Bicameral Coronary: Meaning in the context of Digital Poetics

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DISCLAIMER

The following essay is composed of 2 segments: a discursive contextualizing introduction and a second section interwoven with references to early digital poets. A vast majority of the references to early poets are indebted to the elegant and exhaustively thorough scholarship of C.T. Funkhouser’s (2007) Prehistoric Digital Poetry. My chronology of digital poetics is far from complete at this point; its intention is to introduce the main strands of digital poetics at their origin points and serve as a foundational chapter in my in-process thesis. For reasons of brevity and comprehensiveness, I leap from combinatorial pioneers of the 60s and 70s to the birth of kinetic multimedia and hypertext poetry in the 90s. Secondarily the references serve as an empirical ground for exploratory speculations into the problematic question of meaning in an age of hybrid human-machine and multimedia authorship. It seems (as with many media) that digital technology was born fully fledged, its potentialities apparent and often very early digital poetic works suffice to give a clear sense of the structure of how digital poetry will evolve.
INTRODUCTION

1. PROPOSAL


My thesis revolves around a gap that aperiodically appears in both current art-research and conceptual art interventions into digital poetry. Emerging predominantly from intellectual institutions where the brain is superior, the heart gets left behind. In an eagerness to investigate the superlative digital devices which proliferate around us, the actuality of lived embodied experience, aesthetics, nuance and story get abandoned. The result is art that is invigoratingly investigative yet meaningless. Elitist culture and populist marketplace bifurcate. If meaning is (as Whitehead suggests\(^1\)) primarily emotional and instinctual before it rises up through abstract cognition into subjective passion, then love is meaningful. I propose we remarry elite and folk, fuse heart and head, bind the digital into poetry, leaving behind neither body nor analysis.

Meaning has always been a core consideration of artists? But how is it created? What is it? The problem is confounded when one considers art enabled or created by computers. When the agent of creation is a machine, which apparently has no comprehension of the context of the material it is handling, then the problem of meaning becomes seemingly intractable. Normal human definitions of meaning don’t include the concept of an algorithm or a number having meaning for itself; meaning in the hegemonic way of humans exists only in humans; so where does meaning reside? Is it a cerebral by-product? An emotional value? Or a side-effect of memory’s comparative and temporal consciousness? No one seems to know for sure, but we all know is it exists. Meaning navigates.

In spite of the confusing terrain, a few salient common-sense facts exist. First, the problem of meaning impinges or is connected to experiences; experiences in their turn are connected to

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\(^1\) “The primitive form of physical experience is emotional –blind emotion-- received as felt elsewhere in another occasion and conformally appropriated as a subjective passion. [...] the aesthetic feelings, whereby there is pictorial arts, are nothing else than products of contrasts latent in a variety of colours qualifying emotions ...” (Whitehead, *Process and Reality*. p. 162)
consciousness, and consciousness is intertwined with affect or emotion (Damasio, Panksepp, LeDoux, etc...). How? Without the resonance of experience (memory combined with affect consciously considered within a set of values or schema of desires), meaning does not emerge. Meaning seems to be the way that thought has evolved of evaluating or interpreting patterns in events. Events are converted into strings of events that sustain narrative tension that is usually coupled around a core desire of the organism formulating the meaning. Satisfaction and sentience co-create memory: boot-strapping evolution. I apologize if I am merely regurgitating the lessons of Darwinian philosophy as expounded by Richard Dawkins, but these are the intuitive realizations that occur to me when I contemplate meaning. Meaning is cumulative and operates as the effulgent scent that imbues events with a specific but ineffable quality. Meaning is mind. So an art without meaning is in a very precarious position.

Evidently this central focal dilemma of art and specifically computer art quickly floods outward into other areas of inquiry. Resolving the problem using a singular point-style formulaic definition of meaning seems unlikely. Rather than consider meaning to be a singular static inert unity, an idiosyncratic definition, a definition that fluctuates as much as what it attempts to define, seems both plausible and necessary. In ordinary experience, ephemeral incandescent evolving and relational meanings emerge like microbes on a the membrane between brain and phenomena. Since William James elaborated radical empiricism, the world has burst into a flurry of phenomenologists, mystics, shop clerks and physicists all proclaiming the relative subjective nature of reality; Heisenberg’s uncertainty principle has diffused throughout culture. Each human is both subjectivity and objectivity; we alter what we see by seeing it. Simultaneously, self-reflection proves our individual existences both redundant and profound; the anguish and elation released by the oscillation of this insight is meaning.

Meaning emerges at those moments of absorption when a sustained relational play between observed and subject results in a feedback perceived as unity. Meaning is multi-fold, as is the universe, scrawling traces everywhere. One continuous characteristic: a perceived sense of value is induced at the membrane of meaning. Each significant event\(^2\) provokes an internal discourse (which can be viewed at multiple levels of diffused materiality and virtuality: biochemical,

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\(^{2}\) What is fundamental is that affect and reason intertwine; consciousness and sub-conscious collaborate unconsciously in the construction of difference (ancient ideas of Derrida and Deleuze). For Deleuze, difference operates as an intensity. Intensity is implicitly experienced as affect, generating meaning.
metaphysical, electronic, etc...) that shoves a memory onto the pile. Meaning is a pushdown automata stack where the stored data continues to absorb its environment. Emotion causes these meaningful memory events to burrow deep into the blood.

1. THESIS: CREATION AND ANALYSIS HAVE DIFFERENT NEEDS

Digital poetics contains twin strands: creation and critical-analysis. Most digital poetic discourse arises from the critical analysis strand: theoreticians investigating the materiality of the media. The following essay emerges from a creative viewpoint: an artist-programmer-poet examining best practice (routes to manifest creative potential).

For the past few decades the critical-analysis strand has advocated materiality as a necessary focus in both analysis and creation. This is problematic since there is the possibility that materiality is not necessarily a primary consideration underlying authentic art-creation. For an analysis of literature in an era when the technology of its production is changing rapidly, materiality is a crucial technique. In digital literature creation, however, a very different focus may be optimum. Envision a culture, one where analysts create works because artists are not creating works worthy of being analyzed. Envision another culture, one where artists (sick of being scorned by the intelligentsia, enticed by analysis) create works according to analytical models that win praise from analysts while being incomprehensible to non-analysts. Now envision an ecosystem: artists create art that is analyzed by analysts whose critiques fertilize new artworks.

What I will suggest (not argue or even claim as a totalizing truth) in this essay is an inversional expansion to the canonical theory of innovation in digital poetry. From the creative-practice perspective, innovation is radiant and open-ended and digital poetry creation does not need to necessarily be concerned with investigating unique aspects of new media; instead, it can continue to be concerned with investigating emotional meaning (as poetry has for all its existence) and investigate digital materiality (when necessary, and in ways that sustain ---rather than destroy--- engagement).

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3 Pushdown automata belong to logic and discrete math, and are taught in computer science departments. They are basically an abstract thought-model of how memory functions which allows abstract testing of computational models like stacks. Speculatively, the brain is analogous to a network of pushdown-automata (interconnected pyramidal neuron stacks of living data). Meaning is an emergent property of their density.

4 For a definition of materiality, see the next section: 'The Materialist Argument'
For digital-poetry creation, a hybrid of traditional and new concerns probably constitutes the most fertile path. All multimedia stations should ship out with a disclaimer: exclusive preoccupation with materiality during the creative process causes harmful mutations that may result in boring art. Digital artwork created freely in innocent play (or out of love or heartbreak or depression or obsession or mystical or sexual or natural experience) may prove more fertile when analyzed than arid analytical pre-proofed research disguised as art. Unfortunately this claim contradicts the call, often advanced in critical-analysis discourse, for digital poetry to investigate materiality of the media (what I call the canonical theory).

The canonical theory can be loosely termed the materiality argument. Materiality discourses state that creative practices must investigate the unique aspects of computational media either semiotically or conceptually in order to be innovative. Automated text generation and interactivity are advanced as primary methodologies for innovative digital poetry concerned with materiality.

2. THE MATERIALITY ARGUMENT

"Materiality of the artefact can no longer be positioned as a sub-specialty within the literary studies; it must be central, for without we have little hope of forging a robust and nuanced account of how literature is changing under the impact of information technologies" (N. Katherine Hayles. Writing Machines. 2002. p.19)

The centrality of the materialist argument is a very common viewpoint expressed by many exemplary digital poetry scholars (McCauley, Hartman, Aarseth, Hayles, Glazier, Cramer, and to some degree Funkhouser). Hayles poses the argument positively: materiality is the only hope for 'robust and nuanced' insights. As examples of a few less-positive approaches, on page 284 of Prehistoric Digital Poetry (2007), C.T. Funkhouser cites Carole Spearin McCauley (an early scholar who wrote Creativity and Computers in 1974) and Charles O. Hartman (Virtual Muse: Experiments in Computer Poetry. 1996):

In 'Once Upon a Computer' McCauley is critical of works that emulate written verse and asserts that authors who do so are using computers 'uncreatively' (McCauley. 109). She cites Boroff’s poem, which aspire to emulate a style of traditional poetry by

5 Using Hayles quotation as a template and inverting the terms, it supports open creation: Materiality of the artefact must remain a sub-specialty within literary production; it must be so, for if it is central we have little hope of forming engaging and nuanced artworks capable of responding dynamically to the opportunities offered by changes in information technologies.

6 Excerpts from Hartman’s Virtual Muse: Experiments in Computer Poetry are available online.
incorporating traditional language. These poems are not any more compelling than mediocre stanzas written by a human, and the fact that they were generated by a computer program is not particularly remarkable. As Hartman has observed, 'The trap for poetry is that the more accurately it mimics human language, the more ordinary it becomes' (Virtual Muse, 94) [...] Applying the computer to create normalized literary works proves itself to be neither appealing nor potent...

Normative poetic work is (from the above-cited materiality perspective) impotent and unattractive. Add that to the ignorance N. Katherine Hayles implies is inevitable unless materiality is adopted. Consider also the following quotation from Loss Pequeño Glazier, director of The Electronic Literature Organization and eloquent author of one of the first full-length books devoted exclusively to digital poetry. His position is representative of a continuum of theories that negate innocence and naïve inspiration in art-practice, sarcastically dissipate inspiration as cliché, and advocate struggle with the medium as the only path to innovation:

“Innovative print poetries have been defined in numerous instances in terms of their investigation of varying forms of textual materiality. [...] Innovation] is realized through an investigation of the material elements of writing in the given medium. [...] If this struggle between transparency and materiality is at issue in print poetry, then it is of even greater importance in electronic literature. This is especially true where the code/interface relation is concerned, effectively constituting three theatres in which the struggle with transparency can occur: code, interface, and text.” (Glazier, 2000)

Such a methodologically rigorous approach is valid and indeed valuable. Like the scientific method (which it implicitly emulates in an effort to absorb some objectivity), materiality-art-making becomes making about matter, investigations into language and code emerging from conscious engagement with the medium. John Cage, Jackon Mac Low, John Cayley and jodi.org exemplify this tradition. By foregrounding the structure of the substrates (technology and language), insights into diverse semiotic systems emerge.

There are, however, some limitations of materiality that deserve to be considered in creative practice. Conscious thought often obscures subtle currents of intuition that are as rich in engagement as modes of investigation that approach the materiality directly. Exclusive-
materiality theories delimit a very specific cognitive art-terrain. Emotion, aesthetics and narrative are generally excluded from this terrain or considered secondary, mere vestiges of modernity. Intimate revelations are often desecrated. Head hegemony occurs.

In materiality, conceptual, participatory, interactive and combinatorial approaches are celebrated; personal, intimate or mythological poems are considered “confessional, conservative, [work] that has not gotten beyond the tropes of modernism”(Glazier, 2000). Unfortunately, going beyond 'the tropes of modernism' often seems to involve amputating the embodied subjective (just as in science), the emotions, and gut feelings are set aside. Without any aspect of the confessional, poems tend toward the impersonal. Eviscerated analytic poetry that appeals only to the Apollonian fore-brain is possible, but arguably it's just as biased as an unfocussed passionate rant. Perhaps the tropes of modernism (in spite of the fact that they may seem stale) reflect cognitive and perceptive parameters enmeshed in our metabolism, tropes that cannot be easily be transcended without shedding our skins (or scorching our DNA). One dilemma of materiality is that it invokes a disembodied abstract immateriality.

3. THE NON-UNIQUE HISTORICAL ROOTS OF INTERACTION

Additionally, materiality (as the sole criteria for innovation in digital poetry) is advanced on the basis that participatory, interactive and combinatorial practices are unique to new media. But the uniqueness of participatory, interactive and combinatorial practices to new media is not true; these approaches constitute a thread of art practice long before computers. The roots of combinatorial practice have been exhaustively traced by the extraordinary Florain Cramer to 330 A.D. Anthropologists have long-recognized participatory art in ancient ritualistic practices (such as the Elysian Mysteries or Dionysian schools, or trance drumming-dance circles). Interactivity, the capacity of an audience to change the direction or flow within an artistic process, although not widespread in formal art, occurred in many informal rituals and informed represent different styles each competing for survival in an aesthetic ecosystem. Both species of work (materiality and aesthetic) offer distinct insights into the medium as medium. All these observations are antithetical to the materiality position.

10 Implicit also in materiality theory is the primacy of head over heart, thought over emotion, reason over instinct, evolved over primitive, logical awareness over innocent play. It is this implicit hierarchy of values which I feel is questionable. The method itself is fine. The exclusivity of its claim is the problematic. Innovative by definition evades definition.

11 In spite of the fact that he shows how historically ubiquitous process-based combinatoric literature is, Cramer also occasionally cites the canonical theory: “Any concept of digital literature which does not reflect language combinatorics and algorithmically processed language is severely restrained.” (Cramer, 2000)
dadaist and bretchian street theatres (Kukovec, 2002). Historically, none of these approaches are unique to digital media.

Certainly computers expand or make more efficient combinatorial practices: computers outperform humans at algorithmic generation of variants in every domain. Computers also open and expand the field of interactivity: tactile responsive environments (such as dance-ritual or theatre) existed but were never machinated-sensor-fed before computers. And prior to computers participatory art was predominantly local and intimate, computers introduce networked feedback, real-time viewing, remote-control and other variants. Change has occurred: old approaches have been facilitated, accelerated, and re-fertilized.

Nonetheless, if these ancient approaches are valid methodologies for digital poetry, then so are other equally venerable methods: intuition, sensitivity, emotion and play. At their confluence, meaning germinates.

4. TASTE

The thing has it or it doesn't. A moment arises when inexplicably one gets the sensation that it works. Forms harmonize, words fall into a resonant cadence, the content thrusts to the heart, a strange light emerges, skin percolates, the Taste commences. Regardless of what theory is ascribed to, and irrespective of whether computers are considered a viable medium for poetic explorations, if you are a poet then most probably you are after a particular quality or taste.

Enter the Computer. At first brittle and squeaky, mechanical as a chrome sine wave, artistically useless. Increasingly upright, almost ambulant and portable, mildly emotive, a pleasant companion, enabling and enhancing communication between flesh nodes. Computers have become the technology of human communication. Although ancient analog technologies may not be extinct (and biological beings actually fuel cultural content), digital technologies are the dominant medium of transmission in contemporary human cultural domains.

Binary beasts prey on weak slow methodologies. The cultural universe which always offered windows and doors into other minds (through the grace of fiction and the miracle of imagination) is now a mass of pseudo-instantaneous networked perforations. Cell-phones, blogs and simulcasts compete for consciousness. It is in this entropic environment of oozing real-time orifices that poetry evolves, clutching to itself it’s canonical task: let language speak.
Even though digital delivers over fiber-optics, the taste remains the same. Artists moving between media do not abandon their personalities; more often, the gouged predispositions of an intricate intimate self (previous known as muse) metamorph into effective use of the new substrate.

5. TO TRANSMIT IS AN INNATE INSTINCT

Create and transmit. Language and poetry are only aspects of these innate instinctual processes. In some its dormant, in others feverish\(^\text{12}\). Like vines that grasp at any crevice, or rivers that follow paths of least resistance, poets have always adopted contemporary technologies. Sometimes quickly, sometimes slowly. The two cultures of science and art, reason and emotion, head and heart have intertwined for as long as culture has occurred. Existence has an aptitude for leveraging any opportunity it can find to transmit information across membranes.

Voices want to be heard; art wants to be seen; technologies want to serve\(^\text{13}\).

Robert Bringhurst, in his 2007 book *Everywhere Being is Dancing: Twenty Pieces of Thinking*, examines the values Aristotle\(^\text{14}\) considered fundamental to poetry. These are essentially the values that allow human poetry to be transmitted effectively; values that continue through different technological media. Aristotle lists six values, in order of importance, which Robert Bringhurst updates to fit contemporary genres of poetry:

1. narrative poetry (*mythopoeia*)
2. the poetry of ideas (*noiopoeia*)
3. the poetry of personality or character (*ethopoeia*) – which would include dramatic monologue, etc...
4. language poetry (*logopoeia*)
5. song poetry (*melopoeia*)
6. performance poetry (*optopoeia*) – including the tyopographical performance

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\(^{12}\) Every era has birthed inquisitive sensitive and aesthetic individuals who are either granted the opportunity or carve out the actuality of a practice devoted to provoking experience through words.

\(^{13}\) The subtle attribution of agency to abstract entities is not generally acceptable in occidental cosmologies. As the passive voice is considered a fault, so autonomy is tightly controlled in the conceptual sphere.

\(^{14}\) Aristotle is not my favorite voice from antiquity, nor do I consider tradition to be authoritative, but even non-localized contemporary subjectivities enmeshed in digital media must recognize that we remain ambulant breathing mammals with sensory perforations virtually unchanged since Aristotle’s epoch.
poetry known as 'concrete'

(Bringhurst. p.26)

Brighurst considers *ethopoiea* (poetry of character) as the dominant form of contemporary poetry. He's correct, poetry of character is dominant in published poetry; but in digital poetics, or at least avant-garde art-research digital poetics, *logopoeia* (language poetry) and *optopoeia* (concrete poetry) are currently dominant genres.

My contention is that independently each of these sub-sectors of the structure of values delineated by Aristotle is insufficient to generate meaning that transcends the purely abstract or a confined intellectual realm of interest. If any of these criteria are missing or atrophied we exercise only part of our potential as humans. Bringhurst is candid: “It pleases me to find plot or story, or story and idea, at the top of the ladder, and versification and staging (or typography) at the bottom”(p.27). These considerations suggest that a holistic re-balancing of values in digital poetics could lead to extraordinary works that appeal to the body as well as the mind.

6. TECHNOLOGY IS NEUTRAL; PLAY IS ETERNAL

Much theoretical ink has been spilled exploring the intricacies of what technology means, how it changes us, and the implications for culture. Hypermedia, hypertextuality, and hybridity all focus on the interleaving of new media with human minds. I prefer to concentrate or focus on the continuum of concerns that effectively conjoin contemporary practice to ancient art; I feel (as I have said elsewhere) that culture is constrained by corporeality. And that the taste of poetry is a subtle elixir that occurs in diverse forms, not just humans. But wherever it occurs (except in its most rarefied forms) there is a body involved, a boundary transducing information across a gap and discovering in that exchange a jolt. And bodies like to play, it’s a core module of matter.

Constraint and the body (corporeality) is negotiated (contingently negated) by playing. As things

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15 Ironically, Bringhurst is also the author of the canonical text *Elements of Typographical Style*. And I am reminded of a very typical --yet crucial-- observation by the Romanian film-director Cristian Mungui (whose film *4 Months, 3 Weeks, and 2 days* won the Cannes Palme d’Or in 2007) that each detail of the film, each scene, had to be led by the story, the idea behind the film and the character’s motivation. He decided to not even move the camera when figures were half-off-frame because it would distract from the narrative. His work corresponds to classical Aristotle’s classical aesthetic taxonomy, and it remains remarkably valid and engaging. [Interview on DVD of *4 Months, 3 Weeks, and 2 days*]

16 Bringhurst also see poetry’s “roots are a long way from being exclusively human” (p.28)
play, they are flexibly testing limit variants: muscles are programmed to explore their state space through play.\textsuperscript{17} Play is a precursor to preoccupation, and play is the way of joy in just being with things.\textsuperscript{18} This beingness has been at the core of many existential attempts to let language transmit experiences of actuality. William Carlos Williams’ red wheelbarrow in the rain.\textsuperscript{19} Canonical experiences that pierce through the conventional armor and apparatuses of difference that congeal (in most adult mammals) around the ordinary. Poetry is a weapon against the tyranny of boredom. It is this play that fuses past and present; play that allows flashes of pure light to illuminate lost dark nights.

7. THE BODY IS ALWAYS IN FASHION

Just as we judge clothes, music, movies, and other cultural mementos by a complex net of personal preferences and precise tidal criteria, technologies move in and out of fashion like crabs in surf. Today’s participatory emotive networked robots will be tomorrow’s antiques. The wave of peak relevance always moves; and there are multiple waves crashing onto innumerable fractal shores; distinct cultural interfaces where each spectator, mute and passive as sand, absorbs the crashing impact of another energetic natural discharge. And as each crest of opportunity arises, those creators or cultural swimmers or simply floating residue or tangled flotsam caught up in the rising momentum, appropriately placed in proximity to an emerging curl of technological change, revel in the brief ephemeral surge toward shore.

On technological crests, novel modes of expressibility permit the releasing of new jolts of cultural excitement. The skin of culture shimmers and twitches, a complex knot of intuition, passion and logic extrudes apparently new forms like foam. Critics agitated by genuine bursts of excitement proclaim over the cradle; others busy themselves with shovels, burying the dead, irrelevant corpses of old forms and nostalgic enclaves of traditionalists. New times evoke profound elegies and impassioned occasionally cruel exuberance. Frontiers eradicate laws; and technology is

\textsuperscript{17} The neuroscientist Jaak Panksepp has identified play as one of the fundamental modules (a set of circuits) in the mammalian brain. I would speculate further that in the upright quivering worm-like body of a jungle leech, or a quivering bowl of jello, shuddering undulations traverse systems which generate pro-experiences that are the ancestors of play.

\textsuperscript{18} Play and reverie are primary themes in the works of the sensual theorist Gaston Bachelard. I am tangentially indebted to his thought.

\textsuperscript{19} William Carlos Williams 1923 poem 'so much depends' is just one of the better known English examples in an immense lineage of writers transcribing immediate apprehension into tangible language.
always following the frontier in dot-com bubble gold-rushes toward killer apps, popularity demographics sloshing like water in a spherical pail. Holograms, VR, gaming, robotics, bio-art.

Sensitive as canaries, every pore rippling, artists and consumers rush around in migrant intersecting circles. Poetry has not been immune to this frenzy; in spite of its adherence to tradition, it has not remained immobile and resplendently unaffected as a sage, it too has been inverted and converted into a prototype, injected with interactivity, its enlightenment converted into pixels.

One thing remains the same. New forms must fit the ancient apparatus: the body, metabolic constraint on all receptivity, must ingest all new art or it will fail. Container, receiver, receptacle and root either engorges itself on the new food or vomits it out. Art nourishes, and occasionally transgresses this substrate but can never totally defy it.

8. MUTATING THE HOW

There is something a bit dispiriting about suggesting that the body is the preeminent motivator and shaper of human culture; the suggestion carries the scent of determinism, it smells of a trap. I am not suggesting, however, that technology is irrelevant; I am suggesting that the body's primal sets of innate desires and processes opportunistically infect any media. Contrary to McLuhan, art seems to negate the new; technology propagates ancient themes. Will digital medium leave humanity unchanged? It seems preposterous at one level: this era is unprecedented. Isn't it clear we are on the cusp of a new world, a relinquishing of ancient analog strategies, a watershed between print and screen, and a threshold of an immortal post-human cybernetic existence?

Undoubtedly, change is occurring. But is technological change fundamental or surface? My contention is that technology is a surface apparition; it mutates the how but does not touch the why.

The basic features of existence continue relentlessly; pores and sensory channels in our tubular cellular modular bodies absorb and excrete. Individual lives appear, develop and die. Neurological

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20 In contrast, the prevalent mythology of posthuman culture, sees technology as a key beckoning an imminent utopia where the ancient tragedies (aging, death, illness, material scarcity, loneliness) are transcended.
and biological burrowing of information from interior to exterior persists. Evolutionary changes gradually sediment into species-specific traits. Human are born curious; Aaron Sloman's information suckling reflex is ubiquitous. When change occurs in these archetypal realities, change occurs slowly.

9. BECAUSE EVOLUTION IS SLOW
Perhaps, in some future, humans will become glutinous masses of raw synapses welded to silicon modems; huge thumbs protruding from swollen pineal glands. But, barring unforeseen circumstances or catastrophic holocausts, it will take a few millennium; and in those intervening millennium, it will be business as usual: sex, death and taxes. Innumerable micro-revelations of multitudes of biological mass-particles participating in a recursive system of instincts that remain implacable even as they are subsumed.

10. WAR & LOVE: THE PLAY-PASSION CONTINUUM
Another key morsel of evidence (for the primacy of the body irrespective of media) is the continuum of violence in cultural products. Homers’ Trojan war, the Mahabharata chronicles, the Old Testament, and the Nordic Skaldic epics are as contemporary in subject matter (gory battles, epic quests, brawny heroes) as episodes of Battlestar Galactica, Star Wars and Iron Man. Human beings have not changed. The ancient male mammalian urges --to conquer and obey the herd (with the accompanying, torments struggles subjugations and carnal pleasures)-- persist across centuries and across cultures. Cell phones do not enjoy having their glands pushed to extremes; humans do, and they have enjoyed it for millennium.

In the history of digital poetry, typographic play reoccurs and exploits whatever technological media it can find. From pattern poetry to petroglyph, typographical play is not new; it’s ancient. It can be traced to the first tentative etchings of humanity on stone²¹. Shapes mutating into letters and doodles organically erupting from glyphs. Similarly, catharsis and exposition of passion using language reaches into prehistory: from the primal anonymous howl of mud to Ginsberg’s

sophisticated Howl and beyond into the scorching feedback-howl of robotic noise installations. The play-passion continuum intersects with computation and extends from Sutherland's Sketchpad, through Born Magazine\textsuperscript{22} to the vertiginous interfaces of contemporary websites and film credits. By moving forms, informally stretching formal structures, humans have evolved in collaboration with language a capacity to introspectively enjoy morphing letters. Computers have simply opened the field of play to networks, 3D and multiple frames per second.

11. LOCATIVE MEDIA


Glossy touch-sensitive screens may eradicate the prevalence of scratching petroglyph or smearing organic pigment on cave walls; fighter planes and automatic weapons to some degree antiseptically replace the sword and catapult; and similarly, the computer (word-processor, website and multimedia editors) displace the pen and typewriter as dominant authoring tools. Technological successions have been exhaustively documented. But the generalized features of daily ritualized interaction have not mutated: kill or be killed, compete to survive, and crave for love. Many commentators have noticed that many cellphone conversations are devoted to finding out where we are (physically, emotionally, politically, and psychically). Contemporary humans are using digital technology (as they used ancient technologies) to discover the locations of their local network of friends and acquaintances – to stay in touch--; and, in parallel, to investigate the

\textsuperscript{22} “Born Magazine is an experimental venue marrying literary arts and interactive media. Original projects are brought to life every three months through creative collaboration between writers and artists.”

http://www.bornmagazine.org/
reality of the larger social network intellectually and emotionally. Communications networks create a global echo-location capacity, interconnecting the pseudo-autonomous entities, the citizens and inhabitants, you and me. Digital communication is the species’ skin optimized to utilize the most potent available methods.

Egos want to know who they are: prove, differentiate and show-off, while they must simultaneously integrate themselves: conform, behave, and obey in order to belong. Organisms do this by observing other organisms, constant feedback ensuring normative procedures so as to allow occasional blasts of expression which stretch the contours of normalcy. These blasts are called creativity and are tightly constrained by technology and by the capacity for society to integrate change.

12. QUANTITATIVE QUALIA

Creativity returns us somewhat circuitously to the ineffable taste each poet (regardless of technology, as indefatigable as a honeybee) seeks. Obviously, taste is, in academic terminology, qualitative. But here I will make a perhaps quasi-reckless confession that risks alienating the phenomenologists and aggravating the mystics: I think everything is reducible to numbers. I feel that all qualitative events, no matter how subtle and insidiously complex, are reducible to algorithms. The much-vaunted nebulous mystery of the soul is just mechanistic grist for a cognition capable of comprehending it.

Qualia is quantitative.

Anthropologists from Arcturus, with frontal lobes the size of mega-malls, sent to analyze human culture may perceive, hidden within its murky idiosyncratic flows, systemic regularities capable of erasing notions of autonomous artistic visions. Remember that the roots of computation were anticipated by Leibniz (the founder of calculus) who dreamed of developing a machine capable of universal reasoning23. The roots of his hypothetical machine rested on logic: the processes of binary gates that are now foundational in computation architecture. His idealism finds it apotheosis in contemporary research into affective computing which seeks to emulate emotional

processes using complex interconnected modules of logic that learn through recursive feedback²⁴.

13. HUMANIST-MECHANIST RECONCILIATION

Given the preceding historical perspective, is it possible to reconcile this extreme form of absolute reductionism (where all events are considered numerical and formulaic even if currently unresolved and mysterious) with the integration of the body (along with all its squishy raw wild emotions) in computational art and digital poetry? I believe so. Not only is it possible, it is necessary.

Why? Because subjective experiential fact (ourselves and our bodies) and physical explanatory formula (biochemistry, genetics, physics) co-exist. No negation is involved or necessary in considering them to be concurrently valid. To use an analogy, these theories are two creatures inhabiting different domains of the same forest. Embodiment theory is grounded, on the forest floor, in daily experience: the modernist idea of 'no idea but in things', physiology, psychology, and Aristotle’s mythopeia (narrative). Extreme reductionism is an abstract canopy, an insight generated by impact with an immense (ontologically-inexplicable) universe and the resulting humble recognition that humanity’s highest ideals may be just ledges in evolution’s canyon. When body’s notion of autonomy meets determinism there might be conflict, but generally these concepts inhabit different domains, divergent levels of abstraction. In an ecosystem of ideas²⁵, humanist and mechanist²⁶ embrace, reconciled; they co-exist.

Digital poetics operating at the interstice of technology and art must accept this humanist-mechanist reconciliation in order to begin creating works that speak the language of art (basically humanist, in its multi-faceted ancient embodied form) and science (which is our civilization’s contemporary mythology: the language of immortal process) using the communicative assistance and augmentation of computers²⁷.

²⁶ Mechanist could also be called structuralist. Structuralist might be a more appropriate term since structural analysis of language is the linguistic equivalent of numeric or physical mechanistic analysis, structural analysis is the technique that underlies automated text generation.
²⁷ An argument exists (which I made in my Masters’ thesis) that the most fertile online laboratories for digital poetics occur when programmer, designers, poet and artists join forces. Example: Born Magazine.
14. SYSTEMIC ART

So what computers offer (and in their offering, as is often the case, simultaneously amputate) is analogous to what an Arcturian anthropologist might offer to human culture: insight that demolishes vanity. Computers since the beginning have been recognized as competitors for our cognitive niche: thinking machines, tool-makers. The capacity of algorithms to emulate intelligent processes automatically suggests the possibility of algorithmic thought; thought extrapolates to emotion, emotion to art. Yet the creation of art by autonomous cybernetic systems proves more challenging than anticipated. While the enabling capacity of computers working in conjunction with human artists has permitted a flourishing of emotionally-compelling artworks (in film, theater, etc...), few examples of compelling subtly-contextual poems created by computers exist yet. The examples that exist are fragmentary accidents, soon erased by other poems that reveal an absence of experience at the core of computation. The problem remains as intractable as it was in the origins of computation art; in the digital poetics realm, the techniques (combinatorial language generation and kinetic works) and concerns (meaning and process) of the pioneers continue to be explored. Consciousness remains intractable.

In the meantime, interface advances (analogous to elaborate social infrastructures) increase the comfort level of those fortunate enough to be ensconced in digital cocoons. Writers benefit from real-time capabilities to search digitized archives. Today's utilitarian spell-check and word-suggestion will be superseded by automatic sentence-completion and eventually paragraph-trajectory digital-assistants with semi-instantaneous patent-application and authenticity-checking capabilities. Stringer news stories constructed automatically from harvested and congealed blog posts will compete with sentimental odes written spontaneously by automated processes. Online video soap opera plot-lines bifurcating as effortlessly as archaic hyperlinked fiction once bloomed. Physiological bio-feedback entering the normal lexicon of an author's toolkit. Once art discovery becomes variational algorithms crawling along permutation paths, the artist will be a gardener of potentials.

All of the preceding ideas occurred to many other people at the origins of computing as speculative fiction and laboratory research strip-mined the future for fertile trajectories. From
OULIPO(1960)\textsuperscript{28} and L.A.I.R.E.(1989)\textsuperscript{29}, many artists germinated into computer scientists and procedural authors sprouted proclamations. As Funkhouser suggests a few times in \emph{Prehistoric Digital Poetry}, many of the potentialities of digital poetry, its basic techniques –combinatorial, generative, and kinetic-- have been known since early in computer's development.

\section*{15. THE FULLY-FORMED NEWBORN}

In order to recognize why the field of digital poetry displays its dominant features at its origins, consider a couple of common observations. In Greek mythology, Athena was born from Zeus' skull \textit{fully-formed}\textsuperscript{30}. In many organisms, babies emerge from the womb with all their perceptual apparatuses (eyes, ears, nose, mouth, fingers, claws, intestines, brains) pre-formed; their bodies are small, things are developing, but the organs of sensation are functioning, the structural foundation is complete. Conception, gestation, birth: newborns emerge to some degree with feature sets \textit{fully-formed}.

Now, extrapolating from organisms into technology, consider the computer's evolution; consider, for a moment, the computer as if it were an organism. Anticipated by Leibniz, Babbage and the Jacquard loom, conceived by Konrad Zuse, and logically developed by Turing and Von Neumann, it gestated in the womb of laboratories until with a flourish Ivan Sutherland demonstrated Sketchpad in 1963. Sketchpad is considered by numerous commentators to be the birth of GUI (Graphical User Interface) and OOP (Object Oriented Programming). In parallel in 1968, Doug Engelbart's network demo (nicknamed the 'Mother of All Demos') introduced the computer mouse (which he had patented in 1964), interactive text, video conferencing, teleconferencing, email and hypertext. He referred to the capacity for computers to augment human intelligence
and also alluded to a large network connecting many remote users to be called ARPAnet. This is the desktop computer as a newborn baby already holding its teaser: the internet. Networks, cameras, menu systems, touch-sensitivity, drawing commands, mouse and keyboards were all present at the birth. They are still with us, just as are our eyes-ears-nose-mouth-skin.

Thus by 1964-68, the computer's fully-formed faculties give an accurate sense of its future possibilities. And it's in this time period (1959-69) that the first digital poets began to work. So it's not any surprise that their work anticipates and forms a template for all subsequent digital poets. They were in the presence of a newborn, and like excited speculative relatives around a newborns crib, the trajectories of possible futures for this digital baby were quickly extrapolated. In the next section we look at these trajectories and the crib photos.
EARLY DIGITAL POETICS HISTORY

A more linear form of this chronology can be found online at
http://glia.ca/conu/digitalPoetics/prehistoricBlog

16. THEORETICAL PRECURSORS

“... as the so-called cyberpoetry which is good is anything but ‘cyber’, it can better be
defended under some other label, like art.” (Brian Kim Stefans. 2000)

An extraordinary diversity of exemplary works of digital poetics scholarship already exists. In
between the previously-mentioned McCauley(1974) and Hartman(1996) contributions cited in
Funkhouser(2007), and the more recent books by Loss Pequeño Glazier(2000), N. Katherine
Hayles(2002) and Brian Kim Stefans(2003), are numerous websites dedicated to digital poetry
(the university-based Electronic Literature Organization's http://eliterature.org/, archives like
Kenneth Goldsmith's http://ubuweb.com, and personalized repositories like Jim Andrews’
http://vispo.com ), numerous email lists devoted to e-lit (sprouting and dying like insects as the
ecosystem server infrastructure stabilizes), and a multitude of anthropological books on the co-
evolution of culture, language and technology (Innes, Ong, McLuhan, Mau, Vandendorpe, etc...).

Numerous names have been proposed for the genre: cyberpoetry, electric word, e-lit, digital
poetics, vispo, electronic/net/new media/pixel/sound/video/web poetry, langu(im)age,
algorirritmos, infopoetry, holo-poetry, and hypermedia31.

Extensive discussions have been ongoing for decades concerning the future of literature, the
impact of technology on writing, and poetry's role in a digital world. Almost every major subject
imaginable with implications for the possible evolution of writing has been touched. Like a
garden exposed to wind, the internet has distributed these arguments and insights far and wide.
But the distribution wind is closely aligned with economic thresholds, it follows the jagged
arbitrary outlines of national debts: I know of no early digital-poetic works from Africa32 and few

31 These names are listed by Jorge Luiz Antonio (2002)
32 Although possibly the sophisticated grassroots cell-phone codes now developing in Africa constitute a sub-genre
of rhythmic digital-enabled poetry, only the economic elite in Africa are currently enjoying high speed internet.
from Asia\textsuperscript{33}. Even Funkhouser, whose research in this domain is monumental, says: “no examples by Africans or Asians are known from the period [1959-1995] investigated here”\textsuperscript{(p.27)}. Language, as well as economics, blockades us in the narrow hall known as heritage. My own knowledge of Chinese or Arabic digital poetry is utterly zero. There may be extraordinary poets similarly isolated on their own cultural islands. These lacunae in knowledge will slowly fill as translations diffuse across the internet and technology (hopefully) begins to reach the majority of the world’s population.

\section*{17. PREHISTORIC DIGITAL POETRY}

“The work discussed here is \textit{prehistoric} because no masterpieces or ‘works for the ages’ emerges or lodge the genre in the imagination of a larger audience.” (Funkhouser. p.6)

The immediate influence and inspiration for this chronology is C.T. Funkhouser’s exemplary and exhaustive \textit{Prehistoric Digital Poetry: An Archeology of Forms, 1959-1995}. Funkhouser reviews the entire spectrum of digital poetics within a perspective infused by historical awareness of literature. With the magnetic and scrupulous force of an obsessive entomologist, Funkhouser has tracked (and actually looked at) and developed critical thought around the earliest examples of computer poetry. His is definitively the grounding framework around which the following chronology of digital poetics grew. Funkhouser’s \textit{archeology} is intuitively attuned to multiple strands within the ongoing practice of computational poetry. The research he performed is an invaluable guide and greatly assisted my own explorations of the terrain.

Reading Funkhouser made it clear that the roots of digital poetry do contain the seeds of the future; the techniques used by pioneers of digital poetry anticipate and in some sense delineate contemporary creation. Funkhouser: “For many years writers and artists have used computers, software, and fonts to do more than make shapes on the page. Graphical poems as such are not new to literature, though the tools for producing them alter, accelerate, amplify and ultimately animate the process” (p. 149).

\textsuperscript{33} ISEA 2008 did feature a regional retrospective on two Malaysian pioneers of electronic art who also did web-art: Niranjan Rajah and Hasnul Jamal Saidon. In a video from 1996 an enthused Niranjan Rajah discusses the extraordinary opportunities provided by the new html medium. Probably web-art developed in Asia as soon as the technology arrived, but no specific digital poets have yet surfaced in the western theoretical literature.
**18. THE ROOTS OF POETIC PERMUTATIONS : 330 A.D.**

Funkhouser's account of prehistory begins in 1959, but Florian Cramer's account begins in 330 A.D.. Cramer is the preeminent theorist-programmer of permutation literary arts that preceded computation. In numerous essays and programming works he has researched and investigated the roots of generative literary practice to an ancestry that predates modernism and the dadaist by millennium. Lured by the confluence of geometry, numbers and words, ancient alchemists and esoteric practitioners established systemic models for generative literature long before the computer came along. In a 2000 essay, Cramer summarized his work:

The website (http://userpage.fu-berlin.de/~cantsin/index.cgi) consists of a number of server-side computer programs written in the Perl programming language, each of them reconstructing - and thereby re-inventing - one of a few dozens of combinatory poems written between 330 A.D. and today by, among others, Optatianus Porphyrius, Jean Meschinot, Julius Caesar Scaliger, Georg Philipp Harsdörffer, Quirinus Kuhlmann and Tristan Tzara. Although it is difficult to distinguish a combinatory literature from other forms of literature ever since linguistics defined language as a combinatory system itself, combinatory poetry nevertheless could be formally defined as a literature that openly exposes and addresses its combinatorics by changing and permuting its text according to fixed rules, like in anagrams, proteus poems and cut-ups. Frequently, written combinatory literature does not denote the generated text itself, but only a set of formal instructions with perhaps one sample permutation. Since the poems of Scaliger, Harsdörffer, Kuhlmann and Tzara fall into this category, they turn into something profoundly different as soon as their algorithms are being transcribed from book pages into computer software. The website therefore is an open experiment for finding out what might be lost and gained from such a transscription. *Permutations* is, in my view, not an art project, but rather pataphysics and gay philology.¹

Speculatively extrapolating from Cramer’s research, it is possible to see life itself as an enormous combinatorial literature. Indeed the gnostic model of demiurges (sub-gods) capable of delineating rules for universe creation rests upon a similar cosmology. From the Biblical 'In the beginning there was the word…' through DNA research into the modeling of life from codons, the idea of existence itself as a latticed intersection of stored strings, poetry capable of provoking life, is a prevalent reoccurring model.

When viewed through this poetic lens, posthuman debates about how humans will gain mastery over genetically modeling of lifeforms, and arguments over autonomy of lifeforms, are analogous
to disputes between literary schools. A vibrant ecosystem of computationally generated microorganisms assembled by nanobots may someday constitute a viable field for meta-poetic play. Eduardo Kac’s progenitors may auto-assemble bacterial poems.

19. CRAMER AND MATERIALITY

Regarding the materiality argument, Cramer surprisingly emphasizes (later in the same 2000 essay) what is often repeated in digital poetic debates, digital poetry must utilize/investigate the unique capacities of the medium. He says:

Any concept of digital literature which does not reflect language combinatorics and algorithmically processed language is severely restrained.

An equally important, but diametrically-opposed claim, can be constructed by borrowing the structure and inverting the meaning of Cramer’s phrase. I say:

Any concept of digital literature which does not reflect aesthetics and human affect engagement is severely restrained.

Both Cramer’s statement and the inverted mutation response contain truth. It is these truths digital poetics must simultaneously reconcile to arrive at synergy potential.

I will reiterate why there are a couple of unresolved problems that make Cramer’s claim problematic for me. The first problem is obvious (and has already been discussed previously in this essay34): Cramer’s research itself demonstrates that combinatorial practices predate the computer by millennium. Combinatorial and algorithmic techniques are not unique to computational media; computational media merely facilitates the ease with which variations can be generated. There is no reason these ancient, canonical methods on the periphery of literature and mysticism should proclaim primacy over other modes of creativity. Let all the methods live!

The other problem is that combinatorics is often referred to as constraint-based language, and yet the fault Cramer sees with non-combinatoric work is that it will be restrained. Restraint and constraint verge on synonymous; both ways of practice (combinatorial and non-combinatorial) obviously involve limitation. A non-exclusive viewpoint sees restraint and constraint as mutually-beneficial aspects of divergent (yet similar) artistic-practices each with inherent limitations and strengths, each with insights and blindesses, rather than inferior/superior strands.

34 See section: #cramer
Combinatorics exposes the mechanistic pattern-based linguistic roots of poetry; corporal poetics exposes its capacity to explore affect, flow, taste and emotional contortions. One practice disconnects us from affect so as to reveal precisely the mechanisms of meaning; the other immerses us in intimate experience so that emotional transformations occur. Both are valid in different contexts; both are ancient methodologies.

20. TECHNOLOGY AND BIOLOGY; VALUE AND INNOVATION

The proposed reconciliation between analytic and affective methods in digital poetry requires a larger conceptual reconciliation between humanity and the material continuum from which it emerges. There is no unique capacity computers offer that is not already found in nature, in the larger meta-materiality from which life emerges. Everything from algorithms, coding, networks and replication has antecedents in molecular biology and physics. Based on this observation, it is plausible to consider human technology as an organic process that operates by developing synthetic emulations of other organic processes or techniques.

Parallel to science's emulation of organic process, art represents/emulates experience, aesthetic impact, catharsis, thought, etc... (all natural processes). Even in so-called contemporary post-modern conceptual art-work, representational emulation lurks: po-mo works express the disintegration of absolutes, cultural froth, irony, alienation, and the structure of ambiguity – which are all inherently unavoidably natural processes (disintegration, decay, chaos, liminal states etc...). So art is arguably part of nature echoing itself: culture is recursive feedback nature uses to evolve. From this viewpoint, art is not only about nature, it is nature; and nature is art, as natural as plumage or mating-dance or song. Matter is mother is mater-ial. Art that engages the totality of this process approaches comprehensive awareness by combining/balancing abstract analysis and objective structural scrutiny with immersion in experiential aesthetics and

35 The organic continuum from which we emerge is matter: stones, light, water, flesh...In a word, nature. From this foundation, eco-poetics (seeing poetry as physics) could be considered a meta-materiality for media-materiality.
36 My friend, Jim Andrews disagrees with me here, noting in an email correspondence: “Organic process has evolved. No mind has directed it. Whereas computers are a combination of both organic process and mind-initiated +directed processes.” I feel, and it is only a feeling since it falls into that category of the almost-unknowable, that mind permeates all, even evolution; nature is as directed as human technology since humans arise from nature.
emotional engagement.

Recognizing the immanence of art in existence (and existence in art), liberates artists to play with computational media without constraining themselves by formal requirements in order to ensure the validity of their work. Validity in the human context is only socially-dependent feedback that establishes temporary nodes of arbitrary valuation. Validity in non-human contexts may have different criteria. Complex oceans of impulses, tiny consensual nodes of agreed-upon-meaning meta-morphing into diverse forms.

21. LOVE LETTERS: THE FIRST DIGITAL POETRY

“Darling Sweetheart
You are my avid fellow feeling. My affection curiously clings to your passionate wish.
My liking yearns for your heart. You are my wistful sympathy: my tender liking.
Yours beautifully
M. U. C.”

(1952 love letter; written by a Manchester Mark I computer, programmed by Christopher Strachey, as cited in Wardrip-Frum. 2005)

If the qualitative questions (of what has value) are contentious and basically unresolvable, perhaps the quantitative questions (of who came first) can be answered unequivocally. Even here, mild ambiguity exists. Noah Wardrip-Frum cites Christopher Strachey’s 1952 Love Letter Generator for the Manchester Mark I computer37(Wardrip-Frum. 2005) as the first digitally-created poetry. Funkhouser cites Theo Lutz’s 1959 Stochastic Text.

For now: until the archives yield a new figure, until new research reveals that Allan Turing was composing sestinas in a basement lab using a home-made calculator as a teenager; or that Ada Lovelace had a functioning Difference Engine; or perhaps as many speculative fiction writers might remind us, some alien civilizations predate our human computer generation by eons, Strachey is the first of a lineage. As Wardrip-Frum points out: “This was the first piece of digital literature, and of digital art, predating by a decade the earliest examples of digital computer art from recent surveys” (Wardrip-Frum, 2005).

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37 Strachey “developed — with some aesthetic advice from his sister Barbara, using Turing’s random number generator, and perhaps in collaboration with Turing — a Mark I program that created combinatory love letters.” (Wardrip-Frum, 2005)
Both Strachey and Lutz’ works are simple combinatorial generators; what differentiates their work from contemporary work is the relative simplicity of their combinatorial algorithms; contemporary CPUs allow for massive arrays, multiple style templates, extensive linguistic laws and sheer brute force. In the early works, often text-generation was both the only advantage offered by the computer and it’s only capacity: explore variations of phrases, replacing blanks in phrase structures with words chosen from pre-defined sets. Poetic archeology continues to reveal new pioneers, all of whom were text-generation permutation practitioners: Brion Gysin, Nanni Balestrini, Beatnik38, Jean A. Baudot, Alison Knowles, Emmett Williams, Margaret Masterman and Robin McKinnon Wood, Jackson Mac Low, mIEKALaND, John Cage, TRAVESTY, A.L.A.M.O…..The list continues into the present practitioners: Ray Kurzweil, Charles Hartman, Loss Pequeño Glazier, Nick Montfort…39.

Note how right at the origin, Strachey’s contribution represents a synthesis of analytic and emotive approaches. He programs an emulation of an ancient literary form: the love letter, mother of the ode, sister of song. As most adult mammals know, the mating-motivation bio-circuits are extremely persistent, and the love letter is a ubiquitous aspect of human linguistic display40, so it is no surprise that the very first art attempted on a computer is an attempt to automate the process of emotive language, the language of desire.

Strachey’s work places emulation of emotional ardor at the origins of digital poetry. Ironically, this emotional-instinct requires significant logic; Strachey must analyze the structure of the figurative form he wishes to emulate, establish keywords in the genre, and master the technical details of coding a recalcitrant mysterious binary machine. Strachey is a classic case of why, I believe, emotive-aesthetic motivation inadvertently/symbiotically leads to enormous advances in materiality analysis. In simple language, the digital poetic situation is similar to what is said about parenting: without love, it would be impossible.

22. ABSTRACT AND FIGURATIVE

Having established the primacy of emotional inspiration at the root of digital poetry, what about

38 Does anyone else get the sense that maybe RM Worthy (the inventor of Beatnik) was a fictional hoax?
40 It is not heterosexual love that Strachey was advocating (or Turing).
it’s taxonomy? Digital poetry's development, as in painting, can be roughly demarcated into figurative works (emulating previous literary forms and exploring emotive meaning) and abstract works (exploring semiotic/linguistic/cultural structuralism). The difference is palpably clear when reading the works. Emotive-aesthetic figurative works carry within them the intention to express experience with succinct linearity or metaphor; abstract-semiotic works more often defy linearity and banish experience in the hope that, at the fracture of normative meaning, structural insights will leak out.

But even though the difference is often palpable while reading the works, the distinction is not always clear-cut in practice; some abstract works display significant aesthetic impulses, while to produce a convincing figurative replica of a previous literary form requires substantial comprehension of structural linguistics and prosodic rhythms (as seen in the case of Strachey). So these categories are, as in most taxonomies, mildly arbitrary and prone to fall apart under the weight of significant anomalies. However this ambiguous abstract-figurative chasm is one way to understand the origin of the contemporary theoretical concentration on materiality doctrines. The affect-analysis strands simply grew apart from each other. And it allows another (somewhat predictable) generalization: affect, engagement and aesthetics are primary in figurative work while materiality-research is more common for abstract-structuralist poets.

Metaphorically, it is helpful to think of the divergent-reconvergent head-heart strands of human engagement with poetic language as emergent paths or living vines; from a conceptual perspective, it is plausible to consider them as symbiotic structures intertwined with communicative-technology ecosystems. That technology is currently digital. Their apparent opposition conceals a co-evolution. And that co-evolution of emotion-cognition is paralleled in the cultural biosphere by the human-machine dichotomy. This fundamental fulcrum of metal and flesh, leads Charles Hartman to a question that transcends the dichotomy: “the question isn’t exactly whether a poet or a computer writes the poem but what kinds of collaboration might be interesting”(Hartman,5). Hartman’s question about interest invokes meaning, -- meaning that occurs at the collaborative membrane between man-machine.

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23. MEANING IN EARLY TEXT-GENERATED POETRY

Meaning is the glue that binds us to events. Interest is usually concurrent with meaning; and these are crucial concerns that emerge very early in digital poetics history. Theo Lutz’s 1959 essay *Stochastic Text*\(^{43}\) recognizes the problem of meaning as being central to computer-created poetry; and he even suggests a potentially feasible probabilistic implementation pathway toward resolution that would not be out of place in contemporary computer science textbooks:

> It seems to be very significant that it is possible to change the underlying word quantity into a “word field” using an assigned probability matrix, and to require the machine to print only those sentences where a probability exists between the subject and the predicate which exceeds a certain value. In this way it is possible to produce a text which is “meaningful” in relation to the underlying matrix.

One predominant domain of AI research follows this thread suggested by Lutz: statistical probability. In addition Lutz’ notion implies the matrix of language is analogous to a network and that proximal sets may evoke meaningful relations, or perhaps that meaning is a pathway between mathematically linked nodes. All of these notions are still currently active as research paths.

Jean A. Baudot in the extremely-contemporary introduction to his 1964 computational-poetry book\(^{44}\) also mentions meaning. His attitude is cautionary. Baudot warns us to consider the computational output as examples of a process not a literary exercise. He identifies the fundamental problem of computer generated text that continues to be problematic until this day:

> “We assist then the works of a genuine robot which writes without comprehending what it says because it doesn’t know the sense of words.” (Baudot. p.10)

Expanding the classic question of “what is unique to computation?” and instead asking “what is unique to each element in human-machine symbiotic dyad?” The human provides meaning, experiential resonance, emotive interpretation and analytical force. The computer provides algorithmic speed and the capacity to rapidly mutate or animate the display. It is this capacity that leads to the other major thread in digital poetics: multimedia.

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44 See Appendix B for a complete translation of Jean A. Baudot’s preface.
24. MULTIMEDIA: AESTHETICS AND GENERATIVE

As mentioned earlier, a surplus of categories and nomenclatures exist for digital poetic techniques, but utilizing multimedia as a blanket term (for work concerned with the aesthetics of display), it can subsume kinetic, animated and video-poems under a single umbrella. And following the analytic-affect, materiality-engagement and abstract-figurative dualities established earlier in this essay, it is possible to add two other broad categories: aesthetic and generative. In early practice, aesthetic techniques began slowly due to the extreme difficulty of generating computer graphics, but as usual occur very early in digital poetry's evolution.

One of the first artist's to clearly concentrate on aesthetic-display issues is Marc Adrian. Adrian was one of the artists featured in the *Cybernetic Serendipity* exhibit at ICA in 1974; but Adrian had created films as early as 1963 using words generated by a computer. Often his films were based on procedural workings (what he called “methodic inventionism”).

For this reason, Marc Adrian is considered one of the pioneers of film structuralism; yet he also can be considered one of the forerunners of kinetic poetry; a screenshot of Adrian's *Computer Poems* in the *Cybernetic Serendipity* catalogue echoes the Flash-based work that has proliferated in the last decade.
What's remarkable for me is how this still-shot from 1974 is so similar to web-experiments (1996 to the present day); it's like a dormant static seed for the sans-serif floating text effects of numerous contemporary online experiments. The randomized placement and scale of words in *Computer Poems*, suggests and anticipates the “animated literature” of the ALIRE journal which began in 1989 (Bootz, 1998), the mobile fluid kinetic online work of Jared Tarbell ([http://levitated.net](http://levitated.net)), and the mobile text of Jason Lewis’ ongoing research (1994-present) into custom typographical software from *Dynamic Poetry* to *Active Text* to *Next Text*.45

Intriguingly, in contemporary work, generative techniques have migrated across the text-aesthetic divide. In early works it is text that is generative; in contemporary works, generative techniques are often applied to visual elements. Tarbell's refers to “computational ecology”; Lewis refers to one of his early works (Word Nozzle) as “an experiment in painting with text.”(Lewis,1997). Funkhouser discusses the “fluid aesthetic quality” of Adrian’s work and states:

Adrian’s earliest film using text and this hybrid method of computers and film was **Text I**. 1963, 35mm, b&w/so, 154sec

“The films TEXT I and TEXT II are a mere permutation; TEXT I results from a memory program of a computer. The words were chosen by the challenge that they can be read in English and German alike with no change of meaning.” (Canyon Cinema. Online.)

So from 1963-8, Adrian created multimedia hybrid ancestors of many contemporary forms: video-poems, kinetic text, Flash websites, text-generators and combinatorial literature. Once again the analogy of the baby born fully-formed seems apt.

25. HYPER-GROWTH: YET ANOTHER NEURON-WEB ANALOGY

As neurology reveals, after a baby is born, the senses exist but the brain has not yet developed its capacity to comprehend all the incoming data; absorbing experiences over time tunes and reforms the brain so it is capable of navigating within its environment, while absorbing food grows the body-mass.46 Metaphorically, the same process occurs to digital technology after its

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45 For Jason Lewis’ contemporary research visit [http://obxlabs.net](http://obxlabs.net); for research archives: [http://www.thethoughtshop.com](http://www.thethoughtshop.com)

46 Neural plasticity in infants is well-established. Antonio Damasio’s theory of ‘somatic markers’: embodied cues
birth; humanity as a collective are its parents. Combinatorial generative grammar exists at birth within the foundation of Boolean logic, multimedia emerges soon after Engelbart opens its eyes, Sutherland activates its tactile capacity, and the interior complexity of computational neurons grows rapidly as the size of body of humans contributing to its evolution expands. Digital poetry simply rides this upsurge of potentialities; the new medium attracting more practitioners until the internet explodes the pattern exponentially.

Theodor Nelson (as many folks familiar with the nascent mythology of the internet) developed Xanadu and a concept of interlinked text information and coined the term hyperlink around 1964 – the same year as Marc Adrian developed his first combinatorial-poetry films (multimedia) and Jean A. Baudot published the first French combinatorial poetry (with a significant complexity gain over the previous pioneers). Again the seeds precede the tree. Even though Engelbart implemented network hyperlinks in his 1968 demo, widespread implementation of hyperlinks did not occur until the 1990s and the internet. Bifurcating text paths in narrative (the equivalent of complex synaptic pathways that diverge into a multiverse explored by writers such as Borges and Calvino prior to computers) opportunistically hitched onto hyperlinks. Suddenly computational media allowed massive swarms of symbols, and feasts of interconnected allusions; it was feasible to imagine emulating the mental density of Ezra Pound, who represented the apotheosis of extroverted modernist poetics, by utilizing masses of referential fragments/aphorisms strung together in clusters from a database.

26. HYPERLINKING AS AN ANCIENT ACTIVITY

The Eastgate publishing revolution –hyperlinked fiction that occurred in 1990s-- was the equivalent of digital poetry’s puberty: exultant and secretive, exploratory and predictable. It is well-documented in the theoretical literature. In the first flush of that era, extraordinary claims emerged for a revolution in reading, a total paradigm shift from authorial-control to reader-directed interactivity. John Barthes' death of the author was often invoked magisterially; readers that develop in conjunction with environmental feedback to allow organisms to automate decision making processes comprehensively charts out a theory of how nature and nurture intersect in recursive ways to establish the parameters of personality.

were in control, a revolution was underway, manifestos flourished. Impassioned by Moore's law and dot-com bubbles it seemed as if the basic mode of human communication would alter irrevocably. “Fluidity, contingency, indeterminacy, plurality, discontinuity are the hypertext buzzwords of the day, and they seem to be fast becoming principles, in the same way that relativity not so long ago displaced the falling apple” (Coover. 1992). And to some degree it has occurred: many readers read online, and online readers use hyperlinks to navigate through branching information; as branches proliferate, mental skids are common. Yet the fundamentals of reading remain implacably the same: sentence, phrase and metaphor perched on a froth of wit and insight --shortened, blurred, blogged and sound-bitten, but basically the same. Similarly, symbolic relics of antiquity like totems and the coat of arms smuggle across the techno-border and transform maniacally into logos. Readers surf past them, ricochet through them, and in between them they read as they have always done: grazing like cows, ruminating on meaning.

27. OUR INFO-SURFING ANCESTORS

Info-surfing is neurologically defined and historically prevalent. An 18th century monk strolling through a monastic catacomb would probably not read the library from first book to last in a sequential order beginning at the first shelf and ending at the last. A 14th century peasant visiting a country fair would not scrutinize the stalls and exhibits in the order in which they appeared. A poet in any era does not always read pedantically every word she sees; instead she might flick through a tattered tome to find and read again a single favorite poem, discarding it before the last stanza that she has memorized. Nor did shamanic oracles begin chanting from the beginning of their known tales and always finish at the last.

All these activities of migrating attention, flickering thought, impatience and foraging are normative and embodied precursors of internet surfing. Hyperlinks occur in the blood and brain. The activity of migrant attention is not new; humans have always leaped to the good part or skipped sections or flicked through. With a networked computer, the relative ease of this activity has increased and its ubiquity may (over decades, centuries or eons) etch habits deep into us and

epigenetically⁴⁹ alter the parameters of what we consider normal linearity while reading. Even as our physiognomies evolve, each of us will occasionally cling to the branch of a banal narrative, and seek out the succulent fruit at the end of intersecting vines of events: sense, insight, revelation.

28. THE MEDITATIVE PRESENT

Sustained non-branching concentration and passive entranced ingestion occurs continually in the contemporary computer environment. Visitors to internet movie sites and MMORPG players do not flick incessantly between tasks once the activity/art has seized them⁵⁰. In the same way, digital poetry has not become entirely combinatorial and interactive; and it is not pure semiotics. Nor is multimedia kinetic frenzied flying digital poetry a major genre of poetry; it remains a peripheral genre. The vast majority of poetry websites replicate the paradigm of the static book, reprint verse and stanza in stoic recognition that folks like it like that.

29. THE CUTTING EDGE OF CONTENTLESS INNOVATION

As intellectuals or artistic experimenters we may lament societal inertia, but the mass of society moves swiftly when impelled, flocking to ingest higher-octane eye-candy.⁵¹ Often eye-candy utilizes the digital medium in ways that few marginalized normally-solitary digital poets are technically or aesthetically capable of creating. Digital 3D graphic text manipulations are proliferating in pop culture: from glossy banner ads to sports, networked news, music videos, film credits and gleaming science shows, typographic innovation is flourishing.

Controversially, the cutting edge of digital materiality of new media occurs more often in advertising than in theoretically-inspired proof-of-concepts. Greed, ruthlessness and the fear of immediate obsolescence propels ad-artists to perpetually invent new ways of using, abusing and amusing themselves with text. In the same way that the internet was invented by military paranoia (and anticipated by comic books and cheap sci-fi), the leading avant-garde typography is motivated by crass commercial self-interest and vanity. The word-rate, kinematic programming and dexterity of text-manipulation in a standard TV ad or film credit (created by a team of well-
trained competitive executives, skilled animators, experienced programmers and savvy designers) are usually far beyond the technical reach of a typical digital poet\textsuperscript{52}.

And at the same time, most people still enjoy static text, in fact they prefer it for linear material, especially when they want to get meaning out of it, or absorb some emotional depth. The cognitive speed limit of our embodied sensors seem to predispose people to ingest meaningful text at their own pace, without distractions. Aesthetic absorption conflicts with the demands of interactivity: \textit{click now/here disturb the sleep in which dreams emerge}. Passivity is pleasurable\textsuperscript{53}. The capacity to control static and mobile texts at rhythms that correspond to internal metabolic predispositions are what provoke satiety.

\textbf{30. PRE-CONCLUSION CONTEXT: A COSMOLOGICAL WRAPPER}

The body is a limit-barrier preventing technology from eradicating the past. The body is also the materiality from which technology emerges. Materiality is immanent; it is all around us, it is in us and it is us: anatomy, biology, botany, geology, astronomy and technology. Threshold and state-transitions may induce incalculable mutations but the basic cycles of birth, growth, death re-occur. It is from this perspective that I approach digital poetry as manifestation of nature, a form of unanticipated multi-modal fern on a cliff-face of technology and time, an extrusion of language processed through body in conjunction with technology.

\textsuperscript{52} The irony is that ads themselves are only suction filters that osmotically absorb styles born on the streets: in graffiti, tattoos, and punk-rave mags. Poetry is always immersed in this turbulent confluence, navigating between content and style, analysis and affect.

\textsuperscript{53} Trance is an intriguing phenomena when considering the apparent oxymoron of absorption and interactivity. How is it that dancers or drummers or musicians enter into the rhythm and structure of rituals so deeply that autonomous processes propel them into states of transfigured awareness while they physically remain competent and capable of temporally-accurate activity? The computer-generation raised in the constant presence of the internet may more easily possess a similar capacity to surrender all cognitive control, simultaneously tasting deep transcendent states while autonomic reflexes navigate interactive demands.
CONCLUSION

“The creative scientist has much in common with the artist and poet. Logical thinking and an analytic ability are necessary attributes to a scientist, but they are far from sufficient for creative work. Those insights in science that have led to a breakthrough were not logically derived from preexisting knowledge: The creative processes on which science is based operate on the level of the subconscious.” (physicist and biologist Leo Szilard cited in Damasio. p. 189)

For now, the patterns of poetic creation on computers are already established. Until the next major technological paradigm shift\textsuperscript{54}, digital poetic evolution will proceed along trajectories established at its origins: combinatorial generative language, kinetic poetry, and multimedia works. Only the emergence of a genuinely new paradigm in computing and interface design will provoke the emergence of another cluster of methodologies. Those methodologies in turn will probably have precedents in analog art-creation. Meaning will only emerge where the human emotional and analytic system are simultaneously activated, irregardless of the media utilized to implement it.

As much as machines alienate us from our bodies, involving us in taut algebraic cycles of sustained analytic beauty; contemporary networks are precursors to modes of immediate porous global body jolting. Digital poets (hormonal tongues of technology) will certainly utilize this perforation media in ways that are luscious, raw, frenetic, passionate and deranged. Such art-affect activity provides a volatile substrate for analysis of media-materiality. The two streams of practice work in tandem.

\textsuperscript{54} The emergence of an autonomous consciousness in computational networks.
Postscript: The Social Purpose of Art

Seeding time-based aesthetics, emotional poems outline specific behaviors, entangled with technology in remote flesh programming. Analysts taste the feedback graphs, speculate trajectories, rushing networks into spasms. Aesthetes spit the tone of wet nets struck by ballistic brains, gushing data, engorged grids.

There is a persistent symmetry to events. While finishing this essay on the necessity of emotion in digital poetry creation, I dream a good kind friend dies. A strong wrenching grief seizes me, and I weep in my dream, and wake, chest-sore and clenched, appalled by the inevitably of death. There is no reason for our little mortal existences. And this dream etches it way inexorably into me, burrows into my consciousness, I feel as if it's emotional force is in my muscles; but a few days later it is forgotten, a scab. Emotional force carries it deeper into muscle-reservoirs, long-term memory and fatty tissue; events pave over it, until it is dormant, waiting, forgotten but accumulating in the subconscious.

Art is the subconscious’ poultice, poison’s draw. And it is art’s occasional clearing of cognition that is key to it's functional meaning within society.

The sustained consistent prevalence of war and love\textsuperscript{55} suggest the continuance of grief. Grief and loss calls for engaged empathic art: art that speaks to the heart, quietly compassionately and purely. Art balances the excesses of civilized slaughter. Computational art, and digital poetry, must continue to resonate with these eternal ideals or risk sinking into tinkering fetishes, masturbating inflated robotic cash-registers, and apathetically analyzing symbolic flow-charts\textsuperscript{56}. Only a holistic use of all human creative capacities (head-heart, analysis-intuition, reason-passion etc...) in conjunction with flexible, intuitive and playful approaches to computation will enable a complete symbiosis of poetry with new media.

\textsuperscript{55} While writing this paragraph I am multitasking and eavesdropping on a live seminar broadcast from Harvard: “IHL and Human Rights: Convergence or Divergence?” which basically is a legal meditation on the ongoing dilemma of war and its continual impact on human rights.

\textsuperscript{56} Permit me a moment’s hallucinatory footnote: Imagine fleets of rogue cash-registers, networked, robotic, autonomous flying poetic drones who descend upon weary commuters, mumbling linguistic mashup poems, hypnotizing them with rhymes. Congealed rantings pour out of loudspeakers concealed in their rotund bellies. The rhythm of their invective shakes flesh into inertia while their sensors vacuum RFID bank cards and PINs from bewitched subcutaneously-implanted citizens. Poetry, immaculate as a curse or a cure, can exist anywhere for any purpose.
APPENDIX A: A few words about my own history

I must admit I have taken little part in any of the prolific debates surrounding poetry in oral, print and digital media. I developed an allergy to discourse in my twenties. I feared its capacity to maim authentic impulse, --to sculpt raw inspiration, to chain agile interstices of impassioned oration-- so I am a latecomer to the critical fray. Due to sensitivity and malleability, I purposively locked myself off from the world of intellectual turbulence; instead I immersed myself in making art, composing music, and writing poems. Subsequently, my own creative development has been isolated and idiosyncratic: straddling domains with intuition and persistence.

In addition, contrary to the conscious, self-reflexive, critically-aware, conceptually-infused stance of contemporary art, I don’t think much while art-making. I don’t even believe in the necessity of thought during art-making. Thought, in the sense of conscious consideration, is not where art comes from. Thinking may occur during the rehearsal or practice phase, but only with purpose of infusing habits and reflexes into blood. My creative model of poet is as a conduit. At its best, poetry is a physical reality exterior to myself that utilizes me as an amplifier in a network of ideas and insights; most times, I practice the craft (by writing poems of interiority, Aristotle’s *ethopoeia*) so as to be capable of accurately conduiting the exterior signal when inspiration arrives (which is rarely).

The signal is mythology; the craft is verse; the medium is multimedia.

My poetry roots in the ancient world of premonitions, occasional grace, and immediate apprehension. Indebted to the surrealists and the loping oracular phrasings of Charles Olson, the science-imbued surreal-aphorisms of Christopher Dewdney, leading through a cascading incandescent chain of gregarious literary monsters, -- over the crayon-grottoes of Kenneth Patchen (who should indeed soon be considered one of the first programmatic poets of the emotions, in that he utilized an algorithm of fierce innocence) into the archives of Euripides, Lao

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57 I studied briefly with Christopher Dewdney, regularly attended Paul Dutton’s free Wednesday concerts with CCMC and read Rampike on the peripheries of Toronto’s concrete poetry scene which preceded the digital era.

58 ‘Carrying signals of an unknown system...’ (myself, from self-published chapbook, *Prosthetic Philosophy and Other Ritual Routines*, circa 1990). I guess this means I am still in the grip of modernist tropes, but so it is.
Tse and Dzog Chen.

A synoptic chronology of my digital gestation: in 1990, I bought a tough NEC laptop (painted it and took it to New Orleans) and did my first computational word art poems\(^{59}\). In 1994, babysitting a Macintosh, I got engrossed in a huge animated Gif poem (it disappeared on an obsolete zip drive). Html and javascript websites followed in 1996 (Nomad Soup). In 1999-2000, I completed a year-long Flash site: NomadLingo\(^60\). In 2002, I exhibited a digital video poem on a video billboard in downtown Toronto as part of a festival I co-curated called Transmedia. I consider that my apprenticeship period. After that I took a computer science degree, dedicated myself to online experiments (a commission for Turbulence.org, a residency at La Chambre Blanche's weblab, exhibits at FILE.org), and hoped my apprenticeship would be over. In actuality, since the medium is constantly changing, the apprenticeship is ongoing. After completing a Masters of Science in Interactive Arts at the School of Interactive Arts and Technology SFU, I am now in the Interdisciplinary Humanities doctoral program at Concordia University in Montreal.

Online digital poetry, happily, allows me the opportunity to weld disciplines together (video, audio, words, and interactivity) and instantly publish to an international audience that is far larger (by an order of magnitude) than that of a typical poetry chapbook or a small-press run\(^{61}\). Websites tend with minimal maintenance and at an extremely low cost to stay online and accessible year after year; new media encourages idiosyncratic voices. This is what I consider to be the primary benefit of the internet: the fusion of disciplines and low-cost widespread dissemination of marginal art-forms and ideas. See [http://glia.ca](http://glia.ca) for recent work.

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\(^{59}\) A number of my self-published chapbooks, notably *New Orleans Death Trip* (1994?), featured multi-column narratives, and the play of computational 'word-art' common at that epoch: circular words, curved words, etc....I also inserted graphic elements into installation work that contained poetry: 3D worm-tubes from early Corel software printed and connected on hundred of sheets to form a long strip glued to a wall over a poem written in crayon on a baseboard for a 1995 show *The Clinic* with the Symbiosis Collective, Toronto.

\(^{60}\) NomadLingo: [http://www.year01.com/nomadlingo/door.html](http://www.year01.com/nomadlingo/door.html)

\(^{61}\) [http://glia.ca](http://glia.ca) receives more than 3000 distinct visitors per month.
APPENDIX B: Jean A. Baudot's 1964 Preface

1964: Jean Baudot, a pioneering engineer-linguist, creates the first French machine-generated published poetry.

Published by the Editions du Jour in Montreal, "La machine à écrire mise en marche et programmée par Jean A. Baudot" ("A Writing Machine created and programmed by Jean A. Baudot") is still circa 2008 available (mildewed and seemingly unread since 1976) in the Concordia library. A rough translation below (by myself) of Jean Baudot’s introduction reveals his language and concerns as strikingly contemporary and lucidly clear. Either time has stood still or it seems that new media evoked unresolved concerns early in its evolution.

In this preface to his pioneering work on human-machine creativity Jean Baudot, who was an engineer by training and became a linguist writing on formal grammars, writes about the ubiquity of computers, their capacity to emulate human tasks, and his goals.

Humans have always been attracted to automation. From the beginning of time, humans have invented devices to imitate and surpass human capacities. Most often these machines have reassured humans of some control over the material world.

Certainly a sense of domination is elicited when contemplating a machine performing a task previously only possible through labor. We find ourselves stronger and above all conscious of our privileged nature.

Technological development of recent decades has taught us to be astonished by the power of machines. We know that machines are work tools. Its with them that we progress.

In this domain, computers – loosely called electronic brains – play a major role. These utilities have invaded industry. Without them a big part of our scientific, industrial and commercial activities would be instantly paralyzed. In effect, computers, vast manipulators of data and info, can be utilized for executing very varied tasks. They are model students. It is sufficient to show them correctly, only one time, how to execute a task for them to accomplish it at often prodigious speeds. One such machine can learn a multitude of different tasks, and always remembers the particularities of each.

The phrases which appear in this volume ["La machine à écrire mise en marche et
programmée par Jean A. Baudot” ] were composed by a computer. The texts are less a
literary performance, but more the result of an experience which merits some interest.
Composition is considered, without any doubt, as fundamentally human activity, it is
therefore troubling to observe a machine functioning without any external
intervention writing evocative phrases in a credible style. How can it be possible? It’s
extremely simple. It is sufficient to teach the machine some grammatical rules, a
foundation vocabulary and let it work. We assist then the works of a genuine robot
which writes without comprehending what it says because it doesn’t know the sense
of words. [...]  

Our goal was to observe how a machine behaves after it has been taught a little
grammar and has at its disposal a constrained lexicon (630 words approximately). In
order to avoid introducing, consciously or unconsciously, bias taken in the choice of
words placed at the disposition of the computer, we decided to extract a manual of
French of the simplest level possible.

To that end we chose the manual of the 4th year actually used in our schools and
entitled “My French Book” (Brothers of the Sacred Heart). The 630 corpus represents
about half of the words utilized in the manual. All the words utilized are therefore
simple and at the level of a 10 year olds vocabulary.

During the research, the machine having been appropriately programmed was left
running overnight. Imagine our surprise the next morning to discover it had printed
thousands of phrases and it seemed as if it could continue without stopping. This
volume represents a ample of those phrase composed by automated processes. The
phrases are reproduced as they appeared, even if sometimes the temptation was
strong to modify them slightly.

I leave it to the reader, literati or amateur of new styles, to their own conclusions.

Jean A. Baudot
Montréal, juin 1964
p.s. the reader, interested in the technique related to this automated process, will find
some explanations in the appendix.
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