMaster* and other such statistical data. Hirsch's project functions, not as an agent of globalisation, but rather as a witty and cautionary tale of globalisation's problems. What is visible to the spectator of Hirsch's work is the sobriety and utter lack of differentiation offered by this terrain. This world map is a vast, geographical space condensed into a dense and narrow black hole, as if by the ideology of neoliberal globalisation. From a distance Hirsch's *Average Country* looks like the gaping wound caused by a bullet, or the delicate surface of a painting touched by the aesthetics of minimalism.

NOTES

¹ Janet Abrams and Peter Hall, "Where/Abouts," in *Else/where: Mapping New Cartographies of Networks and Territories*, Abrams and Hall, eds. (Minneapolis: U of Minnesota Design Institute, 2006), 12.

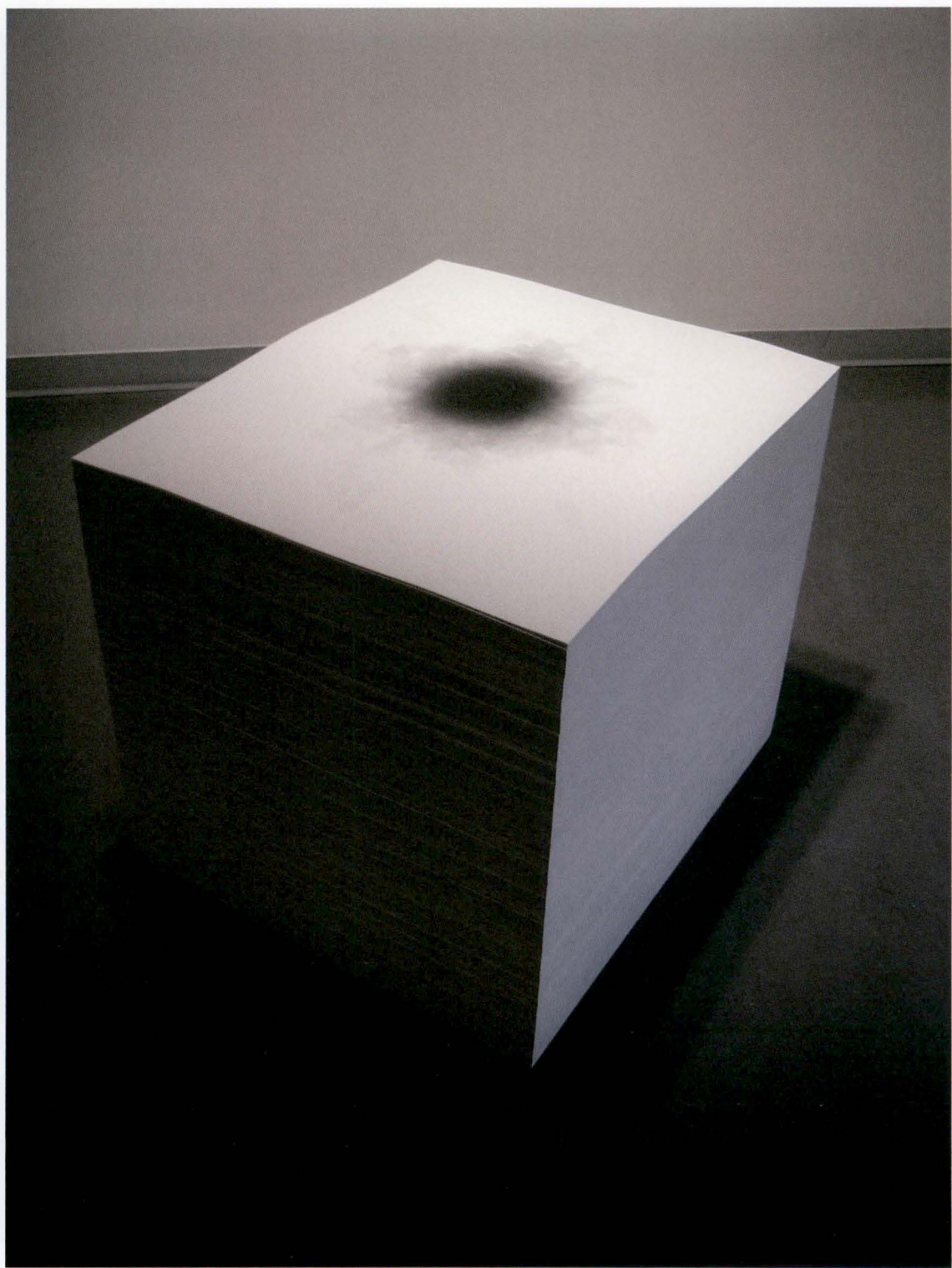
² Rosalind Krauss. 'A Voyage on the North Sea': *Art in the Age of the Post-medium Condition*, (NY: Thames and Hudson, 1999).

³ <http://antoniahirsch.com>.



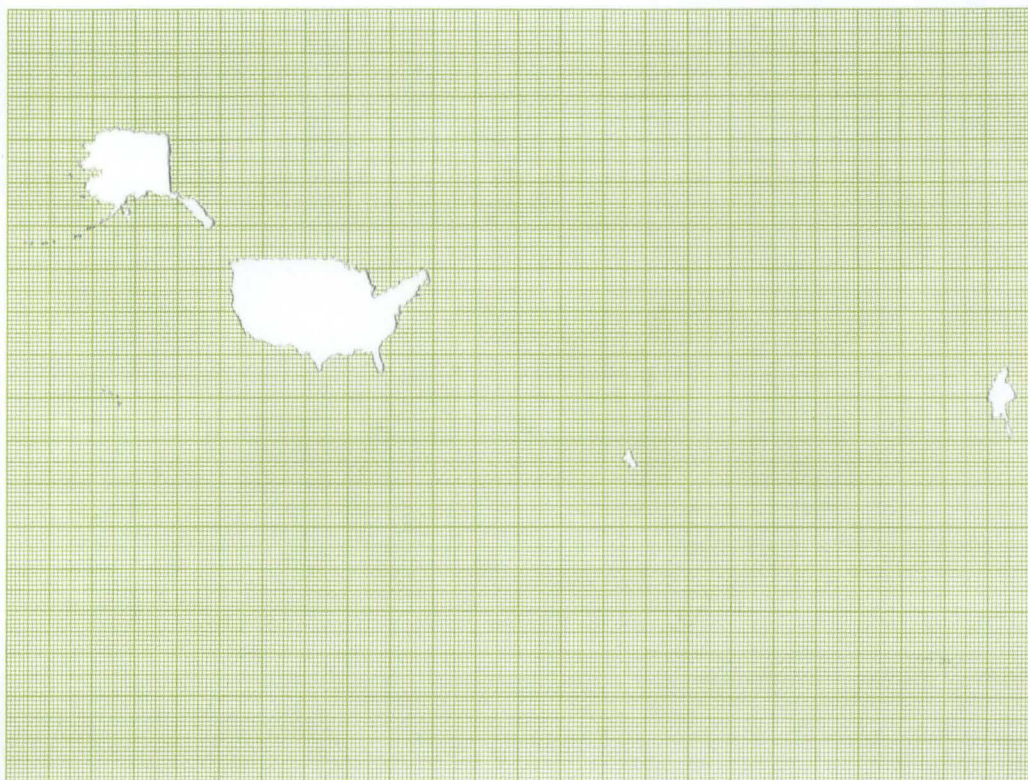








10 MM CM



'Cm/mme en/tyge'

Alana H. 2005





Antonia Hirsch / LIST OF WORKS

73. Antonia Hirsch installing her work for the *Altered States* exhibition in Taipei in summer 2006.
Photography: A-Mao, 2006. Also available at http://www.flickr.com/photos/we_love_taipei/243979783/
- 74-75. *Rivers and Borders*, 2006
Fluorescent marker on wall surface, 1000cm x 270cm
Photography: Wei-Li Yeh
76. *Average Country*, 2006
b/w offset prints, 67cm x 80cm x 67cm
77. *Forecast (annual rainfall by country)*, 2005
clear varnish on wall surface, 444cm x 240cm
78. *Le Monde Métrique*, 2005
metric graph paper, 27.6cm x 21.3cm
79. *ARTnews Top 200*, 2004
23 carat gold on paper, 102cm x 67cm
80. *Blot (Gross Domestic Product by country)*, 2000
vinyl on wall surface, 500cm x 175cm

Kevin Magee / TO WRITE AS SPEECH

1.

daub de l'aube de la de lado
granular

"the/a"
body, closed or open

ZONE SYSTEM[S]

"Instantaneous information, what can be seen at one time (without turning one's head), and understood apart from a study of its parts. Additive information, whatever takes time to be understood, what takes time to be understood. Sequential development, adding on, accumulations of information, the uses of time, precedents, juxtaposition.'

Her work 'accumulated,' often no beginning, ending, cycles, no 'pieces,' but notations, annotations, a feminist consciousness problematizing the cohesive totality of 'form.'

'Open systems, infinitely referential, radial, linear, not circular (enclosed), in which all aspects of one's concerns relate to all others and form a continuous pattern in which many directions are equally possible and choices depend on personal necessity (and are not irreversible).

Perhaps some fleeting thought, already gone.'"

AND:

'Zone system: I operate somewhere between the appearance of the first black

and the disappearance of the last white, but closer to the last white and sometimes beyond.

Between the lines. Pieces as segments, without beginning or end, something from which to imagine a whole....'

"(An undercurrent of violence). That sense of underlying violence – the potential of violence – under the apparent blandness, flatness, silence of things, under the controlled voice, behind a smile."

AND:

'There is always the possibility that I am not making sense, that this is not clear (etc.) However, to be sure that I am as clear as possible, I form the letters carefully, by hand. I add a certain distance, an appearance of objectivity (that helps).''

Nancy Wilson Kitchel, *Visible and Invisible*, in Alan Sondheim,
"Individuals: Post-Movement Art in America."

"Whatever they're made to speak is manufactured" (Failure to Overwhelm)
"the beginning of writing therefore, the constraint of the symbolic, the beginning of culture... the symbolic, symbolic-maintenance, within and without those uncanny parcellations" (Vacating of the Symbolic) "is [that] 'you' thinking, or thinking-thinking" (Future Culture/rough draft) "The differential is because of the absent class, those not jacked in, those close to starvation; those in the midst of wars and famine, those producing these equations in dirt-poor factories around the world" (Future Culture/rough draft).

u s l o v n y e r e f l k s y

(conditioned reflex)

made her
being made here
imaginaries
you who are sure of

“fuck (with all the contingent issues of
oppression, power, desire, and violence the
command implies).”

“thinking as bang-path behavior on
parallel channels of real and virtual syntactic
strategies – including the moment of the absence
of syntax altogether. If the unconscious is
structured as a language, it is structured as
either silence or yammering. The moment of
the absence is not the absence of thought, but
the absence of the symbolic; thinking has moved
to the imaginary and the symbolic”
[and its non-categorical] “movement
towards syntactic structuration is a thought
afterthought. this movement is dialectic; there
is also thinking in language, routing through
the formal syntactic as imaginary – this
is the case in pausological analyses for
example – how pauses operate in ordinary
conversation. (The pause comes after
the conjunction, i.e. after the structure
moves to parole before the semantics are
fixed / articulated.)”

LANGUAGE IS AN AFTERTHOUGHT

“Language [as] an effect of neural
processing / learning, rather than a
ground or ur-grund” “fading-objects”
“translucencies that shatter” (at the touch)
(glance of the eye) your reading eye

'my' so-called reading eye
how it seizes on the 'part-object'
geared toward foreclosure
the eye (my eye) its hatchet job
the violence of the seizures
among this book or that

you do not read you raid
the raiding-reading, hacked texts
nerves, fits, the rolling eye
pen grabbed / words carved
WORDS GOUGED OUT

"It's the looking of the eyes staring hard"
'WORDS ARE THRUSTS'

"the work of thinking" are the / and the
"fuzzy domains"

"that we are doomed...
"that we refuse...
"that we are blind...

trauma #1 _____
trauma #2 _____
trauma #3 _____
trauma #4 _____

or 'they are and are as they are'
on the Street of the Cockroaches
"You lying whore" (shout of a voice
from the street, Lark St., Sat. 2:26 p.m.)
"You whore, you fucking whore"
(same voice, 2:29 p.m.)

writing it down, does it belong to me
it doesn't belong to me, masculinist-misogyny

or else the voice invades the ear
invasion / penetration / occupation
What is the head not a host to?

('site of inscription') itch of the cockroach,
the rustle of roaches in my eyes-ears

interiorities' continuum of injuries
debris of the voices in the street

am "I" or have "_" been or am now
or am the already past
record/event of the descent
of the virtual into the real
a spectacle that's been produced
my heavy foot on the stairs
the imaginary ("uncanny
interpenetrations") "and I was that
effect" – effect of my ascent –

and what kind of person is it
and what type of human is it
that keeps adding more to it
cement, mud, plaster, paste
it took a shit in cyberspace

stamped on or stomped on
who fucked himself for all of you
(the public view) the Jew
in the house on the street
of Cockroaches

are you doing for philosophy
here what another did to poetry
where what is happening here
is a book on a and a

the transfigurative
a ba – dialectic

“To whom should we speak? To what, in fact? Under what circumstances? The knowledge we carry is that of universal processes; perhaps, in our ignorance, we have discovered something even unknown to you? In the Rigveda, there is talk of an unknown god, but we are not concerned here with deity, only with protocol, etiquette: What is the nature of our address?”

NEGATION RELATED TO ALTERITY IN CYBERSPACE AND MATERIAL LIFE

THAT “there’s no other to cyberspace, no air anywhere”

THAT “the body appears to breath, its organs duplicated everywhere, laminated across the constructed world”

THAT “the invisible as the defined excluded, ‘excluded’ from the field of visibility and ‘defined’ as excluded”

THAT “there’s a mass psychosis underway, as if being offline meant you’re somehow deficient, in education, worldliness, style, income, and geographic location”

THAT “art became style, and has never left that position”

THAT “introjections of simulacra do strange things to human beings; the fallout’s just begun, and there’s no end to cite”

THAT “cyberspace presents the imagining of infinite territory, signs, cultures, spaces, depths, storage, bandwidth; New World genocide is just around the corner. If as I would have it, the flood is the hardening and construct of new capital, new consumption – if the flood is, in fact, creating the new subject subtended to the maw of the idiotic corporate (idiotic in the sense of Rosset, blunt, unresponsive, in-itself, ‘there,’ and not in the sense of ‘idiocy’), then we will witness a new form of anomie ‘within,’ in the midst of horrendous poverty and ecological catastrophe ‘without’

THAT “which returns us once again, to the phenomenology of the ‘cool,’ ...
“the pastiche of historicism, the layered or morphed landscape, the promise of
the digital eternal – what’s ‘cool’

THAT “the notes, the ‘holes’ in the thing, become plateaus of past practices,
maybe even colonialisms, they remained strange attractors, bending, cries,
going on around them, in spite of them”

THAT “the measure of the eyelid is the measure of the cave or cyberspace, the
world always already fallen when it is told so. The ‘cartoon’ is the sign of the
world, the sign’s horizon, unreachable debris. The cartoon is the world gone
awry in the face of the symbol; the oracle was the first cartoon, which still
(Mickey Mouse) carries something (Donald Duck) prophetic (Krazy Kat)
about it. This is why cartoons anger us, draw us within their stumbled power.
This is why clowns, clawing the world apart, beg us to kill them.”

THAT “space of reading which is always open, penetrated, a perforated space
splayed for reply or deletion and therefore fragile, the space of a membrane,
torn-space, there is always ‘this’ space as the other end/other hand, space of
writing which is foreclosed, null after sending”

THAT “save to file (slave to file)”

2.

“the artist’s culture... cross circuited”

“spill of speech (which chaotically can influence the real, material, environment) with its appearance of free labor,”

“a double-writing in which the boundary creates an imaginary and inchoate presence that will turn out to be the self, parceled out within the wall, dismembered, with the memory of a totality that comes from the wall itself”

“the sea of crisis of speech and of storm”
“definitions of ‘social,’ ‘order,’ and ‘narrative’”

“In real life... facial expressions, tone of voice, and the obdurate presence of the body that constitutes the agreement as ‘authentic,’”

every conversation is inauthentic,
every human contact problematic,

the lidless eye, TV Lacan
conspiracy theories, locks and keys
visuality and the pressure from the below-parole

documentaries, comic attempts to catch a worker on film, this one or that one
saying whatever they think they’re supposed to although there will be flows,
blows,

spectacle of number, human numbers and is it a question of being counted
what if the problem isn’t one of disappearing, what do you belong to

“facial expressions, tone of voice,
and the obdurate presence of the body
that constructs”

negotiations
(agreements)

on the wall
at the wall
against the wall
before the wall
down the wall
across the wall
below the wall
beside the wall
over the wall

1. the “frozen inscription” and the “frame”
what is interpretation without suspicion
absorption: text as skin as sponge
abstraction of a sign is its sanitation
sanitized: assigning one meaning to the sign

2. who has interpreted if to interpret
is not to incorporate texts made under
the totalitarian inscription,
the “frozen inscription”
decoding

3. (not resemble) what was “reflectance
theory” or is the work that logic does
the ‘not making strange’ (is there
thought without logic and number)

4. the calling of an afterthought a thought
and calling that language and is this
where history has brought language to
(symptom) (trauma) (shock) the work
of interpreting as the ‘turning it out’

what is the turning of something
in on itself if not the assigned or
ascribed meaning, “frozen inscription”

coda

trust the grin that isn't thrown in your direction
can you trust the one that saw the grin that caught
the grin that kept the grin that thought it through

nothing is ever thought through, that's the purpose
to writing off of or at and around or are you simply
reacting to (interpretation is never reaction) AND

grammar is disturbed and the absence of grammar
is also disturbed (the problem here is languaging)
thought and afterthought and impulse and reaction

3.

“Nothing runs unless it runs in and out of a world.”

How to ‘turn out’ the return of the shape/specter
(“the instability of the imaginary, the uncanny,
ghosts always appearing on the periphery”)

Is the virtual-real (‘seamless virtual interface and reality’)
trans-planting/placing (plating) the Imaginary, Symbolic and Real?

simulated exposures
the migration of consciousness
away from a collapsing social being
(voice from face; environment from institution, etc.)
(‘the denial by a society’s members
of the social construction of reality’)

private code compressions, frame for a thinking that ‘reads’ that way,
the convolution of address, disappearance of ‘directness’ – whatever that is,
if every utterance collapses under its intentionality and history and context
and a disabling analytics (anything that comes out of your mouth is not what
you’re really saying)

reflex:
in front of a face,
wait for it to tell you what to do, where to
go / what say
what can be said and what can’t
that this is also ‘etiquette’
(respecting parameters) or
appearing to ‘be’ there and not being there

constant:
'not here'
'this is not here'
'it is not here'
(what is not here)
the monitored 'you are'

where fate is found
"the free-floating noisiness of the physical"
intensity of the hearing range
absorption

the forecast, electrical storms
humans and machines in the magnetic fields

what happened to elasticity / what's that
shape following shape (bendingness)
have you followed too many voices
(detach the sounds from the voices)

do these lines comprise a grid
or a background against which to compile
a message to be stopped by the printing of it
does the printed word represent a dependency
the getting used to a way words happen and signify

the circularity in spokenness / brokenness
the criminalizing of the working class
and I have studied this, have listened a long time
have read out loud the transcripts
coating and code

lamine and placard
enamel, don't the words move fast enough for you
make them move more, putting to motion, in motion
(fascination with subtitles)

division of voice from image
space among what's heard and seen

the interface as not face and not voice
and the freeing that might be there
the 'non response' to face and voice
power, authority, command forms

what's around
what surrounds
whatever is going on here is not really going on?

matrix/chora

interstitial
interstice
(suture) (itch)
mathematied
mathematizing
mathemata-machine

But others brought in
others brought in from the margins

“(It is only language, typing, that sticks in your throat?”

r e p e t e n s e / R O T E

(“frozen inscription”) w R O T E

“Where does the reading

experience end or even begin?”

ruse / refusing / fuse / defuge

au lieu (skein and skin of the social)

“It is not that I desire blind-html, imageless, text-hysteric; it’s that there is an additional dialog, with email, that reconstructs the possible.”

“(para
meterized)
window
of the Witness”

at that
at it
at

what to say at what’s seen or say you saw and seeing isn’t reading
what is reading and writing and looking too and looking through
look at it at what look at you looking at it stopping to look it up
look what up like look up a word looking or licking at the words
lick it up / the body as sponge / porousness / a text that seeps
(weeps)

abject
always or often enough too often the wanting that state
wanting to luxuriate in it / roll around in it / the sty
the wetness in the eyes

sweeps or range / half the time thinking you’re in a pentameter
Blake or Milton or whatever those names are starting not to matter

can’t read anymore Sun 2:39 PM
yesterday about this time from the street
it didn’t have to get put down, it didn’t have to
it could’ve got let go / ignored / passed by
puncturing the silence writing in the reading room

a room like that's a membrane
what comes into it from outside
what do you let in from it from outside
some guy, some voice yelling something or other
yelling at another / there's other voices
the effect of the voice on the writing
the effect of a man in the street
random man / neighborhood / street
not all streets / not all not at all not

[extended pause] [breathing] [space]

not at or out of and around not around
space into next space dot and log
the logs the log ins the signal posts the light
post signals / what comes through
what comes through is what the text would ask you
what is a rhythm what swells what are waves
read in silence / words on a wave
what's an ocean what shore what
what is it [silence] read it in silence
what are you reading are you reading
repeat: what is reading

say "I know" say "I see" say "I know"
not the books not the titles not the authors
not the reading – writing / not the culture
"autocentrism" that you know that and can't say it
can't say it like that / you say it through voices
like that voice yesterday / it's what comes in
it comes in and takes over and you go there
and it's on your page and you're in that / from that
not "from" and overcoming origin the "root"
the simple tree

there's people around and how do they sound
or down / bringing the languageing down
langue or longue / tang / tongue

something you hear / and what gets heard
the what's reading can't be answered here
the what are you reading and reading list and post
ongoingness

like a mangled sentence
the good work goes undocumented
unread / unheard (scream that scream
this morning that you've heard
and it goes unheard

heard is not enough / not even
the knock on the door downstairs
the coming apart of cultures

words / it's not just words
you will see actions in the shape of words
you will see words being used
even if you're used to words being used
"images kill" yes and politics

and you don't know
what it does, what the politics
does / what it does to words

welcome to the court of world opinion
without a clue / without (almost)

here is a proposition (a thought)
about projection (introjection?)

the psychoanalytic flows in cyberspace
what the book knows (what it undergoes)

no, masters, writes beside or along or
it knows / it knows / it knows

attached to the sign, no, attack signs
what projection does is put on another

what's coming from the flows
callous is also protector

sensor: what's going on around here
censor: what's going on around here
you don't know don't you
no, "I don't know"

don't you know or don't want to
what don't you want to know

what the book knows
how did it get past the lists

why no discussion about this
the lists are light and speed

involution / anonymity
APPEARANCE of the APPEARANCE
it doesn't affect what appears
around me / what's going on around

what's going on around here
and it's nothing that hasn't happened before

and why should that answer what
what should you do if you did get up

closure / foreclosure
stop it / don't stop what
"translucencies"
sluice

Jim Andrews / THE <BODY> OF NET ART

The <body> of net art can be conceptualized in many ways, but what I'd like to do here, with an eye to the future, is consider it as a kind of architecture.

But, first, let's note that while the term "net art" has widely been identified as "web art," i.e., art that you experience on the web in a browser, it should be thought of more broadly as digital art in which an internet connection is necessary though the work itself may or may not be located on the net. For instance, an installation piece in a gallery may use a voice recognition system that feeds the recognized language to Google image search in order to display or process images associated with the language spoken by gallery participants. Here, the internet connection is crucial, but the work is not one of web art which, currently, is typically viewed in a browser with the viewer sitting in front of a computer using a mouse and keyboard for input.

Most of what has been known as net art could as well be experienced on a CD without the computer having an internet connection. I don't mean to argue that such work should not be considered net art; often, the milieu and subject matter are net-oriented, and it's on the net for reasons deeper than the net being a convenient, cheap way to publish. However, I do think that the edge of net art will continue to be strongly involved with trying to do funky shit with an internet connection. Why? That's a crucial distinguishing characteristic of net art versus other types of art, and it's usually the case that the unique characteristics of a medium or a person or whatever are crucial to their identity, to the key strengths and weaknesses.

What funk is there to be accomplished with an internet connection? Works of net art are typically interactive, and the quality and possible range of the computer's response can be greatly enhanced using the internet. Many different businesses and organizations on the internet are starting to make "web services" available to programmers. These "web services" typically allow programmers to tap into things like Google text search or image, sound, video

or news search; or allow programmers to tap into things like dictionaries, thesauri, auto-translators – and anything else we can use and search on the web. There are also web services such as those available at pandorabots.com that allow programmers to construct a chatbot. A chatbot is an application that you converse with. Antoine Schmitt's piece *Puppet President* (puppetpresident.net), for instance, uses web services from pandorabots.com.

Many of these services are relatively sophisticated in their ability to analyze and respond to language – and this is sure to be a type of web service that grows more flexible and wide-ranging in the services it offers. For instance, when you do a Google image search, the images are usually relevant to the search language. And when you use Schmitt's puppetpresident.net, the responses are occasionally surprisingly good. There are, of course, vistas of room for improvement, but interesting art does not have to depend on the quality of response of the web services but, instead, has to be able to do interesting, enlightening, telling, possibly useful things with what is available, possibly even undermining the "intelligence" of the web service response. It isn't the mere fact of using a particular web service that makes a net work interesting (or not), but what is done with it.

In any case, we can conceive of these web services as part of the <body> of a work of net art. A work of net art has access to any number of web services that allow it to retrieve media and also analyze and respond to the language or other actions of the viewer. Web services are not just a type of memory for the brain of a work of net art, but provide some of the intellectual functions. Typically, analysis of language is a difficult programming proposition and thousands of people have spent their entire life's work on the matter, making small but significant contributions to this field. Increasingly, net art will take advantage of that work via web services.

Web services give programmers access to millions of texts, images, sounds, video, and other media such as Flash files. And usually web services provide access to these media in such a way that a database is queried for appropriate results, as is the case concerning Google image search.¹ When net art takes advantage of web services, the art becomes less about traditional media-making as creating an entity that makes telling use of the media and language analysis at its fingertips.

Using web services is not a shortcut to creating art, however. The interest of the piece as a work of art is going to be in *what is done* with the web service,

not the simple fact of its use. The life of a work of art has more to do with its liveliness, its provocations, and its ability to connect than with specific technical achievements.

Works of software art *always* make use of services available not remotely over the net, but rather from the operating system of the local computer. These range from tapping the computer's graphic display device to its input/output devices (such as the mouse and keyboard) to using the browser and/or installed plugins such as Shockwave or Flash or Quicktime, speech recognition software, or virus scanning. These respond more quickly than web services, typically, since the query and response do not have to travel over the net, and are common services required by the general user rather than being more specialized services available over the net. Also, local services generally do not draw on the world's media stores but are relatively confined in what they can offer in terms of media and artful analysis. In any case, the local services are definitely a part of the net art <body> architecture. They offer swift response, a factor which is sometimes crucial in computer art, and customized use of all of the resources of a contemporary computer.

We see in things like Google Desktop,² an application that extends Google's search function to local files, how web services and local services can sometimes be merged in such a way as to make indistinguishable one's own computer capabilities or storage capacity from those of remote computers on the net. Networks connect computers in ways that vastly increase the capabilities of each of the computers on the network and, concomitantly, the capabilities of the people using them. Since McLuhan, we have thought of technology as an extension of the body, the senses, and our cognitive processes, and that is true, in spades, of computer networks.

Another extension of the <body> of net art is its facilitation of growth and change over time according to what different people do with it collectively. For instance, a Wiki³ allows people to edit the pages of a website. Ideally, this results in stronger pages, over time, despite common fears of inaccuracy in public knowledge. In any case, the edited page is stored permanently not on the reader's machine but on the server from which the page was retrieved. This is not so much a "mental function of the brain of the work of art" so much as a type of memory available to the work of art. And this sort of memory would be important to any possibility of the work of art coming to learn

anything over time. If it can't change over time, it also can't learn. Neither can it become a kind of collective work of art.

Client-server architecture can be used not only to save information from different contributors (and present viewers with all the different contributions) but also to facilitate and coordinate live communication between participants as in chat applications, where what you type is sent first to the server and then to the other people in the chat. Sometimes all the server does is let people establish a direct connection, bypassing the server, with other people involved in the communication (such as in many P2P applications).

I suppose you can think of the server as a type of web service. But, typically, web services do not store any significant information from their clients. They receive requests, process the request, return the results, and that's the end of the transaction. Whereas client-server relationships usually involve some storage on the server of information that is crucial to either later connections or to current connections by other people.⁴

Another type of memory that works of net art can access is local memory. For instance, when you are working with Word and you save your document, you can go back to it later and continue from where you left off. The document usually isn't saved remotely but just on your computer. You may share it later with others, but local memory allows you your own individual experience and work without having to share it with others. Similarly, when you play a game on the computer, you usually can continue from where you left off because the game state is saved to your local machine. Concerning works of art, this sort of local memory allows the experience of the work to be cumulative over time, rather than singular and finite. Each time the artwork is engaged, the experience is personalized to the user's particular interaction.⁵

Finally, there is the executable work of art itself, the program that uses the web services, client-server storage and/or processing, the local memory – and it is hoped, does interesting things with these parts of the <body> of net art. It is a piece of software. It is possible it may not, in itself, contain much media at all but may rely on the web services and memory for its media. It is an entity itself that experiences and processes these things, or allows us our own fresh experience and thoughts on these matters. It is a type of animism or artificial life. Although the life of a work of art is the life of art, finally; it is lively to a human audience or it is nothing at all.

What I've tried to do here is look at the main types of resources and storage that contemporary net art has available to it. The notion of a networked application is not a new one but there are not many that can be considered dynamite works of net art. It takes longer for the artistic imagination to acclimatize to new media than it does to create the technology behind it. Net art often requires significant skills in programming. Few contemporary artists have the necessary training. It will be interesting to see how the next generation of poet-programmers and artists influence digital culture.

It seems likely that computing devices will continue to proliferate within all machinery and become far more portable than they are now. Desktops have been replaced by laptops but the future probably includes devices constituted of a pair of glasses, two super-sensitive glove-like sensors, and possibly a microphone. We will be connected to the net on any stroll through the neighborhood, and objects will transmit their data and methods via the glasses we wear. The <body> of net art will eventually involve our own bodies in their connection to the rest of the network architecture.

NOTES

¹ Some examples of use of Google in net art: *Epiphanies* by Christophe Bruno (iterature.com/epiphanies); *Fields* by Christophe Bruno (iterature.com/fields); see Bruno's site iterature.com for many others; *dbcinema* is in-progress (Andrews) at vispo.com/dbcinema; Douwe Osinga's work at (douweosinga.com/projects/googlehacks) uses a variety of web services.

² desktop.google.com

³ Perhaps the most significant Wiki is wikipedia.org; for more Wikis, google the term.

⁴ Some works that involve client-server architecture: *Panel Junction* by Andy Deck (artcontext.org/act/05/panel); *Participatory Poem*, Andrews, (within a larger work called *On Lionel Kearns* at vispo.com/kearns); *Granular Synthesizer* by Chris Savage (japanese.freeware.com/granular); Gary Rosenzweig's *Gamespark* (gamespark.com/game.php?lobby).

⁵ *Arteroids* (Andrews, vispo.com/arteroids) allows you, while in "play mode," to create and save your own texts. To do this, click "edit" while in "play mode." This takes you into "Word for Weirdos."

Gordon Winiemko / SOME THOUGHTS ABOUT “NEW MEDIA” IN QUOTES

As someone who works with video, both as an artist and for hire, I sometimes find myself documenting events, performances, art installations, and the like. Not long ago I provided my services for an artist renowned for confrontational, sometimes shocking performances. The whole thing was very multimedia. Well, now one would say “new media.” Video projection. Sampled footage and sounds. *Beats*, I should say. A live video feed of the performance itself, added to the mix. As I roamed the area, taking it all in with my video camera, what struck me was that however much it was dressed up in the latest accoutrements, there was no concealing the weariness of the old “performance art” shtick, Karen Finley smearing chocolate on herself at the flavor-of-the-month club.

I suppose there must have been a time when “performance art” seemed new or fresh. Still, it’s hard for me to understand how anyone could do a performance, as in “Now I will perform for you,” when everything is already theater, everything is permeated by the spectacle – in the face of which what makes sense to me as a strategy is not performance, but *performative action*. The other term that seems relevant is the increasingly familiar “intervention.” A theater or art space is the natural, expected venue for one to whip out a golden, inflatable, phallus; much less so a “Textiles of the Future” conference in Finland. Into the theater of commerce, the Yes Men inserted the theater of the absurd. Or was it cruelty?¹ Of course, the absurd could be said to be already a component of commerce, but this bit of art-as-activism (or is it activism-as-art?) – popularized by both the recent documentary on the Yes Men and the Mass MOCA show “The Interventionists” – strikes me as nevertheless more potent than the programmatic experience of the proscenium arch or art gallery.

Speaking of the programmatic, it’s nice how, years after I acquired a bootleg of it on VHS tape, I can now watch the NBC *Tomorrow Show* interview with

John Lydon on crisp (albeit riddled with *lossy* compression) DVD.² Tom Snyder wanted Johnny to perform according to showbiz conventions: "I ask you the questions we've already agreed upon, you give me the answers I'm expecting." *Nevermind* whether the Host is genuinely interested in or informed about the Guest. Johnny famously (though perhaps predictably) wasn't having it, and at one point Snyder, bereft of his cool, demanded to know if there was anything John *liked* – the classic clueless grownup question.

I could perform on cue myself, and provide a list of "new media" work that I like. I just recently took Janet Cardiff's video walk-through of San Francisco MOMA again and, like the first time, it did not fail to move me. So too, as always, did a recent show of Jim Campbell's work.³

I could also easily rack up a list of work that has struck me as little more than "gimmicky," half-baked. I've lost count of the number of bells and whistles I've triggered by the sounds I make, or my movements in a public space like a gallery or plaza. Nice effects, but what do they do, except fetishize technology and passively recapitulate the paradigm, or the received knowledge, of interactivity?

Confronted with the label *new media*, I remember an old saying: it's the singer, not the song. The other applicable adage is, of course, McLuhan's "The medium is the message." When considering these kinds of portentous displays, I find myself not infrequently wondering, "isn't film already interactive?"⁴ Or any work that is informed by discursive practice, such as the "dialogic" projects by the artists Grant Kestor references in *Conversation Pieces* – artists like Stephen Willats, Suzanne Lacy, and the Austrian collective WochenKlausur – where the locus of the piece is not an object, or even in a so-called "interactive" experience had by a spectator, but in the ephemeral and downright analog conversations shared by people who are all participants, even co-creators.

In the early 1990s, in San Francisco, where I was living at the time, the characteristically cold, fog-drenched air was laced with an outpouring of *fin de siècle* technopagan optimism. Oh, how the internet will open up new liberating avenues of communication! Fast-forward a few years, to the late 1990s – said "communication" is finally revealed to be a stunning illustration of Douglas Adams' theory: the *movement of small green pieces of paper*.⁵ Adams' basic message, packaged in scene after scene, in incarnation after incarnation of *The Hitchhiker's Guide to the Galaxy*, is that no matter how much we appear to make "progress," we stay the same, and that our blunders can be attributed to not

keeping things in perspective. His description of contemporary humanity as a people “who still think that digital watches are a pretty neat idea” was hilarious back in the late 70s, when the digital watch fad had peaked, and his insight into the constant, modern lure of techno-optimism demonstrated how little western culture had learned from the extravagances of the “Me Generation,” we’d all been suckered again, blinded by bling. Now, narrow the context to the art world, and substitute new media for digital watches.

Back then – after *Hitchhiker’s*, yet before the 90s dot-bomb, I wrote an article in which, looking ahead to the then-unnamed medium we now know as web-based video, or more colloquially, YouTube (sorry, ifilm!), I referenced the dictum with which Clinton’s advisers were reputed to have won him the ’92 election: “It’s the economy, stupid.” Then, imagining the glut of video to come, I wrote, “it’s the content, stupid.” Now, contemplating new media, or technology-based art, or interactivity, the original, unaltered phrase seems appropriate.

But no one asked me to build up and trash a straw man. When considering technology, one need not pit the new against the old, or the rhetoric of liberation against determinism. Perhaps what is called for is a new way of thinking, one that goes beyond the binary either/or.

I could reach for the ballyhooed model of *gaming* as such an alternative, a model in which *play*, rather than slavish, linear, goal-directed *production*, holds sway, where there is no conclusion, but a process encompassing a field of complex, interlocking actions – but behind this, ironically, are ones and zeroes, either/or.

I’m much more inclined to sidestep the matter of new vs. old media altogether and revisit the question of *mimesis* vs. *diegesis*. Indeed, I find the latter binary opposition far more relevant to contemporary artistic practice and, if I have not already made it clear, I come down firmly on the side of experiential communication as opposed to the (re)presentation of an image and/or object. In doing so, I’m consigning images and image-makers to a ghetto of the regressive. But how is it any less regressive, the idea of communication? “I want to change the world,” a friend and fellow artist told me recently. So you’ll do that by being a Great Communicator, and aping the model of Capital? The object that is ostensibly absent from diegetic, experiential art practice can be located in the form of the information or the message that The Communicator wants to convey, commodity-like, to the spectator-consumer. The artists who make

careers out of tackling *important issues* are ones who often have to resort to a defensive mantra like “all art is political.” If that’s the case, then why do they (why do *we*) persist in making work nominally pre-classified as “political art”? Perhaps, such a tendency merely mimics common tactics within post-industrial capital, where the best way to make a living seems increasingly dependent upon defining some particular niche market.

I wonder how many people remember the Church of the Subgenius. It was around the time that the wave that crashed with *The Industry Standard* was just starting to form with *Mondo 2000* that I coincidentally began to hear less and less about the Church, a mock religion that at once lampooned institutionalized salvation and provided both a mythology and a community for the disaffected. The Church is circumscribed by irony and cynicism, both of which are tied to a wearying lack of faith, yet it manages to avoid the emotional bitterness usually associated with such qualities. What it looks like with hindsight is that a lot of those alienated geeks found faith in the form of the tech revolution. “The very thing that’s made me feel outcast is hot, goddamn it, and I can make a lot of money at it too!” Like the prospectors in the previous century’s Gold Rush, many of them got wiped out.

Maybe they might have been “saved” from that fate if they had remembered one of the most compelling slogans of the Church of the Subgenius: *pull the wool over your own eyes*. It’s not possible to proclaim oneself an “artist” and not have a career. There is no question but of being a participant, of being complicit, and it may not even be a question of degree. Perhaps gaming is an instructive paradigm, after all. The artist must never lose sight of playing a role. We have had the *avatars* of Duchamp and Warhol, and now we have in the figure of Barney the *corporate player* – is there any other kind?

But is Matthew subverting his own paradigm? Is he pulling the wool over his own eyes? It’s the difference between a wholesale adopting or *buying into* a model and deconstructing it. The paradigm that I keep invoking in one form or another could be said to be on display in the work of artists like Alex Galloway and Cory Archangel, who quite literally hack video games. But that’s just it – it’s literal. Just as “interactivity” is its own message, so, too, is “hacking.” Marshall, can a particular piece carry a message beyond that of its medium? But what many artists forget is that a medium is not some monolithic edifice, but a set of codified procedures. What artist worthy of the name does not try to undermine the codified?

So in other words, I'm arguing for new procedures: *new media*. Maybe what at this moment seems inevitable has felt alienating to me because it too has already become codified and calcified, such that "new media" can indeed now be thought of as an *it* – another thing we have to get beyond, a Gordian Knot to slice through rather than gamely try to untangle. Maybe that's why a lot of my recent projects have been so willfully low-tech. For *Untitled (current events)*, my idea of interactivity was to offer a gigantic, antiquated U-matic video deck which I had modified to stop at random intervals when its tape is played, forcing the participant to choose whether or not to continue.⁶ For another recent piece, *Retroactive Continuity*, I used one of those old fashioned VHS decks to loop an old-fashioned credit roll in the gallery, with which I paired an opening reception performative action, the eminently low-tech (and archaic) practice of streaking.⁷ I wonder, especially with this latter piece, if someone will dismiss me as an artist who plays around, as I once dismissed Vancouver artist Rodney Graham. But is Graham playing around, or "playing around" in quotes? I have come to think of my "video with streaking" piece as putting quotes around something that is already in quotes. What I was wearing on my (nonexistent) sleeve, in that piece, is my struggle with how to intervene in the programmatic when "intervention" has by now made a spectacle of itself. How can we intervene when there is no space conceivable outside the space of intervention?

I suppose what I'm saying is that using old media that was once new is like putting quotes around "new media," rendering it... "new media."

I like the way that looks on the page – aesthetically speaking, as it were. Yet at some point I suppose I will have to break out another set of quotation marks. Although by then maybe *it* will have already dissolved.

Or maybe I just won't be asked to write about *it* anymore.

NOTES

¹ When the conference organizers mistook two artists' mock WTO/GATT website as real, the artists decided to attend, masquerading as WTO representatives. They gave a presentation highlighting the gold phallic suit as a high-tech means to remotely monitor and control "workers" in third world nations. The attendees bought it wholesale, and the Yes Men were born.

² DVD (digital versatile disc) is the long awaited improvement over the long-standing home video format, VHS (vertical helical scan). What the former gains

in image resolution, it sacrifices in the form of visible digital compression artifacts; part of the information is lost, hence “lossy compression.” Tom Snyder had a late night talk show in the late 70s/early 80s on the NBC network; one of his producers evidently thought it was a good idea to feature the “new wave” in music, and Snyder had as guests Iggy Pop, The Jam, Elvis Costello, among others. Snyder has since dropped from the scene, and DVD is about to be replaced by a new videodisc format.

³ Janet Cardiff’s site specific walk-through of the SF MOMA was originally part of the institution’s 2001 show on art and technology called *010101:Art in Technological Times*. Visitors were given video cameras with headphones and led via Cardiff’s voice on a performative “tour” of the gallery. Jim Campbell is an artist who manipulates video and images with a host of specialized processes, and works in the SF Bay area.

⁴ It could be said that a film asks no more than to be passively observed, but I would argue that the diegetic, experiential process of communication in which film engages asks more of its audience than the mimesis of image/object based fine art. “Diegetic” indicates a two-sided process, after all. Even though the audience and the film (makers) are not literally in conversation, there is an exchange taking place.

⁵ On balance, it could be said that what encouraged the dot-com boom to thrive in SF is exactly what allowed me to thrive in my more high-minded artistic pursuits. The economic climate was ripe for “start-ups” of all kinds; the city was just emerging from the recession of the late 1980s, and rents were low. The familiar argument is: how could they stay low forever? Sooner or later one has to succeed, and in our society money follows success. By the same token, the “liberationist” ethic that circumscribes ’Frisco is, to use an eminently 90s term, empowering to a variety of creative endeavors.

⁶ The tape in question consisted of a collection of interviews in which people talked about the parenthetical of the title. I edited out all the details, leaving only generalities.

⁷ Like the other piece, the form of the presentation seems the most germane to this essay, but it should be noted that the text of the video is a similarly specificity-drained series of imploring exhortations to “end the war.” CAN THE WAR JUST BE OVER NOW? I JUST WANT THE WAR TO BE OVER. CAN WE JUST END THE WAR PLEASE? DO YOU WANT TO END THE WAR?

Nancy Paterson / VCR STORY

There was a flipping sound every thirty seconds from the VCR as it was continually trying to eject a videocassette which was not, in fact, in the machine. Through some glitch of artificial unintelligence the malfunctioning VCR kept trying to eject nothing for days. The tuner part of the unit was working fine so it remained in place, trying all the while to eject a non-existent cassette.

Channel surfing in the cacaphony of colour, sound, sex and violence that is American TV in the Deep South. I paused to watch a compelling presentation on a religious theme. There was singing, rapture, sharing and selling all at once. A large woman wearing a purple robe was sobbing woefully into a microphone "You WILL be healed" and on that cue, the non-existent tape that has been trying to eject, with no success, is suddenly spit out, and the motor, which has come dangerously close to burning itself out, is at rest, finally at peace.

Bring me your tired, your poor, your broken VCR's.
A laying on of hands, healing twisted cables, the clocks
that won't stop flashing...

Darren Wershler-Henry / TECHNOLOGIES OF DICTATION: Typewriting and the Toronto Research Group

"We've always typed." So writes the Toronto Research Group, a collective pseudonym for the Canadian poets bpNichol and Steve McCaffery, in their aspect as investigators into the mechanics of the more abstruse corners of experimental narrative. The description that they provide of their writing process is illuminating in a number of respects, so I'm going to quote it at length:

We've always typed. We type with maybe one of us typing what's in our mind and then we kick the idea around. And then maybe I dictate to Steve, while he types. And maybe I'm typing, and he's dictating to me. And I'm adding something as I think of it. And then we go over it, and go over it. So it happens at the time of writing. And part of it is just getting that moment together. Preliminary talk, what we are unhappy with in it so far, 'Boy, doesn't this seem to ramble,' 'Yeah.'

Partially, it's also a tension between Steve's type of language and my type of language. He likes the technical, academic – I don't mean that in a bad way – scholarly language. That comes out of his doing his MA up at York on Christopher Smart.... I like going for a simpler phraseology on the whole. If I use a word, I will use it because of the sound and because it fits, absolutely, into the spot. Those are differences between Steve and me. So you get that tension at work too. And we try to leave room for that, as opposed to me superimposing my voice or Steve's. I find it obfuscates things for me.¹

The subject matter of this passage is an ostensibly straightforward description of the process of collaborative typewriting. Someone dictates; someone types. Sometimes they trade places. Sometimes the typist transcribes the dictation faithfully; sometimes the typist edits and emends the words as he types them. The compositional process the text describes (with each individual taking turns as dictator and amanuensis, and the amanuensis occasionally changing the substance of the dictation) is variable to the point that it begins to affect the grammar itself.

It is at the level of grammar in this passage and the context in which it appears that things become complex. But it's worth working through those complications now because they reappear in virtually any description of someone typing. (This discussion will require a short digression into the nature of dictation and authorship, but the status of the author is also something that's worth scrutinizing because the mechanics of typewriting alter it in interesting ways).

The TRG is an author in the sense that Foucault describes in "What Is An Author?" – that is, it is a designation for a series of functions rather than a proper name pointing to a particular individual. It is a deliberately constructed means of classifying texts by differentiating them, both from the many other texts that comprise the archive of twentieth-century poetics, and from other works produced either by bpNichol or Steve McCaffery as individual authors. Like all authors, on close examination the TRG proves to be a complex and contradictory entity, an agglomeration of discontinuous elements that perform often contradictory (and sometimes even unsuccessful) functions.

For example, Foucault notes that one of the primary functions of the author is to serve as an "object of appropriation" that determines the legal status of certain kinds of texts.² Yet this is one of the areas where "TRG" has most explicitly failed to do its job. The TRG archives currently reside with the bpNichol archives at Simon Fraser University, yet McCaffery, an equal partner in the TRG, is very much alive and active. Further, one of the two major collections of the TRG's work, *Canadian @Pataphysics*,³ is actually a bootleg reproduction of the "Canadian @Pataphysics" issue of *Open Letter* magazine,⁴ produced by unknown parties in the Coach House Press bindery, without the knowledge of at least McCaffery, probably the press manager, and perhaps of Nichol as well. Authors do not always authorize.

On the contextual level, the description of the TRG's compositional practices at the typewriter presents further complications for our notion of what "TRG" represents, because there are several layers of ventriloquism (or possession, depending on your perspective) at work. The passage itself is actually a quotation from an interview with bpNichol, speaking as an individual about the TRG ("We have always typed") in the absence of McCaffery. Yet it is this passage that McCaffery selects after Nichol's death to epitomize the TRG's compositional process in the Introduction to *Rational Geomancy: The Kids of the Book-Machine*, the TRG's selected writings. It may seem surprising now, but this kind of "possessed writing" where an absent or even dead dictator speaks

through an amanuensis/typist is typical of the function of writing in general and typing in particular.

Dictation and Haunted Writing

In her discussion of the relationship between Johann Wolfgang von Goethe and his friend and assistant, the writer Johann Peter Eckermann (the German Boswell), Avital Ronell develops a theory of dictation which can be expanded to describe several important aspects of the machinic assemblage I'm calling "typewriting." While the overall tone and focus of Ronell's writing is more deconstructive than discursive, what interests me is the discursive aspect of her argument – the relationship that is being outlined and the rules under which the process of dictation occurs. Ronell recognizes that what she is describing is outside of the purview of close reading and textual analysis when she writes that "there can be nothing simply and exclusively literary where the parasitical asserts itself."⁵ Dictation is not speech, not writing, but an assemblage that determines the conditions under which writing takes place.

One of the questions that arises when considering the applicability of Ronell's theory of dictation to typewriting is, why begin from a model of dictation based on Goethe? Friedrich Kittler, in his chapter on the typewriter in *Gramophone, Film, Typewriter*, uses the epithet "the age of Goethe" to characterize the period immediately preceding the invention of the typewriter. For Kittler, Goethe's name serves as a synecdoche for the rules that govern not only German Romanticism, but the production of discourse in general from the mid-eighteenth to the mid-nineteenth century: "authority and authorship, handwriting and rereading, the narcissism of creation and reader obedience."⁶ During Goethe's own lifetime (1749–1832), many new writing-machines were being invented. While, as Kittler observes, many of these machines, especially those based on pantographic principles, only reified the rules governing discourse "in the age of Goethe," but cumulatively, they were a major factor in the creation of a new discursive formation, one that held sway until the emergence of the computer. Goethe is thus the ideal place to start.

Ronell's *Dictations: On Haunted Writing* presents dictation as an assemblage that links at least two figures together in a kind of "radical copulation" (Ronell compares it to a DNA double helix⁷) which renders the writing styles of the figures involved as indistinguishable from each other.⁸ Citing Derrida, Ronell

summarizes the dictatorial relationship as “an experience of quasi-possession” in which one party “is given over to the other, to the extent, indeed, of being prey to the other.”⁹ The party that becomes prey – the secretary/amanuensis, or, in our case, the typist – is the more “shadowy” of the two and acts as a “conduit” for the other, dictating party.¹⁰ A kind of death or diminishment is omnipresent. The party taking dictation begins as already subordinate, “double and half-dead or at least presumed dead”¹¹ – echoes of the opening of William T. Vollmann’s *You Bright and Risen Angels*: “Oh, my bright and risen angels, you are already in your graves.” However, the dictatorial relationship functions even (especially?) when the dictating party is absent or dead, because the amanuensis incorporates and objectifies it.¹² The question is, which party is possessed and which is doing the possessing?

Although dictation is a “parasitical” relationship, the parties are obligate parasites¹³ – neither can exist without the other. Further, though the dictatorial relationship is dissymmetrical, in the classic mode of Derrida’s logic of the supplement, it is always also reversible.¹⁴ To drive the point home with a labyrinthine series of dictatorial reversals, I cite Ronell’s citation of Eckermann reciting to Goethe a line that Mephistopheles speaks in Goethe’s own *Faust*: “in the end we do indeed depend on the creatures we have created.”¹⁵ This chain of assemblages demonstrates that the dictating party is far from sovereign or singular because it is always an assemblage connected to other assemblages to what Guattari would undoubtedly call its own mad vectors.¹⁶

Moreover, it is the assemblage that produces the text, rather than the individuals. For both Ronell and Derrida (of whom the former, it should be noted, is implicitly comparing her relationship as the latter’s sometime translator and frequent commentator to that of Eckermann and Goethe), the scene of dictation informs the conditions under which all writing takes place: “writing always comes from elsewhere, at the behest of another, and is, at best, a shorthand transcription of the demand of this Other whose original distance is never altogether surmounted.”¹⁷

What I propose to insert into this assemblage (Ronell’s model of dictation) is the typewriter, itself another assemblage that functions on a variety of levels to create the conditions under which typing takes place.

First, the typewriter functions as a conduit that joins together the dictator and the amanuensis. The conduit is not necessarily one-way; either party can take turns typing or dictating. Nor is the model binary or even bipartite;

multiple parties can dictate, and multiple parties can type, synchronically or asynchronously, centrally spatialized or totally decentralized. The typewriter also links other assemblages into this relationship: tape machines, dictaphones, and broadcast technologies such as intercoms, telegraph, radio, and television; carbon paper and the apparatus of duplication; the office and typing pool, and so on.

Second, reinforcing its importance in the assemblage of writing, the typewriter-as-machine tends to absorb both the dictator and the amanuensis into itself. The term “typewriter” itself is a metonymy, but a reversible one. At one point, “typewriter” signified the machine’s operator (the amanuensis); the machine itself was the “typewriting machine.” As the machine claimed the name, the amanuensis was seemingly absorbed whole into its operation. On the other side of the circuit, the dictator in the scene of typing is, as is the case in writing/dictating in general, often either absent or internal. When a writer sits “alone” at their machine, who is dictating? Writers who type will repeatedly use the same trope to describe this situation: the writing comes from or through *the typewriter itself*, indicating that the typewriter – a plural noun – is somehow haunted.

Third, these connections to voices “outside” the typewriting assemblage, point to another aspect, the desiring aspect of the machine: a longing for connection with other typewriters. This is the point at which the logic of typewriting begins to lose sway and the logic of the computer keyboard, a logic of networks, and connectivity, begins to replace it.

Shifters: The Structure of Typewritten Dictation

From the relative beginnings of the typewriter, the same major elements appear in any typewriting assemblage. There is a dictator – the source of the words that are being typed. There is a typewriter – that is, an actual writing machine of some sort. And there is an amanuensis. As the *Oxford English Dictionary* notes, an amanuensis is “One who copies or writes from the dictation of another,” from *servus a manu* “hand servant” + *-ensis*, “belonging to.” Though “dictator” has some negative connotations and “amanuensis” is an awkwardly latinate and stodgy-sounding word to contemporary ears, my choice of this specific terminology is deliberate. These terms allow for the various possibilities that typewriting creates, while differentiating both roles from the

machine itself. When I refer to the “typewriter,” I am specifically referring to the writing machine. When I refer to “typewriting,” I mean the set of discourses, rules and practices that relate to the functioning of the entire assemblage, as opposed to “typing,” the act of using the typewriter to produce text. The need for this degree of specificity will become evident shortly, when all the terms begin to collapse into each other despite all of my best efforts.

As Emile Benveniste famously noted, the act of speaking – and, I would argue, of dictating as well – simultaneously defines the position not only of an individual, but also of their partner in the creation of discourse. These positions, flagged by the pronouns “I” and “you,” are variable empty forms which speakers occupy by turns: when I speak, I’m “I” and you’re “you,” and when you speak, it’s your turn to be “I.”¹⁸ McCaffery deals explicitly with this theoretical notion in *Shifters*, an early typewritten chapbook published by Nichol’s ganglia/gr●nk press¹⁹:

in us

in us as we
are

you move out to
where you are
most

“you are”

(you)
in you’re here there
you’re “here”

where i am
still

where “i am”²⁰

There is always an erotics to the poetry of “i” and “you,” but “i” and “you” is also always the basic diagram of a power structure. Erotics + agonism = writing. Typewriting, moreover, creates a situation where which person occupies which

position (dictator or amanuensis, top or bottom) is more malleable and fluid than ever. In his analysis of Franz Kafka's first typed letter, Friedrich Kittler spots twelve typos, over a third of which involved the German equivalents of "I" or "you," "As if the typing hand could inscribe everything except the two bodies on either end of the... channel."²¹

So: despite the apparent idiosyncrasies of two avant-garde poets hunched over a typewriter (and I'll return to the TRG's various typewriter-related performances later), the TRG embodies all of the basic structural elements and exemplifies the rules that are specific to the scene of typewriting.

A Fragile Contract

Because my concern is not to determine with which subject the TRG writing "actually" originated, or with the establishment of a hard and fast *oeuvre* (discursive analysis is interested in neither, except as a function of expression²²), I'm not particularly concerned with sorting out who occupied which pronominal position at any given time. What interests me instead are the conditions and rules under which typewriting emerges from an always-nebulous assemblage of dictators, typists and machines.

In the Introduction to *Rational Geomancy: The Kids of the Book Machine* (the collected reports of the TRG), Steve McCaffery characterizes their typewriting system as a *general economy in dialogue*. He describes the relationship that makes the TRG composition process possible as a "fragile contract" that binds one person into the role of "enunciator" and the other as "transcriber."²³ The fragility of this contract stems from "the loss of certainty around independent judgment." In other words, each party assumes that their words will be transcribed faithfully, knowing full well that this is not always the case, but proceeding to dictate nevertheless: "Steve is dictating his thinking, thinking Barrie is typing this dictation. However, Barrie is typing out his own thoughts on the matter and Steve doesn't know it." In other cases, this process resulted in a kind of shorthand transcription of what was dictated rather than the verbatim text.²⁴ As long as the contract receives lip service, it is possible for this relationship to continue producing text.

It's also worth noting that the technological component of this assemblage – the typewriter – is not a neutral conduit facilitating the process of dictation. It has its own rules, and requires that the bodies of its users adapt to

them to facilitate smooth dictation Failure to comply with these implicit rules results in a change in the process. McCaffery remarks that “Neither Barrie nor myself were touch typists and so dictation resulted in a deceleration in the speed of oral delivery.”²⁵ McCaffery believes that while the deceleration of dictation brought an overall greater degree of care in terms of the enunciator’s selection of words, that it did not decrease the number of instances where the typist recorded something other than exactly what was spoken, by dint of either error or choice.

From McCaffery’s perspective, the uncertainty surrounding the dictatorial process is a desirable state of affairs, part of an attempt to produce a writing that moves beyond “thought’s proprietary nature.”²⁶ He describes the whole assemblage – enunciator, machine, typist – as a “synthetic subject based on a We-full, not an I-less paradigm” or a “third ‘ghost’ locator.”²⁷ The text this synthetic subject produces is never quite the product of one mind; there is always some degree of error, summarization or deliberate deviation at work. At the time of the writing of the introductory material for the TRG book, McCaffery considered his difficulty in assessing which thoughts had originated with which writer as a degree of the project’s overall success.²⁸

McCaffery also alludes to nostalgia that is a result of the technological regime change that writing is facing after the demise of the typewriter as the writing tool of choice. “An obvious side effect of the current regime of personal computers has been a quantum leap in material nostalgia. The handwritten manuscript, the hand-corrected typewritten page, the patchwork paste-up, clipped with scissors and Scotch-taped together, are now the valued by-products of an obsolete mode of production, superseded by a mode of writing whose new locus is a hyperspace.”²⁹ Though bpNichol was an inveterate computer hobbyist, and produced some of the world’s first animated concrete poems,³⁰ the TRG never inserted a computer into their compositional process. Had they done so, McCaffery acknowledges, the results of that process would have been entirely different, as the rules governing the text-producing assemblage would have been entirely different.

Ghost Writing: Nary-A-Tiff

But what happens when there are (as there frequently are, and as the etymology of “amanuensis” suggests) inequities in the relationship? Foucault notes

that all relationships are on some level *agonistic* – there are always imbalances of power, and there are always struggles, even between the best of friends.

In the descriptions of the TRG's composition process, for example, Nichol and McCaffery always use "enunciator" instead of "dictator," as if to cosmetize the inevitability of the power relations that course through their texts. Further, both are straight white men of the same income bracket; gender, class and race, major factors in the description of power relations in the scene of dictation, are not issues here. Nevertheless, at least one of their own texts, the *fumetto* (photo-comic) "Nary-A-Tiff,"³¹ which deals explicitly with questions of voice and influence, dramatizing the high stakes that accompany the question of who speaks, even under idealized circumstances, and, despite the claims of *Rational Geomancy's* "Introduction."

In the comic, which opens with both poets digging through the library "[i]n the palatial offices of The Toronto Research Group,"³² McCaffery quotes a text to Nichol, whose author (Beaumont and Fletcher – a dual author-function, like the TRG itself) "anticipate De Sade."³³ Nichol initially accuses McCaffery of "justifying moral weakness as 'excess,'"³⁴ but after physically attacking McCaffery, he delivers his ultimate accusation: "All you do is plagiarize the French anyway!!"³⁵ Though Nichol does not articulate a preferential influence of his own, Peter Jaeger writes in his discussion of "Nary-A-Tiff" in his study on the TRG, that "Nichol desires a transcendental figure (the 'father' and 'Lord' of *The Martyrology*) who negotiates with but ultimately upholds the inverse of McCaffery's critique of conventional morality."³⁶ McCaffery proceeds to stab Nichol in the heart with a letter opener, disposes of the body and returns to his research... but the comic concludes with a shot of a ghostly Nichol staring in the window, presumably contemplating revenge on the blissfully unaware McCaffery.

Thematically, the text's concern is with questions of literary influence: not only their moral and philosophical validity, but also the correct manner to incorporate those influences in one's own writing. From the perspective of the Nichol of "Nary-A-Tiff," McCaffery, under the metaphorical lash of Fletcher, Beaumont and De Sade, exhibits *too much* fidelity to his personal dictatorial voices, and slides over the blurry line that divides precise citation from plagiarism.

On the meta-narrative level, "Nary-A-Tiff" is a sophisticated dramatization of the complexities of dictation. When Nichol, who is, after all, at least

sometimes another of McCaffery's dictating voices, articulates a differing philosophical viewpoint from McCaffery's continental dictators, "Narry-A-Tiff" paradoxically reifies the influence of McCaffery's dictators by staging a violent narrative pantomime à la Sade. But even though the Nichol character is murdered, the text still cannot be rid of his influence, which asserts its vengeful presence in the very last pane of the cartoon, staring in through another (window)pane in a manner that evokes one of Nichol's own comic strips, full of Byzantine arrays of nested frames.³⁷ And outside of the work, at the scene of production, the two men are busy literally putting words in each others' mouths as they paste word balloons down onto the photographs. Outside of such fleeting moments of elementary school-style craft production, though, typewritten dictation is rarely simple, and it is never innocent.

NOTES

¹ From Caroline Bayard and Jack David, *Outposts/Avant-Postes: Interviews Poetry Bibliographies and a Critical Introduction to Eight Major Modern Poets* (Erin: Press Porcépic, 1978), 31-32. Also quoted in Steve McCaffery and bpNichol, *Rational Geomancy: The Kids of the Book-Machine* (Vancouver: Talonbooks, 1992), 10.

² Michel Foucault, "What Is An Author?", *Language, Counter-Memory, Practice*, ed. Donald F. Bouchard (Ithaca: Cornell UP, 1977), 113-38; 124.

³ Toronto Research Group, ed. *Canadian @Pataphysics* (Toronto: Underwhich Editions, [1979?]).

⁴ TRG, ed. *Canadian @Pataphysics. Open Letter 4.6/7* (1980-81).

⁵ Avital Ronell, *Dictations: On Haunted Writing* (Lincoln: U of Nebraska Press, 1993), 65.

⁶ Friedrich Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford UP, 1999), 188.

⁷ Ronell, 89.

⁸ Ibid., 78.

⁹ Ibid., xiv.

¹⁰ Ibid., 90.

¹¹ Ibid., 199.

¹² Ibid., 92.

- ¹³ Ibid., 89.
- ¹⁴ Ibid., 107.
- ¹⁵ Ibid., 157.
- ¹⁶ Ibid., 119.
- ¹⁷ Ibid., xiv.
- ¹⁸ Emile Benveniste, *Problems in General Linguistics*, trans. May Elizabeth Meek (Coral Gables: U of Miami Press, 1971), 227.
- ¹⁹ Steve McCaffery, *Shifters* (Toronto: ganglia/grOnk IS 6, 1976).
- ²⁰ Ibid., 13.
- ²¹ Kittler, 223.
- ²² Michel Foucault, *The Archaeology of Knowledge and The Discourse on Language*, trans. A. M. Sheridan Smith (NY: Pantheon, 1972), 24-25.
- ²³ Steve McCaffery and bpNichol, *Rational Geomancy: The Kids of the Book-Machine* (Vancouver: Talonbooks, 1992), 10.
- ²⁴ Ibid., 11.
- ²⁵ Ibid., 12.
- ²⁶ Ibid., 10.
- ²⁷ Ibid., 11.
- ²⁸ Ibid.
- ²⁹ Ibid., 16.
- ³⁰ bpNichol, *First Screening* (Toronto: Underwhich, 1985).
- ³¹ TRG, "Narry-A-Tiff," *Rational Geomancy*, 210-22.
- ³² All text in the comic is in capitals.
- ³³ Toronto Research Group, "Narry-A-Tiff," 211.
- ³⁴ Ibid., 212.
- ³⁵ Ibid., 214.
- ³⁶ Peter Jaeger, *The ABC of Reading TRG* (Vancouver: Talonbooks, 1999), 94-98.
- ³⁷ bpNichol, *bpNichol Comics*, ed. Carl Peters (Vancouver: Talonbooks, 2001).

CONTRIBUTORS' NOTES

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Since 1972, GLOBAL TELELANGUAGE RESOURCES has operated as a fictional information network composed of both individual and collective aesthetic projects. GTR projects and performances have incorporated a wide variety of different media platforms and presentation forms, including academic lectures, audio/sound poems, chance generated poetry, and musical composition. Its mandate is to present an ongoing, dynamic engagement with language as an ever-changing system of signification and rhetorical performance. www.gtrlabs.org.

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