The Regime of Amplification

SUBMITTED BY

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Abstract

In this PhD thesis I explore the synergistic interplay between a personal *way-of-going* and a creative media arts practice. Reflecting my trans-disciplinary background in engineering, science, and the creative arts, I approach the interplay as a 'world-view' sourced in a concept of energy, which I elucidate. This world-view turns away from dominantly materialist assumptions about reality. Applying a technological model of amplification—one that maps a dynamic of energy *relations* across a wide variety of systems—I connect otherwise divergent principles within the dynamics of embodied presence, of human encounter, and of technological and social development. In this context, I frame and critically examine a model of the techno-social system that we now inhabit: what I call "The Regime of Amplification." Several aspects and manifestations of The Regime are explored—the military, radio, glass, and money/code—suggesting consequential ways of engaging in a creative practice within such a system.

Throughout the thesis I reflect on creative personal projects and practices that explore the relationship between individual expression and its social context. These include photographic portraiture, on- and off-line performance, archive-as-art, teaching and facilitation, network presence, and dining together. One of my intentions throughout is to suggest ways of sensing the world that may radically transform creative practices.

The expansive online creative project "the tech-no-mad (b)log" is also introduced as the creative practice element of the PhD project and is available at [http://tech-no-mad.net/blog/]. It accompanies the thesis as a multi-media exploration of the *way-of-going* with material from my personal and family archive. As a dynamic public platform the (b)log expands on many of the thesis topics using audio, video, text, and image. The (b)log's format addresses issues of public access, creative sustainability, and duration.

Keywords: amplification, energy, entropy, presence, creativity, protocol, process, dialogue, system, pathway, mediation, media, flow, technology, networks, techno-social system, continuum-of-relation, encounter, participation

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis submitted for the award of any other degree or diploma.

No other person's work has been used without due acknowledgment in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

Signature of Student

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This work and the creative practice it circumscribes could not have materialized without the support of a large number of individuals and families who have, along the way, offered me generous combinations of the following: a roof, a place to sleep, meals, a kitchen to cook in, encouragement, and, most importantly, the opportunity to *engage* in wide-ranging, energized, and inspiring Dialogues. Over several decades, this very human network has tolerated, supported, and even indulged my idiosyncratic expressions to a fault. To all those friends—*you know who you are!*—I extend my deepest gratitude for making life far more than merely bearable.

This thesis is dedicated to the future: my son, Loki Alexander Hopkins, and my godson, Simon Arthur Abranowicz; to the children of my friends and family; and finally to all my students who have been so willing over the years to explore these and other topics of Life and who, in the process, taught me much about living.

It is also dedicated to the past: the memory of my father, Cleveland Hopkins (1910 - 2003) who, believing in the life-time of work that he undertook in the service of the Military-Industrial-Academic complex, cannot be faulted, and regardless was a primary influence in my trans-disciplinary trajectory through life.

It is my wish in the present that this text and the accompanying creative project might shed some Light on potential *be-ing* in these 'interesting' times with the accompanying imperatives of creative action, sustainability, and the maintenance of civil society now demanding our attention. Most importantly, however, the foremost challenge of the moment is how we attentively engage the proximal Other. Having said that, I would also point out the over-riding importance of being skeptical of secondhand knowledge—to paraphrase Descartes: trust more the unfiltered senses—judgements formed without consideration in childhood—rather than the declarative reasoning of maturity.

Special thanks to Prof. Norie Neumark at La Trobe University who originally suggested I undertake this work and facilitated the possibility in Australia. In dialogue, she was always adept at opening up a space of flows, and moreover was always a supremely patient voice. Thanks also to Prof. Andrew Jakubowicz at the University of Technology Sydney for listening and responding to my hyperbolic invocations and for generously defending the preliminaries of this work from the vagaries of the insensate.

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1 :: Energy

Introduction

This thesis is part of a non-traditional research PhD. Its origin is a point near the source of both my own world-view and the creative practices intertwined with it. The thesis introduces a number of specific ideas and concepts suggesting a provenance for my creative practice.[1] I present the world-view as a set of potential approaches or tools for examining the dynamics of the social systems that creative endeavors are situated within. The examples provided will anchor a critical exploration of the dynamics of human presence, human encounter, and the effect technology has on both these. The creative practice and the world-view are explored along a sequential trajectory that passes through numerous discursive (disciplinary) spaces. To maintain the focus of the trajectory, many of the constituent threads that would otherwise deserve closer scrutiny receive only passing consideration. To impart a hypertextual inflection while maintaining this focus, I make extensive use of footnotes.

I begin the thesis with a brief exploration of energy and amplification along with a fragmentary personal history and an introduction to the creative project that accompanies the thesis. From there I explore the embodied Self through the lens of energy

1 It is difficult to identify which came first—the practice or the world-view—and it probably does not make that much difference in that they are now deeply intertwined. In retrospect, intuition-based decisions seemed most auspicious when initiating the particular creative expressions that I have made over the years, so it is likely that action preceded rationale in the majority of cases. 'Art' is occasionally defined as a 'way-of-going or doing.' It is therefore fitting to examine the pathway as it interplays with the energetic propulsion that deeply influences the cumulative trajectory. I suggest this approach is a productive source in any media arts practice.

(Chapter 2). In the context of human encounter, I then introduce an expanded definition of the engaged praxis of Dialogue (Chapter 3). Situating individuals and Dialogue in the wider context of human encounter, several perspectives on social systems are introduced along with a brief comparison of networks and hierarchies (Chapter 4). Following that I offer a detailed description of what I label "The Regime of Amplification" as an archetypical form of techno-social system (Chapter 5). In that context I explore several sub-systems of the Regime that illustrate the principles of energy flow or use as implemented by that system. The next section (Chapter 6) makes a principled examination of some of the consequences of amplification. And finally I conclude by exploring several recent exemplars of my media arts practice arising directly as a consequence of the world-view that I articulate here, including brief comments on what all this might mean from the perspective of a media arts practitioner (Chapter 7). Interspersed throughout the thesis are several discussions of particular projects and practices that I have undertaken over the years, along with several narrative reflections, and the resonant observations of Others.

Accompanying this text as the creative practice component of the PhD is a major online work "the tech-no-mad (b)log" [http://tech-no-mad.net/blog/] that is deeply intertwined with both my ongoing creative practice and thesis research. As a media artist, I early on established a network/internet presence, and have used that distributed presence as an armature for a significant output of creative projects. The tech-no-mad (b)log is a cumulative and ongoing strand of that presence, and its deployment in relation to the PhD is the result of a conscious and direct strategy: a desire to publicly surface the creative process. I will include a more detailed discussion of this project and some of its constituent elements towards the end of this chapter.

I have decided to apply the labels *speculative, provisional,* and *indeterminate* to this text. These labels acknowledge the inherent contradictions that underlie all experience:

> [Physicist, Niels] Bohr was the first to recognize that the new quantum theory presented us with a view of experience in which different interactional arrangements resulted in complementary perspectives that need not be logically consistent, compatible, or commensurable, and in many critical cases could not be so. (Lemke, 2000, p.205)

The text sits at the edge of what I intuitively know; it plays with what I can and cannot control; and ultimately it is flawed by the cumulative life trajectory that it is immediately sourced within. It is provisional in the fundamental sense that it dances, out of balance, along the edge of the Void as does Life.

I have and use a number of voices and in a sense, a number of languages in this text as well as in the accompanying creative project. I have lived and taught in second-language and pluralistic, multi-cultural situations for the majority of my adult life. This is combined with several 'disciplinary' languages in hard science, engineering, and the creative arts. Add to that the fact that I have traveled in all 50 US states along with a similar density of travel in Europe with cultural experience from Sicily to Lapland, Saint Petersburg to Santiago de Compostella; include restless movement across Japan, Hong Kong, North Africa, Australia, New Zealand, and Latin America: the cumulative result are voices that are both tentative and hyperbolic, abstract and informal, fixed and fluid, rigorous and loose. It seeks to transcend the normative analytics of communication. Without that transcendence, there is no real possibility to speculate on the unknowable and unnameable in the Void nor what is the

indeterminate nature of reality.

A primary reductive process undertaken every day is this cognizant re-presentation of life-experience through language. Indeed, it is necessary to reduce a world-view to language only to communicate it within the social. Prior to communication it is whole, it is continuous, and it is closely 'tuned' to individual reality. One is always obligated to take a language—expression that is ostensibly *understandable to the Other*—and use it to imperfectly transmit a representation of experienced life. In this regard, I occasionally find it necessary to create new word usages and phrases and to explain those alternative self-applied meanings. Aside from those modifications I will endeavor to be as clear and direct as I can with the language that I am using. This is not to lend excessive gravity to the text, but rather to use whatever precision I can muster from the language itself.[2] This method perhaps yields an *engineered* text, one that is almost the antithesis of poetry, and does not lend itself well, in my hands, to one that is friendly to the reader. To provide another point of entry to the ideas that I am constructing here, I would again refer you to the tech-no-mad (b)log project. It often suspends the use of language altogether, using moving and still images and sound to dance around the same ideas circumscribed here, seeking to

> transfix this momentary eternity which encloses everything, past and future, but without losing in the immobility of language any of its gigantic erotic whirling. (Kazantzakis, 1960)

My hope is that these two mediated approaches, *ensemble*, provide the project with a depth, breadth, and multimodal richness—each doing what the other cannot—in dialogue with each other and with the reader, viewer, or listener.

Energy

Energy is the one thread that ties together the many disparate ideas, models, concepts, and practices that are encountered here. Energy is the root source of a praxis that, in turn, is the source of creative expression. Energy—life-energy, and its correlate, life-time, directed in this case by the specific social convention of writing[3] in English—is the source of these concentrated expressions. I "circumscribe"[4] several disparate notions of energy in order to share facets of my creative practice that have come-to-be through an evolving awareness of energy as it is evidenced in my reality. However, to circumscribe the idea of energy is to cast Indra's net[5] around all that is known to be. Indra's net is not so easily cast as I am not adept at that kind of fishing,

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2 "Working with language is a means by which we can identify the bullshit within ourselves (and others). If we learn what a truthful sentence looks like, a little flag goes up at a false one. False prose can mark an attempt to evade responsibility, or something more diabolical; the process of improving our prose disciplines the mind, hones the logic, and most importantly, tells us what we really think." (Saunders, 2007)

3 "The Master said: Writing cannot express words completely. Words cannot express thoughts completely." (Wilhelm, 1980, p.322)

4 I use the somewhat archaic literal term, *circumscribe*, purposefully. In the sense that the text is never the thing it describes, I view the entire exercise of written expression as a *circumscription*—literally a 'writing around.' Etymology: "Latin *circumscrībĕre* to draw a line round, encompass, limit, confine, etc., < *circum* around + *scrībĕre* to make lines, write. . . . To mark out or lay down the limits of; to enclose within limits, limit, bound, confine." (OED) (All the while acknowledging that the task of bounding is an artifice that runs contrary to the concept of complete *connectedness*.)

and the net is far wider than any puny human-scaled reach. It is only possible to observe a few points of reflected be-ing, absorb the available energy, and turn away to find and share with an Other the traces left by those visions, those impressions of be-ing.

Whenever I use the words "energy" or "flow" in this text, it is with the understanding that it is not limited to any Western scientific (*thermodynamic*) sense, although I invoke numerous sources emphasizing that particular approach. Keep in mind that my perception of energy is embedded in a life-experience that includes a familiarity with yoga, aikido, and tai chi practices, as well as TCM and acupuncture with their embodied concepts of Qi.[6] These encounters, along with other traces of energy that appear in the (b)log, are expressions in an ongoing internal dialogue between different models for energy.

> Qi is the thread connecting all being. Qi is the common denominator of all things—from mineral to human. Qi allows any phenomena to maintain its cohesiveness, grow, and transform into other forms. Metamorphosis is possible because Qi takes myriad forms. Qi is potential and actualization of transformation. The universe moves—ceaselessly manifests and engenders because of Qi. Qi is the fundamental quality of being and becoming. (Kaptchuk, 2000)

In attempting to define energy the first problem encountered is the sheer multiplicity of ways to approach it. One of those ways is to use the historical determinacy of naming. In this case, paradoxically perhaps, what is not named is as important as what is named. It is possible to feel the energy of what is not said in the act of saying, but, the map is not the territory, ever: "[h]owever expressive, symbols can never be the things they stand for" (Huxley, 1954). Lacking an extensive map, we are in the realm of the unknown, precisely where awareness, learning, change, and evolution arises. The words obliquely circumscribing energy and the frames of reference they suggest are the collective accumulations of cultural experience. They may or may not coincide with personal experience. They are the reductive descriptions of a

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5 "We may begin with an image . . . exemplifying the manner in which things exist. Far away in the heavenly abode of the great god Indra, there is a wonderful net which has been hung by some cunning artificer in such a manner that it stretches out infinitely in all directions. In accordance with the extravagant tastes of deities, the artificer has hung a single glittering jewel in each "eye" of the net, and since the net itself is infinite in dimension, the jewels are infinite in number. There hang the jewels, glittering like stars of the first magnitude, a wonderful sight to behold. If we now arbitrarily select one of these jewels for inspection and look closely at it, we will discover that in its polished surface there are reflected all the other jewels in the net, infinite in number. Not only that, but each of the jewels reflected in this one jewel is also reflecting all the other jewels, so that there is an infinite reflecting process occurring. . . . [I]t symbolizes a cosmos in which there is an infinitely repeated interrelationship among all the members of the cosmos. This relationship is said to be one of simultaneous mutual identity and mutual inter-causality." (Cook, 1977)

6 For example, initiating my doctoral studies at UTS in 2009, I was plagued with major migraines that cost me more than one day in six lost to the paralyzing intensity of pathological energy flows. Fortunately, I discovered the UTS TCM (Traditional Chinese Medicine) teaching clinic offering acupuncture and massage treatments where, under the powerful hands of practitioner Heiji Cho, I found immediate relief. A round of ten once-weekly treatments intending to subdue an excess of rising *yang* energy on my gall-badder channel left me migraine-free for more than six months. Heiji said I should do more karaoke or dancing to help relieve the internal imbalances. See (Kaptchuk, 2000) for an excellent overview of TCM that bridges between Eastern and Western medical practices (and energy models!).

phenomena and are all from limited, human points-of-view. Acknowledging these limits, I hope that I am successful in leaving sufficient flows of the unknown between the lines: that is the source of the creative.

Whenever we sense the world, we deeply experience evidences of energy and occasionally we have the time to ponder these traces, their effects, and perhaps apply some meaning to them. Our idiosyncratic pondering—itself arising in a dense and continuous matrix of self-organized, living energy movements—is the root of the diverse cultural traits that appear all to be based on some experience of energy. Each different world-view or cultural ontology treats the concept differently and each is, by the nature of representation, reductive. They do all appear to dance around the same range of phenomena, though. Whether we use the words Light, electricity, *élan vital*,[7] ether, heat, Eros, libido, spirit, Sun, Q'i, life-force, *vis viva*,[8] power, *prana*[9], inspiration, food, *panta rhei*,[10] muscle, *vis insita*,[11] vigor, force, labor, strength, *rLung*,[12] electromagnetic radiation, work, or the countless other labels present within different societies, it is apparent that there exists a phenomena that circumscribes Life at its widest and essentially inscrutable nature. It is the dynamic existence of this phenomena that this thesis is predicated upon: how could it not be?

I will frequently invoke the established Western model of thermodynamics[13] as a grounding referent, given my own formative background in a 'traditional' Western, 'scientific' world-view. This is the world-view that dominated my early social imprinting along with impressions from the Imperial American Judeo-Christian beliefs that were a part of my family upbringing.

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7 "In the philosophy of Henri Bergson (1859-1941), a vital impulse or life force, of which we are aware intuitively; spec., an original impetus of life supposed to have brought about the variations which during the course of evolution produced new species; a creative principle found in all living beings. Hence gen., any mysterious vital principle." (OED)

8 "[T]he operative force of a moving or acting body, reckoned as equal to the mass of the body multiplied by the square of its velocity." (OED)

9 "Heaven created water through the One. That is the true energy of the great One. If man attains this One he becomes alive; if he loses it he dies. But even if man lives in the energy (vital breath, *prana*), he does not see the vital breath, just as fishes live in water but do not see the water. Man dies when he has no vital breath, just as fishes perish when deprived of water. Therefore the adepts have taught people to hold fast to the primal, and to guard the One; it is the circulation of Light and the maintaining of the centre. If one guards this true energy, one can prolong the span of life, and can then apply the method of creating an immortal body by 'melting and mixing.'" (Wilhelm, 1962)

10 As an indirect summation of the (now lost) philosophy texts of Heraclitus by Simplicius, variously as "all things flow," or "everything flows."

11 "The *vis insita*, or innate force of matter, is a power of resisting, by which every body, as much as in it lies, endeavors to persevere in its present state, whether it be of rest, or of moving uniformly forward in a right line." (Newton, 1729)

12 Tibetan:"a subtle flow of energy and out of the five elements (air, fire, water, earth and space) it is most closely connected with air. However it is not simply the air which we breathe or the wind in our stomachs, it goes much deeper than that. *rLung* is like a horse and the mind is the rider, if there is something wrong with the horse the rider will not be able to ride properly. Its description is that it is rough, light, cool, thin, hard, movable. The general function of *rLung* is to help growth, movement of the body, exhalation and inhalation and to aid the function of mind, speech and body. *rLung* helps to separate in our stomachs what we eat into nutrients and waste products. However its most important function is to carry the movements of mind, speech and body." (Bradley, 2010)

13 See "Entropy, Order, and Life" in Chapter 2 for a very basic introduction to relevant portions of thermodynamics.

Alternative models of energy, of reality, of be-ing were rather unknown to me before spending, as a young teenager, several months in Tokyo with my father, who was on a US government mission to NTT.[14] There I experienced first-hand a profound sense of cultural *Otherness* in several demonstrations of *Bushidō*[15] among numerous other encounters. Shortly after returning to the US, I began to study the I Ching and to practice martial arts. Within my social circle then, the 'exotic' allusions to Qi energy and other 'forces' were labeled as either paranormal (by science) or occult (by Christians). Since that time, I gradually came to understand that the way a social collective comes to reductively describe shared experience may or (likely!) may not have a one-to-one correspondence with what an individual experiences. This realization deflated any faith in whatever the surrounding social milieux posited as 'truthiness.' Relinquishing that illusion allowed that there existed differences in how reality was both framed and experienced by different people. This may be seen as a permutation of humanistic relativism, but in my case, it gradually awoke a belief in the importance of trusting my own embodied (and often very much pre-cognitive!) vision and intuition. This realization seems now ever more important in effectuating a creative practice.

World-view

Although this is a contested term, and for some out-dated, I find it useful if only that it ties into a dominant mode of my creative expression: camera-based representations of reality. Expanding on this limited connection, the term suggests to me a wider scope of creative engagement with reality. Resisting the possible reified connotations, I see it as a dynamic and evolving process rather than end-state of awareness.

It is difficult to imagine having a world-view that does not accurately and dynamically compliment the spontaneous explorations that life presents. Indeed, I found it essential—as a creative practitioner—to synthesize a world-view directly reflecting ongoing life-experience. This is a process that every individual has to themselves undertake to one degree or another.

> Cognitive linguist, Vyvan Evans (2010, p.47) suggests, that it is experience, meaningful to us by virtue of our embodiment, that forms the basis of many of our most fundamental concepts.

To the contrary, physicist and philosopher David Bohm suggests that most people's understanding of reality is based on a set of tacit (and largely incorrect!) assumptions adopted wholesale from the dominant social structure:

> as a child, almost everybody may feel weak or isolated [and] that he can only gain their love by fitting in with their assumptions. So one of his basic assumptions may be that 'whatever they assume, I must assume too, or else I'll be out.' (2003, p.246)

I would suggest that it is more productive to personally seek a hybrid synthesis of these two factors. As a creative artist, this is what I have done in evolving an idiosyn-

14 Nippon Telegraph and Telephone Corporation.

15 "The Way of the Samurai" as a way of living and going: an ethical code of conduct for the warrior-class of medieval Japan.

cratic world-view. I cannot say that the articulation is complete or coherent, as my experience is limited:

> If a man never contradicts himself, the reason must be that he virtually never says anything at all. (Schrödinger, 1944)

Furthermore, in the sense that no world-view is reality itself, the description is certainly less than holistic, is evolutionary, and is always reductive.

One intention in elaborating my world-view here is to address what I consider to be a deep pathology of our time where the existing dominant world-view(s) simply do not deal with the pressing issues that face life on the planet. That different world-views "will lead to different strategies of action" (Aerts, 2007, p.6) suggests that idiosyncratic views may surface creative solutions to the challenges that face us. In this emergence lies a fundamental source for addressing those challenges directly through a creative media arts practice.

We are all idiosyncratic to the degree that we may dynamically draw our own conclusions about the world we live in and consequently change the way we see and interact with the world. It was this process which awoke rather late in my life the awareness that there are models (world-views) of reality and then there is the phenomena itself: the flow of life occurring around (and within). The world-view one holds alters how one experiences the world; how one experiences the world dictates how one acts within that world: there are definite behavioral, structural, and certainly energetic consequences associated with any world-view.[16] Being aware that a static world-view denies vital creative sourcing within the vicissitudes of life, it is certainly not my intention that the reader 'take on' my world-view. This re-action is part of the pathology of our contemporary situation: this text is no proselytizing 'Pilgrim's Progress.' Rather I would like this text and the accompanying creative project to function as an incomplete roadmap for surfacing the flow of idiosyncrasy: including along the way a robust critique of some the basic assumptions on which our social system is constructed. One intention is, at least obliquely, to raise the simple question of how it is we experience the world. Secondary to that experience, there is the question of how we may creatively *abide* the flows that we are immersed in. If this is considered as a species-wide question, the entire fabric of human presence on the planet comes under consideration. By surfacing my own idiosyncratic view here and in the accompanying creative project, I would hope to stimulate a dialogue that questions any and all assumptions about reality.

A Bit of History

Part of my conscious creative practice involves a testing of 'normative' social systems and their applied institutional protocols while exploring the limits of idiosyncratic expression. The thesis explores, as a subtext, the fraught relationship between that expression and the wider social system. The dynamics of encounter between an

16 "Scientific world-views or 'paradigms' can influence—or be influenced by—social reality. Clearly the Ptolemaic universe mirrors theocentric & monarchic structures. The Newtonian/Cartesian/mechanical universe mirrors rationalistic social assumptions, which in turn underlie nationalism, capitalism, communism, etc. As for Relativity Theory, it has only recently begun to reflect—or be reflected by—certain social realities. But these relations are still obscure, embedded in multinational conspiracies, the metaphysics of modern banking, international terrorism, & various newly emergent telecommunications-based technologies." (Bey, 1990)

established social system and *difference* reveals a crucial metric of the viability of that system and consequently of the constituent participants in it. The testing process is, in my view, necessary for the vitality and evolutionary survival of the social system but more importantly for that of the individual constituents. Recognizing their historical ubiquity, I am not so interested in the survival of particular social institutions and their formations of power. Rather, I am very interested in exploring the dynamic vitality of granular human encounter and relation *in spite of* the limiting effects that these institutions typically apply to communal life. This has been a primary theme in my creative endeavors over the last twenty-five-plus years as I moved through the transition from object-making (product) to process to practice.

Quite early on in my creative media arts practice, I felt a nascent dissatisfaction with what I understood to be a slavery to the material that I observed in the formal "Art World" and in the wider world itself. My own initial experiences and training in creative 'forms' was rooted at least partially in this very traditional mode. For example, my father, as a rather advanced amateur photographer, over the years attended a number of workshops with Ansel Adams, among other photographers of that ilk. The knowledge I received from this was of the simultaneous monumentality and preciousness of the 'Master' print, the art object. Of course, Adams' full creative process had ample psycho-spiritual elements beyond the purely material technicality. Some of this was resonant in his relationship with Minor White,[17] who promoted a overtly Orientalist approach: "Cast the I Ching and let the photograph speak" was the caption on a signed print from White that my parents had in their home. White's encounter-group teaching style[18] was decidedly influenced by Eastern world-views. However, it was the optimized execution of material expression that was emphasized in my situation.

Popular and nominally descriptive word definitions do tend to lose their usefulness within the world-view that I explore in this PhD. The conventional meaning of the term 'media' itself comes under question within this text beginning in Chapter 3. Its close relationship with a materialist world-view itself forms a conceptual limit that I actually question in my practice. That said, a few comments on the disciplinary spaces that I grew into and inhabited—media arts, learning facilitation (critical pedagogy), and engineering—will, I hope, give some rhizomatic texture to the evolution of my current practice.

In retrospect, my initial involvement with what might be termed "media arts" cannot easily be fixed to a particular time, although my involvement in photography began when I was a child. The very earliest of my own photographic work, as a preteen, was split between making images of objects (minerals in my ample mineral collection), scenarios (of military models and mock-battlefields), and more significantly a bit later, documenting life as the photography editor for my high school yearbook. Making images of the people who I encountered has been, since then, a crucial part of my arts practice. As I will explore later in this text, the sustained qualities, situated conditions, and energized outcomes of those encounters with the Other form a significant armature of my creative practice.

Much of the geophysical engineering work I engaged in during my early career,

17 My brother was an assistant to White in the early 1970's when White was at MIT. I was thus, at the time, at least vaguely aware of White's esoteric approach to photography.

18 I had the opportunity in the 1980s to study an unpublished compendium of White's teaching notes; unfortunately I no longer have access to that document, so only vague memories of it persist.

however, depended on making representations and interpretations of a reality that could not be directly observed: deep subsurface and paleo-geological regimes. This process by definition involves mediation: the presence of an intercessory carrier-of-information. The particular geophysics I was involved with was, within the wider specialty, even more sensorially esoteric in the sense that it worked with 'potential fields'—that is, electromagnetic radiation, magnetism, and gravity—the same fundamental forces that Simone Weil (1952) has suggested "rule the universe." Utilizing these forces to affect complicated technological configurations that subsequently 'saw' below the surface of the earth assumed a level of abstraction greater than the complex mathematical convolutions invoked suggested. Interpretation of the acquired analog, and, subsequently, digital data sets and the processed visual representations that were assembled called for a precision measured in orders of magnitude rather than the presumed accuracy of traditional engineering disciplines.

The shifting verities that re-presentation imposed in this highly mediated realm was considered a base condition of a sought-after reality—a situation of 'known unknown' versus 'ground truth'—a reality not to be doubted aside from the ultimate question of data quality. This question of *quality*, in fact, immediately propelled the whole issue from a vague indeterminacy into the Delphic. Paraphrasing White: Cast the I Ching and let the data set speak. I recall on numerous occasions viewing and modifying interpretive maps without my glasses on in order to 'smooth' the data and aid in regional interpretation and mapping of wide-scale geological features: the essence of embodied but somewhat informed subjectivity. Mapping, that originary reductive engagement with the world, and a root cause of the embodied disconnect from the territory itself, was a constant and integral early experience of mediation in the occupation of geophysics. These experiences deeply impressed my subsequent sense of what media arts was and could be.

I explore mediation[19] in detail later in Chapter 3, but at this point I would suggest the thought experiment of reeling back the definition of media, a medium, back even to the body. We are all media artists as we move with life, making energetically reductive expressions of that living through the vicissitudes of embodied be-ing.

I hope that this text will open the potentials of transgression: that is, some release from the supreme material fixation that contemporary media arts seem so often to be claustrophobically bound to. As an overt challenge to the materialism of the thriving capitalistic regime of mediated consumption, it is in a way an extended manifesto. The boundedness of what is considered media, and especially, digital media, is rightly considered here to be, again, a left-over of a materialist worldview. There are other pathways to tread, other ways of going.

My own experience of the (creative) expressions of Others was never precisely rooted in the materiality of what was presented, but rather in the 'vibe' of the object or situation (speaking of a wide range of creative forms, from music, to writing, to traditional art practices, all the way to other expressive forms such as Zen-based martial art disciplines, any manifestation, for that matter!). I later understood that this impression had something to do with an energetic *resonance* as a result of the full embodied sensory apprehension of the 'work.'

Resonance is a curious phenomena that is deeply implicated in the energized

19 The root, "media" as "[a]n intervening substance through which a force acts on objects at a distance or through which impressions are conveyed to the senses; any substance considered with regard to its properties as a vehicle of light or sound." (OED)

actuality of the world-view circumscribed here. I invoke resonance as an intuitive (pre-)cognition where something,

> when stimulated, spontaneously responds according to the natural guidelines on the particular phases of vital energy engendered in itself and active in the situation. (Roth, 1991, p.640)

Often occurring in combination with auspiciousness and with serendipity, I frequently rely on resonance as a dynamic source that has the potential to open up the inquiry process to widely disparate sources of inspiration.[20] Resonance is a 'natural' extension of my creative praxis that itself seeks to raise an internal awareness of resonant instances in my reality and to source those as powerful creative stimuli: "Resonance allows the universe (or any of its parts) to influence a human being" (Kaptchuk, 2000, p.45). Resonant influence is the primary driver in sourcing third-party material referenced in the thesis as well as the accompanying creative project. One intention *here*, given that "[t]hings 'energize' each other"(p.46), is to propagate a resonance between this text and the reader's own *system*, although that, of course, is a very uncertain undertaking.

An awareness of resonance opened up a Zen approach to the creative working process that I explored, for example, in the art and technology courses I taught in graduate school as well as in my own work. With Eugen Herrigel's "Zen and the Art of Archery" as a primary text in the "Master Printing in Black and White" course I created at the University of Colorado, I jokingly promised my students that I would make their eyes bleed by the end of the term with the concentrated intensity of see-ing that was required in mastering the process of fine black-and-white printing:

> My satori is this: Zen in the art of buttering bread! . . . There is no knife, there is no bread, there is only the Void. (Gorodish in "Diva," 1981)

Over time, this post-materialist method transitioned to the holistic awareness—more than that, the activated necessity—that product *and* process needed to be part of a unified and fluid life-practice. This is where the cumulative way-of-going in life accurately reflects the creative impulses and vice-versa. This opened an entire space for creative endeavor and definitely left the materialist focus of art-making to recede, literally, in the rear-view mirror. It also allowed a unification of the many disparate 'trans-disciplinary' strands that my life-trajectory had left me with.

I left home at 17 and, maintaining my social network, by the early-1980s I already had years of letter-writing behind me.[21] This was partially a result of the dislocated presence precipitated by my father's participation in the military-industrial-academic (MIA)[22] complex: a more-than-typically mobile (American). I subsequently

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20 Inspire: "To infuse some thought or feeling into (a person, etc.), as if by breathing; to animate or actuate by some mental or spiritual influence; To influence, animate, or actuate (a person) *with* a feeling, idea, impulse, etc.; Latin *inspīrāre* to blow or breathe into." (OED)

21 I was an enthusiastic early-teen reader of the Whole Earth Catalog, mulling over the meaning of each proto-hypertextual page. I ended up writing to practically every one of the hundreds of addresses listed among the articles in a process I somehow found fascinating—the idea that you could send out a message 'out there' and get something interesting back. This anarchic reciprocity with the Unknown Other absolutely stoked my imaginations of the unlimited potential of the world 'out there.'

22 The term was originally coined by the then-US President Dwight Eisenhower near the end of his

discovered the globally distributed and totally anarchic mail-art network,[23] as well as the cassette underground (something of a sub-culture of the mail-art network dealing with sonic material). These distributed social networks became a major field of creative action for me—to the point that postage was my second biggest expense behind rent when I was based in Iceland in the 1990s! More importantly, they opened up countless dialogues with remote Others. This way-of-going seemed so much more intuitive, energizing, and productive than the highly-mediated materialist "White-Cube"[24] approach of the Art World.

Parallel to my evolving participation in distributed (social) networks, I also experienced a growing geo-politico-economic awareness that was initially formed during the intensity of my (geophysical) engineering studies and began to cohere during my career in the petroleum business as an "international explorationist."[25] That career, combined with the profound immersion in the MIA complex in the formative family context provided a critical base for a wider understanding of the social system I was embedded in. In retrospect, the overall 'masterwork' sensibility was probably rooted in my exposure to the world that my father inhabited for his entire career. He was an active, and extremely intelligent engineer and systems analyst who spent 40 (Cold War) years in service to the US government. The traces of those roots are perhaps all too rife here in what is ostensibly a humanities text, but I am quite satisfied that I have that experience behind me, within me. A deepening knowledge of the structures, but more importantly, of the energetic power relations that brought the American Empire to be in the post-WWII years nurtured an informed point-of-view based in experience, not hearsay. Those deep first-hand intellectual influences combined powerfully with an applied engineering education at what was proudly declared at the time, the "World's Foremost School of Minerals Engineering."[26] One summer was spent working on an open-pit mine, another on a drilling rig in the Gulf of Mexico, another in the field with a geothermal exploration company. These added insight into the extractive (energy) systems that are, literally the foundation of the technologically developed world. An insider's knowledge of the mechanisms underlying the MIA state presents me with the vital opportunity to consider Audre Lorde's (1984) question

tenure in public service in 1961 (the "A" for "Academic" added by William Fulbright (1970)).

23 See Crane and Stofflet, 1984; Friedman, 1998; Held, 1991; Welch, 1995; Janssen, 2008; Starbuck, 2003, for explorations of the histories of mail art and of Filiou's 'Eternal Network': "The artist must realize also that he is part of a wider network, *la Fête Permanente* [Eternal Network] going on around him all the time in all parts of the world." (1970)

24 Brian O'Doherty frequently-cited 1976 essay in *Artforum* coined the term in describing the controlling aesthetics of the contemporary (modernist) gallery space.

25 My employment with Union Oil Company of California was as a member of the "Imperialist Vanguard" as described on my current resume. As an exploration geophysicist specializing in potential fields methods, I was charged with providing interpretations of surface and sub-surface geology in support of more conventional seismic surveying for potential petroleum reservoirs. Among other roles, I was also liaison with the DOD Defense Mapping Agency. As I suggested on page 12, much of my work, though rooted in hard science, dealt with phenomena not directly sensed except through remote and technologically-mediated energy transmissions.

26 The Colorado School of Mines was the first school globally to offer a degree in Geophysical Engineering, and had been training engineers for the extractive industries for more than a hundred years. It enjoyed and to some degree enjoys still a hard-core reputation for turning out engineers who knew what to do on the ground—anywhere globally that there was a resource worth exploiting.

whether the Master's tools can be used to deconstruct the Master's house.[27] And indeed, although I cannot say that my eventual resignation from "Big Oil" was purely altruistic, I did begin to understand that the overall corporate strictures applied to personal (and public!) life were not conducive to (my) creative expression. I also began to understand how the wide-scaled architecture of social power relations directly impacted the way one was able to live and create within that social system.

It was at this point that I began to consider creative pursuits as a primary way-of-going. As the disparate threads of that path slowly began to coalesce in time, I restlessly sought resonant life experience through hundreds of human encounters, 'on the road.' I made the sustaining of encounter into a lived praxis in the process of constructing and sustaining a human network that is now the site of all my creative endeavor. Along with facilitating creative situations where encounter with the Other was a central thematic, it became clear that the vitality of encounter was central to my creative praxis. It seemed that somewhere within the dynamic of those encounters was the *meaning of life*.

My evolving media arts practice, intuitively established well outside of the Art Academy and the Art World, subsequently encountered both those exclusive institutions. They became the somewhat arbitrary background context for a particular extension of my subsequent practice, that of nomadic learning facilitation. That practice evolved as the matrix for the development of the idea that the energized human encounters contained within the learning milieu were the site of elemental change. A critical pedagogy evolved along the same transition in praxis that shifted my use of the word 'teaching' to the term 'learning facilitation'. Later in Chapter 3 I explore the dynamic of that facilitation and its integral relationship with other dimensions of my practice. The media arts classes I taught at the intersection of art and technology were an induction into a serious questioning of the typical dynamics of the educational system. The burgeoning availability of technologically-mediated networks provided an obvious context for distinctively non-traditional collaborative learning opportunities. When I started up the photography and new media program at the Icelandic National Academy in the early 1990s I facilitated numerous collaborative network encounters as part of a curriculum that, among other critical approaches, questioned where art should be manifest: the 'network' became the site for energy exchange. These networks also stimulated a transition where creative production in art moved from a focus on material products (artifacts) to a deepening awareness of (social) processes that subsequently transformed into a holistic lived praxis. It was within those initial forays into networked, distributed, or remote creative and socially-activated engagement that led me to explore how it was that absence is indeed an expressed state, and that our presence is always expressed despite the mediation imposed by the body and the applied filters of techno-social existence. This awareness and expression of mediated presence deeply influenced my approach to what is called media arts.

27 The conclusion that I have arrived at, considering the whole content of this text, point to the conundrum: to participate in a social system means to take on the mediating protocols of that system. To use those protocols means to aid in the maintenance of the system. It is always possible to turn and walk away from that system, but the strength of will and character necessary to take a path of relatively greater autonomy is often offset by the (energy) levy extracted through even the most spurious participation. A struggle for autonomy need not be *against* anything, rather it need only be *for* the creation of idiosyncratic means of expression.

Trans-disciplinarity?

I consciously turn away from the pre-constructed agglomerations of disciplinarity within institutionalized social settings in choosing a nomadic trajectory in life that repeatedly crosses certain socially-prescribed barriers. This proactive path is (partially) explained and mapped in the creative project accompanying this text. The trajectory is decidedly trans-disciplinary in a traditional sense of the word. Engaged passage through different disciplines is a powerful creative source if only by the abundance of possible experiential models that are available to apply to reality and its interpretation. In some sense I was not afforded the 'choice' of discipline given the nature of my background that I alluded to previously. Thus, 'traditional' labels—Artist, Engineer, Scientist, American, "útlendingur,"[28] among the hundreds of other names affixed to what we *appear to be* in life—seem as merely redundant indicators arising from a certain social lethargy. This short-handed torpor effectively refuses the actual indeterminacy that is immanent in the Other—the Stranger, the one-to-be-labeled—rather than to allow the answer to the question "what are you?" to simply *become*.

David Bohm (2004, pp.76-77) suggests that any socially-applied division is problematic: that

> supposedly fragmentary aspects of human endeavor as art and science correspond to our consideration of society as a set of separately existent nations, races, or political, economic, and religious groups. But all these parts are actually intimately related and interdependent, as aspects of an unbroken totality which ultimately merges with the whole of existence. The idea that they are essentially separate and independent has brought about a continual series of crises throughout the whole of recorded history, but in recent times such crises have become sharper and more urgent.

Disciplinarity is at least partially defined by the cumulative social use of the specific language that is (often) exclusively employed by a discipline to construct and fortify its domain.[29] Therefore, the use of language in a trans-disciplinary space is a particular challenge that, to a significant degree, determines the successful outcome of the attempt to bridge, fuse, or simply discard disciplinary spaces. This thesis seeks to play with all such interventions at the same time as puzzling over the fact that it is necessary at all in a unified cosmos.

The trans-disciplinary nature of the creative project accompanying this thesis is sure to irritate or simply put off certain segments of its potential audience. I believe this is a fundamental reaction to the encounter with the unknown. I have experienced this myself when encountering social protocols that I am, in the moment, unable or unprepared to *incorporate*. However, over time, I have come to appreciate that absolutely disparate sources have the potential to unlock novel approaches to be-ing and

28 Icelandic: "foreigner."

29 It is thus that the phrase 'mere dilettante' may sometimes be invoked when a linguistic protocol is adopted without the accompanying possession of the disciplinary knowledge-based or 'professional' praxis: I'm probably guilty of the former, but could argue the latter. Otherwise, I expect to either be embraced by a trans-disciplinary range of readers or not. I believe the latter is probably a shared fate for all but the most brilliant works. With "three promising criteria for new work [being] reflexivity, trans-disciplinarity, and the subversiveness of discovery" (Holland, 1977) there is a tremendously high bar to surmount.

to initiate consequent life-changing practices. It is my hope that some combination of ideas explored here might have that effect—that they might *resonate* with a few—and that the effort required to access those ideas is not a significant hindrance. After all, this too is art's work.

Back to Energy

Rather than make a direct attempt to circumscribe the concept of energy, I present the following two narratives that hint at my own experience of the phenomena. Throughout the entire thesis text, I will on occasion return to my own sensory perceptions of this energy concept as an oblique means of defining it. I hope this emphasizes that the text is not to be considered a primer on the concept of energy, but only a personal circumscription of energy as perceived, experienced, and danced with.

Living in Iceland for more than six years provoked more than a linguistic alteration in be-ing—ever since that time I capitalized the word "Light" whenever and wherever I write it. This is not merely a typographic affectation, it is a modification of awareness and be-ing! Existence there, couched overwhelmingly in terms of stoic survival in an extreme environment, raised a completely new awareness not only of embodied presence, but of the relationship of presence with the energy *lack* implicit in winter darkness, and consequently to the summer's superabundance of Light itself as illustrated by the following event in 1992:

> *I wake up. At that moment, I actually don't 'know' this in that regular way of knowing, like knowing that we are out of cream when I take a short look into the refrigerator at the same time as recalling watching the last drops coming from the near empty container the previous day: I know it only in retrospect even though I don't really remember. In retrospect, I can say at one point I was asleep because I went to bed the night before, and now I am awake. So, a priori, I can say "I wake up" to myself as I stand at the bus stop on the top of the hill on Grensásvegur, a working-class suburb of Reykjavík, Iceland. Waiting for the bus to the Academy. Cool, clear, and calm, conditions relatively rare in the spectrum of Icelandic weather. Well, not the cool part, but definitely the clear and calm aspects. From the bus stop there is an almost uninterrupted view of the far horizon that clockwise consists of a long string of small volcanic mountains running from the north-east to the south (this tectonic feature is the western side of the Mid-Atlantic Ridge); Keillir (a perfect volcanic cone about 300 meters high and 25 km distant due south), the Atlantic Ocean (to the south and west); the Snæfellnes peninsula running from due west to north, including magnificent Snæfellesjökull, the 'horned' shield volcano (about 150 km away), Faxaflói (the bay north of Reykjavík), and finally the massive Mt. Esja dominating the north-east.*
>
> *Apparently after I woke up in the winter dark I got dressed (I am clothed), I took a shower (I don't stink), I ate breakfast (I'm not hungry), got my coat, scarf, hat, and gloves on (I'm not freezing), and wandered up to the bus stop (I'm here, now). At some point my eyes were looking*

at the horizon line, the dividing line of two infinite half-spaces,[30] *the earth and the sky. Tracing that line slowly, see-ing it, shuffling feet crunching icy sidewalk cinders to rotate the body-system, Light image inverting in wet retina, reverting in brain. At some point in the rotation, I wake up. I wake up suddenly, as though someone has slapped me. I inhale, in-spiring, inspired. Eyes still running along the dividing line between earth and sky. The sensation is akin to cold, very cold water being poured through eyes and filling the abdomen from the perineum upwards, a warm vessel. This filling reaches the heart and I awaken. I am breathing, I am aware that the Light, the radiation from that vision line separating two infinite half-spaces has done this to me. It has entered my body-system, it is energy, and it has re-activated that system.*[31]

I remember this event: the energy changed the configuration of my body-electric. My embodied presence, dissipating, is imprinted by this experience for almost ever. All momentary life is implicate in such a scale-independent field of constant, continuous, flow and change.

The following is a mediated counter-narrative from 1993:

In the time of another gritty Haitian conflict: Iceland has only one broadcast television channel. The evening news comes on. In a country with only 250,000 people, the evening news is a point where most other activities cease and folks sit around the television to watch local and international events play out as seen from the Icelandic editorial perspective. This particular evening was during another burst of civil disorder in Haiti. A jittery scene plays out on the screen. There is a hand and arm, the camera is shooting over the shoulder connected to this hand and arm. The side of a head comes into the frame, the camera frame (of reference) is jostling around. There is a ring of people in front of the camera and perspective says that it is a true ring, that the camera person is standing immediately outside the human ring. At the center of the ring there is a single human, kneeling on the ground. There are noises. It becomes clear that the waving hand is holding a weapon. More jostling, more shouting, noise. The hand with the gun is waving around, more shouting, then the weapon fires. The human at the center of the circle collapses. The clip ends abruptly.

I knew at the precise moment that the execution on the screen occurred that the energy, the electromagnetic radiation coming from the television, the reflected Light

30 An infinite half-space is a half of an infinite whole space that is *ipso facto* made up of two infinite half-spaces. It is a mathematical (geometric) convention for dealing with an *n*-dimensional space; it is a tool to allow the numerical analysis of physical features of that space, and is often used in geophysical modeling of the earth (its surface being the 2-dimensional hyper-plane dividing earth from heaven). Compare to Wilhelm (1980, p.294) "Looking upward, we contemplate with its help the signs in the heavens; looking down, we examine the lines of the earth. Thus we come to know the circumstances of the dark and the Light. Going back to the beginnings of things and pursuing them to the end, we come to know the lessons of birth and of death. The union of seed and power produces all things; the escape of the soul brings about change. Through this we come to know the conditions of outgoing and returning spirits."

31 These indented, and single-spaced passages in italics are my own writings. They are remixes or re-configured excerpts of content specifically for the dissertation sourced in the (b)log, personal note-books, or other archival sources. There are a number of these throughout the text.

from the body of that Other, stored on a magnetic tape for some hours, that amplified far-vision of slaughter gathered by that camera and transmitted 8000 km away via several forms of electro-magnetic radiation, would change the substance of what "I" was: that the Light energy would enter my eyes, enter into my energized body-electric and alter it. Forever. It did. I'm lying. I can't say forever because forever has not yet come, but at least until now. This social mediation of reality *changed* me. I am else, I am Other.

The external world that I have acted upon over time has acted on me and changed me. The recognition eventually arises that the processes of applied change are constant and arise not only from human intentionality, but from the nature of the cosmos itself, and that they apply to all:

> John Vallee, 54, lives near the trestle that spans the Crane Creek and was watching TV when he heard a loud screech. He went outside and first thought he saw a blanket tangled under a rail car. Then he realized it was a person. "It's going to be hard for me to get to sleep," Mr. Vallee told Florida Today. "*I can't get it out of my mind.*" (AP, 2011)

The Prototypical Amplifier

As this thesis is predicated on using the model of an amplifier and amplification as a tool for exploring different aspects of reality, I will provide a general semi-technical framing of the concept.

Amplification is a fundamental process that is applied or applies to portions of the vast range of what may be understood as [electrical / electromagnetic / electrochemical] energy flows that are available to living organisms. An electrical energy flow or current is the movement of charged particles. Currents are essentially modulated by causal changes—they have certain measurable characteristics that change in time—and may consequently be called signals. A signal has characteristics that are described as a wave structure of a certain frequency and an amplitude corresponding to a certain strength. As a signal, a current also has a certain coherence that is an observed quality of (subjective) recognizability or usability. *Amplification is an operation performed on an incoming flow of [any form of] energy or signal that generates an output signal with an increased total energy content (gain).* This is accomplished by the selective addition of energy to the input signal from an external source in such a way that there is minimal decrease in the coherence of the incoming signal. The resulting output signal is at a higher energy level or amplitude than the input signal. Signal coherence is a subjective but important underlying variable and is ultimately dependent on the quality of the input signal, the precision of the amplification process, and end use of the output signal.

The optimized amplification of a signal must occur without substantially affecting signal coherence. However, by the nature of the process, it is always the case when raising the energy level of the input signal that interference or noise is introduced into the original flow: the input signal and output signal are fundamentally different. This difference arises through the specific affective processes that are applied within the amplification system. Optimization may be quantified as an increase of the signal-to-noise ratio. This ratio is established by measuring the strength of the usable signal and the strength of the unusable signal or noise via feedback systems: a signal-to-noise ratio can be established.

To effectively monitor signal efficiency, a process called feedback is employed. Feedback involves the comparative sampling of the output signal or flow in relation to the input signal: this is a feedback loop. The feedback loop is a system that relies on persistent memory of some sort that compares the current signal to some pre-determined standard. This feedback information is then used in the incremental optimization (regulatory) process of maintaining signal coherence and getting a subjectively usable signal to the receiver. Signal feedback can take both a positive and negative form. Positive feedback reinforces the incoming flow, leading to a reinforcement of the amplification process, while negative feedback causes the system to a return to a ground 'normal' state. It is important to note that regulatory feedback processes consume energy.

The precision of amplification—by what amplitudes and which frequencies—is directly related to the complexity of the amplifying process. Precision is predicated on a number of factors including insulation (separation between the amplification pathways and other energy flows), physical extent, reaction times, and allowable tolerances for both input and output systems. The complexity of the amplifier dictates how much energy is taken up by the amplification process itself: the greater the complexity, the greater the production of this ancillary or waste (usually heat) energy. The percentage of waste energy determines how efficient the amplification process is. Waste energy is simply the production of a spurious energy flow that is not directly useful to the system. This is generally re-distributed to the surrounding environment. Waste is a direct consequence of the configuration of any particular amplification system. An amplifier, because it is not 100% efficient always emits waste energies. This waste energy, in temporal and spatial abundance, however, may appear as a concentration of a locally unusable energy source. Or, it may appear, because of spatial distribution, as the presence of a lack of other energy sources by displacement (a useless source 'taking up space'). Primarily because of this issue, the amplifier itself—its presence or systems response as a device or as a process—has to be considered in any detailed account of the overall amplification process and its use within a larger system.[32] Beginning in Chapter 2, I will use the concept of amplification to model the overall structure of energy and power flows in a wide variety of situations and systems including the body, human encounter, and wider social relation.

The tech-no-mad (b)log[33]

There are two major components to this creative practices PhD: this dissertation text, and the accompanying creative project. Before diving into the flow of the dissertation, I want to first introduce the creative project that stands in integral, not peripheral dialogue with this text.

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32 It is useful to make note of a concept associated with amplification, that of attenuation. Attenuation may be seen as the process of the rarefaction of energy flow in a particular location, thus a simple inverse of amplification. Amplification and attenuation are generally reciprocal processes applied to portions of the vast range of energy flows that exist in the world—an increase or decrease of the concentration of energy from one situation to another. Many of the crux points in this text will have an inverse correlation to attenuation processes, and it can be useful to keep it in mind whilst absorbing the ideas.

33 The use of the term '(b)log' is a nod to the fact that I was actively posting regularly-updated Internet content in the form of a travelog several years before the term 'blog' came about—all the way back to 1993 on the nascent World Wide Web from my base in Reykjavík, Iceland where I had started a photography and digital media lab at the Icelandic Academy of Art.

As an idiosyncratic and long-lived manifestation of global Tactical Media conversations and practices, the (b)log takes seriously the words of Tactical Media pioneers Geert Lovink and David Garcia that

> [t]actical media's mobility connects it to a wider movement of migrant culture. Espoused by the proponents of what Niel Ascherson described as the stimulating pseudo-science of Nomadism. 'The human race say its exponents are entering a new epoch of movement and migration. The subjects of history once the settled farmers and citizens, have become the migrants, the refugees, the *gastarbeiters*, the asylum seekers, the urban homeless.'[34] (Lovink & Garcia, 1997)

The words of Polish artist Krzystof Wodiczko, who said that "[t]he artist needs to learn how to operate as a nomadic sophist in a migrant polis" (in Lovink & Garcia, 1997) suggest that the creative artist and, especially, the (tactical) media artist, needs to be actively engaged from a mobile cultural perspective. This state of awareness and, indeed, the triggering disturbance of mobility—externally inflicted, self-imposed, or simply 'taken on'—is a sparking creative source; and the social network of the practitioner becomes the locus for ensuing creative expression. My personal practice has always circulated around dislocation and the energetic human encounters that occur as a result of that motion. The (b)log maps the traces of both the dislocations and the encounters, while this text attempts to map the undercurrent of why those traces may have any import at all: and, again, the two expressions are integral, rather than peripheral to each other.

The precise nature of their actual connection (prior to the conceptual relationship between the two) is rooted in the applied structural limitations formed by the particular social framework within which the PhD-as-process is embedded. The initial decision to stay with an online medium was an immediate outgrowth of a particular aspect of my media arts practice just alluded to: I am a peripatetic. The availability of a distributed digital platform designed for public expression and interaction that could enfold the range of expressive media arts tools I routinely use was crucial for maintaining the autonomous vitality of my practice.

Being very familiar with the life/time-wasting difficulties involved in re-tooling content in the digital domain—literally, the process of re-presentation—I knew I had to, early on, lock in the structural framing of the creative practices dimension of the PhD process. This included the question of precisely how to practically interlink the digital (b)log and the required (paper-as-in-dead-trees) dissertation text. That decision was bound to structural, technical, but most problematically to the absolute limitations that the institutional requirement of a paper-based dissertation applied to the situation. Rather than placing, for example, numerous footnoted hyperlinks throughout the dissertation, I decided to make the connection more passive. This is specifically in the recognition that a hyperlink embedded in a paper document stands more as an anachronistic variance (even an annoyance!) rather than a innovative augmentation. As a media artist who works almost exclusively with digitally-mediated tools, I do foresee creating an e-published manifestation of the dissertation that is

34 Compare to this passage from the Buddhist Right Reverend Soyen Shaku (1906, p.6): "The Buddha said: 'Those who shaving their heads and faces become Cramanas [Buddhist ascetic] and who receive instruction in the Way, should surrender all worldly possessions and be contented with whatever they obtain by begging. One meal a day and one lodging under a tree, and neither should be repeated. For what makes one stupid and irrational is attachments and the passions.'"

fully hyper-linked with the (b)log. That is, I would use the extensive keywording system of the (b)log to generate a hyperlink regime within the dissertation text that immediately ties content across the two mediums. In an ideal world, this text, as a carbon trace on paper pulp would never have appeared (and indeed, given the exceeding rarity of printed copies of the thesis, it is far more than likely that you, the reader, are actually not reading this on paper!). Perhaps in the near term, as is happening slowly within other institutional settings, the use of a fully integrated hypertext as *the* form of the dissertation will obviate the whole issue. The de facto conversion of much available reference material to digital form is inexorably accelerating this process despite the lumbering inertia of established convention. Whatever my desires, the extant institutional protocols imposed a level of material separation between the two expressive pathways that cannot be bridged directly except by you, the reader. And it is within that indirectness lies a conundrum: when accessing the (b)log you are, literally, in another world than that of a paper-based text reader. At one level there are the obvious connections of linguistic style, the repeated vocabulary of keywords, and, certainly, point of view. Likewise, both elements of the PhD are similarly exhaustive in the sense that are both rather breathless exhortations of needful expression. Both are clearly multi-layered dances around the unnameable Void of what is. The footwork of the dance is not rhythmic or regular: it is not driven by any other score than the exigencies of living, and to a degree, the need to augment self-survival.

The connection, in the final case, is the Venn intersection of a lop-sided constellation between these two expressive and highly mediated forms within the social context that they exist. One, the older medium, the other, the newer, and both suffering from the basic limitations of mediated life: filtered reduction. Certainly, in a basic pragmatic sense, the (b)log has significant (and demonstrated) potential to attract a readership that this physical document does not. And thus it seems only logical that this text will have to be folded into the digital domain after 'performing' its role in the analog form.

The tech-no-mad (b)log itself has both a long history and an active contemporary public presence that directly complements and counterpoints the content of this thesis. Where the dissertation text becomes an abstract and classical drone, the (b)log is a grounded sampling of observed reality: glitchy, spontaneous, and intensely *be-here-now*.

As a technical platform, it is in its fourth iteration, initially deployed online as the html-based "neoscenes travelog" in 1994. I have undertaken all technical coding, design, content development, and maintenance since that time. It was rolled over to a frames-based site in 1998; as a hybrid php/html site in 2004; and finally, for this PhD in 2009 in its current incarnation as a Wordpress-based[35] "blog" platform. In the earliest days, there were no reliable ways of ascertaining readership, and it was simply a communications tool to keep my personal social network up to date with what I was doing, who I was with, where I was, what I was observing during my extensive and constant travels. It was, in that sense, a substitute for the postcard[36]

35 Wordpress [http://wordpress.org/] is an open-source content-management system that is fully customizable by the user.

36 Beginning in the mid-1980's I initiated the use of hand-made postcards to communicate with the many nodes of my geographically-challenged social network. Over the next 15 years I created and posted more than 2,000 unique cards. A majority of them were 5"x7" gelatin-silver prints from

and the travel journal. I had somewhat reliable stats between 2004 and 2009, and registered more than 2.3 million page-views during that period. The 2009 content roll-over to Wordpress, formally initiating the PhD research, also launched the new portal domain "tech-no-mad.net."[37] Since then, I have added several thousand images, more than 3100 text entries (totaling more than 5050 to date), numerous videos, and 900-plus sound works. Content added specifically around the doctoral process constitutes about 80% of the total data space. Readership is steadily climbing, and although the stats before and after Wordpress cannot be directly compared, I have a (rising) average of page-views— excluding bots and spiders—that suggests a solid readership of between 50-70 a day. As of August 2012, the five heaviest trafficked months were the immediate previous five.

Of great importance to me is the open dissemination of my creative work and research[38] to a public—in a way that is under my own creative purview. However, there is a constant tension within such a desire to interface with a wider 'public' in that any technical platform rests on the entire cumulative technical infrastructure that brought it into being and that issue alone renders it a questionable space for personal autonomy. This thesis text will help with a principled understanding of the source of that tension.

In terms of physical media, the (b)log has grown from plain text with very small images at the outset to now include video, hundreds of audio samples, and many thousands of images. It is increasing in size on a daily basis as I take a certain number of hours each day to add substantial chunks of archival and current media content—something not possible in the early days because of bandwidth and server size constraints. There are numerous ongoing projects, documentations, encounters, and situations represented within the (b)log-space.[39] I also include occasional evidence of other channels of network communication that I am heavily engaged with—including a number of mailing list communities. Among these platforms are *nettime*,[40]

images in my negative archive that I specifically selected for a certain recipient. I frequently modified the images with India ink or permanent markers, as well as having 'regular' correspondence 'texts' on the obverse, usually with an eclectic array of available postage stamps as well. They have decorated refrigerators around the globe.

37 As for the domain name, it was sourced in the fact of my inter-dependence on digital network technologies as a creative tool, combined with the relentless nomadic movement, along with a dose of madness arising from the overall configuration of life.

38 As another expression digital solidarity with 'open systems,' I am making available the complete contents of my online Zotero research library that contains around 2500 specific references only a portion of which show up in this text. The key-worded archive may be accessed at [https://www.zotero.org/jhopkins/items] One will need to create a Zotero account at [http://zotero.org] to do this. Zotero is an excellent open-source platform for collaborative research (and a superior product compared to the dot.com "Endnote" solution).

39 For example, selecting the categories 'images:beds,' 'images:portrait,' images:self-portrait,' 'projects:dinners,' or 'project:aporee::maps' will take you to specific ongoing documentations. In addition, there is the entire [http://neoscenes.net] web space that is interlinked with the (b)log.

40 I have a longstanding and active presence on nettime-l, one of the leading global mailing lists for "networked cultures, politics, and tactics." (nettime, 2005)

iDC,[41] *bricolabs*,[42] and *Brainstorms*,[43] four active communication venues where I engage a wide variety of people on subjects pertinent to my creative media arts and facilitation practice. At the end of Chapter 7, there are a few more brief comments on the (b)log.

The content expansion since the initiation of my formal research, and indeed, the original travelog work essentially dances around all of the issues raised in this PhD thesis, and in that regard, it provides a multi-perspective range of third-party sources, original observations, essays, and rants that expound on the width of my critical observations and creative practices over the years. Since I began my PhD research in mid-2009, the size and current contents of the (b)log has increased five-fold to provide a richer media environment, to expand and diversify readership, and to further augment the range of views on pertinent subjects.

Fifty years on

A significant and expanding set of entries that I decided to include as a counter-point to my own content are the transcribed work and family journals of my (deceased) father, Cleveland Hopkins. When he passed away in 2003, he left me with more than ten thousand hand-written pages spanning the latter 20 years of his career with the US government, military, military-industrial, and civilian organizations. Unfortunately, during the first half of his career, his work fell under the rubric of "Top Secret," and thus he made no written working notes. I did plan to extend this line of research with a visit to the National Archives in Washington, D.C. as well as the MIT[44] archives in Cambridge, Massachusetts, but I was not able to arrange those trips in the scope of the present PhD project. The years between 1942 and 1958 would have been of great interest as they spanned his work starting during WWII in the development of radar at the "Rad Lab"[45] and subsequently in post-WWII atomic and nuclear weapons development and deployment. His work took him to most of the active centers for applied MIA research, both government, hybrid, and corporate, and across the paths of numerous seminal figures, projects, and ideas in the development of military tech-

41 iDC (of the Institute for Distributed Creativity) is a mailing list "widely known for its online discussions of critical network culture" founded by Trebor Scholz that "focuses on collaboration in media art, technology, and theory with an emphasis on social contexts." (IDC, 2008)

42 Bricolabs is a distributed community of people who are interested in DIY, DIWO, open source culture and the critical engagement of technological tools for social, political, and individual change. "Bricolabs conceptually and pragmatically envisions uses of technology through organic, malleable, and transformative patterns." (bricolabs, 2010)

43 Brainstorms is an active web-conferencing community platform that Howard Rheingold initiated in 1998 (See brainstorms, 2001). Howard is the author of "The Virtual Community" (2000) and "Smart Mobs" (2003) among many other influential texts on society in the information age.

44 The Massachusetts Institute of Technology was and still is at the heart of the military-industrial-academic nexus that forms a primary driving force of American society. It was the institution that confirmed—through the training of thousands of students in military-directed research—a lasting connection between science, engineering, and the production of war material. See (Leslie, 1993) for a detailed history of the involvement of the two top-ranking schools—MIT and Stanford—in the often classified post-WWII military research agenda.

45 MIT's Radiation Laboratory was a temporary government-run research facility set up to drive the development of radar which, aside from the atomic bomb, was the single most important strategic technology to be developed during the war.

nologies and the entire underlying fabric of the MIA complex.

The entries, currently found under the (b)log categories "CH" and "50-years-after," are not censored or redacted although there often is an obvious dearth of detailed information because of the classified nature of his work. Beginning in the late 1960's it was somewhat less sensitive, but I have not yet included that content (I am presently adding entries in a day-by-day process, literally 50 years later, so, now, August 2012, working on August 1962). The journals generally are not specific as to the precise work, although in retrospect it is not difficult, through the Internet, to establish the details of now-declassified activities. On the family journal side, I also have not edited anything except in minor cases to clarify the meaning of the text. I am slowly transcribing these journals at the same time as building up a comprehensive glossary of acronyms, terms, and names of people who appear in the journals with hyperlinks either to internal or to external information sources—the cumulative acronym index maps one dimension of the interconnection of the major participating organizations of the MIA complex.

Two additional sub-texts that bear indirectly on the content of the wider (b)log and the subjects addressed in this thesis appear frequently in the CH entries. They are the ubiquitous presence of: hydrocarbon-based motor vehicle life and a ritualistic (WASPish[46]) religious life. These two *systems* bookended my family's existence deep in the peaking Empire.

Unfortunately, my father passed away well before I developed an interest in exploring his career in depth, although I do remember that he was never very forthcoming regarding the details of his classified work, even decades after the fact (and long after some of the work was declassified). I did, however, live under the constant influence of this person. As a young teenager that influence ran a gamut of pathways, i.e.: from science and engineering journals next to the dinner plate with articles marked for suggested reading; attending AAAS[47] conferences and being introduced to some of his former colleagues; filming numerous total solar eclipses, one off the coast of Mauritania, another deep in Arctic Canada; climbing Mt. Fujiyama in Japan; to rebuilding a VW Beetle from the ground-up. The particular influences were eclectic, intense, and delivered with a distant and analytic presence.

When I was beginning to add his journal entries, I noted the coincidence, on the same day 50 years earlier as I was writing on command-and-control in social systems, he was mentioning it in the Cold War ICBM[48] context. It is also an auspicious coincidence that I am now about the same age that he was writing those entries—fifty years on. Those bits of serendipity seemed to justify the choice to include his straight-forward and 'factual' content in the fabric of the project: *what a generation hath wrought.* More than being a simple cross-referencing, too, I see the process of exploring his notes as a way to connect, in a very human way, the traces of my own formative existence with the very real processes that formed the foundation of the entire MIA complex. As I have undertaken the peripheral research related to this, it has deepened my awareness, and even alarm, as to the pervasive though largely now

46 White-Anglo-Saxon-Protestant, although in this case it was "Congregationalist" and "Baptist" rather than Protestant.

47 American Association for the Advancement of Science—the leading non-governmental and largest general science society, globally—my father was a Senior Fellow.

48 InterContinental Ballistic Missile: he was working on the strategic coordination of nuclear weapons deployment and use at the time.

invisible influence of the (ongoing) MIA complex on the American society and the entire globe. I hope that both the thesis and the creative project accompanying it might aid in '(re)connecting the dots' in that regard.

2 :: The Body-System as Amplifier

Introduction

This chapter is concerned with the configuration of energy that is the body. An understanding of embodied presence and some of its layered complexity is crucial to further explorations that I undertake in later chapters. Initially I provide a somewhat technical exploration of a cluster of inter-related concepts that will show up frequently hereafter. This will include a very basic look at 'systems thinking,' thermodynamics (the First and Second Laws), entropy, order, living systems, as well as an introduction of the concept of protocol as used specifically in this text. A sub-set of protocol, language, is considered briefly. These concepts are not meant to provide a solid theoretical base for argument, but rather function as entry points that suggest resonant ways of understanding the phenomena examined in the following chapters. Expanding on the simple statement "I am a Being of Energy," I will describe the interactions between the energetic body and the flows that transcend the arbitrary barrier imposed in thinking of the body as an isolate system. Modeling its functioning as an amplifier, with input and output as well as regulatory and feedback mechanisms I will examine the embodied capacities that synergize into the expressive presence of the Self.

System(s)

The term "system" is used throughout the thesis and because of this ubiquity, it needs expansion, though its history here has to be very distilled to stay within the scope of this text. It is important to understand that what is now known as "systems

thinking"[49] is a 'protocol'—literally a way of thinking (mapped into the energized body)—by which much of the 'human constructed' world is now dominated. It is integral to many branches of science, but more importantly, fundamental to the engineering of most aspects of our 'technological' world. It displays its power as a broad pathway through the complexity of the processes that humans control in their efforts to optimize their potential and their viability.

> system: An organized or connected group of objects. A set or assemblage of things connected, associated, or interdependent, so as to form a complex unity; a whole composed of parts in orderly arrangement according to some scheme or plan; rarely applied to a simple or small assemblage of things (nearly = 'group' or 'set'). Etymology: 1610s, "the whole creation, the universe," from L.L. *systema*"an arrangement, system," from Gk. s*ystema* "organized whole, body," from *syn*- "together" + root of *histanai* "cause to stand" from PIE base **sta*- "to stand." Meaning "set of correlated principles, facts, ideas, etc." first recorded 1630s. Meaning "animal body as an organized whole, sum of the vital processes in an organism" is recorded from 1680s. (OED)

These meanings are sourced variously in the usage of the word as it arose from the Greek as the agency "to cause to stand together" and as an "organized whole, body" (OED). Science historian, Debora Hammond (2003) makes the distinction between pre-Socratic approaches—especially Heraclitus—were similar to systemic Eastern ones versus the more *systematic*, orderly approach by later rationalist Western traditions:

> The contrast between systemic conceptions, which focus on interrelationships and dynamic processes, and the systematic conceptions, which are more concerned with classification and order, is critical in understanding the relationship between different views of systems in the twentieth century. (Hammond, 2003, p.13)

These two different views within the recent history of the term are partially a result of its revival across a number of independent disciplines including organismic biology, gestalt psychology, engineering, management science, cybernetics, information theory, ecology, and social theory.

It is precisely this independence that led biologist Ludwig von Bertanlanffy to observe:

> that certain principles apply to systems in general, irrespective of the nature of the systems and of the entities concerned, explains that corresponding conceptions and laws appear independently in different fields of science, causing the remarkable parallelism in their modern development. Thus, concepts such as wholeness and sum, mechanisation, centralisation, hierarchical order, stationary and steady states, equifinality, etc., are

49 Some fields that are involved in this broad area of 'systems' include: systems analysis, operations research, operations analysis, complex systems, systems ecology, statistical analysis, mathematical modeling and optimization, dynamical systems theory, probability theory, simulation, decision analysis, management science, etc. Hammond (2010) gives an excellent overview of the development of the underlying 'philosophy' of systems. Adams, 1988; Bertalanffy 1940; Bailey, 1994; Boulding, 1956 ; Lotka, 1922a & b; and Odum, 2007 provide more detailed background.

> found in different fields of natural sciences, as well as in psychology and sociology. (1950, p.163)

Bertalanffy was the first to propose and extensively frame a "General Systems Theory" (GST) that developed from his work in organismic biology: this was an "important starting point" (Hammond, 2003, p.14) for modern systems theory. Bertalanffy also suggested that using the systems approach, a trans-disciplinary range of problems could access exact formulation, and which

> leads to the elucidation of problems which, in the usual schematisms and pigeonholes of the specialised fields, are not envisaged. (Bertalanffy, 1950, p.163)

Furthermore,

> [t]he properties and modes of action of the higher levels are not explainable by the summation of the properties and modes of action of their components as studied only in isolation. But if we know all the components brought together and all the relations existing between them, then the higher levels are derivable from their components. (Bertalanffy, in Drack, 2009, p.566)

This suggests that where a phenomena is comprised of a large number of complex and interacting elements, it is permissible to find a framework of a higher order that will treat this complexity as a single entity.[50] That some of the fundamental concepts in "systems thinking" were universally applicable explains why it became such a crucial approach to a wide set of disciplines (Bertalanffy, 1950, p.80) at the same time as keeping in mind that "everything is not systematic" (Boulding, 2009, p.509).

The engineering dimension of the modern systems concept emerged during WWII as a means to "break up the massive military problems into pieces that could be profitably worked on by individuals of different professional backgrounds" (Hopkins, 1972). It facilitated a level of controlled abstraction that allowed for the conclusive engagement of increasingly complex engineering problems. Its utility in this text is based on the concept that a(n amplification) system functions as an interconnected structure of relations exhibiting a set of behaviors that may be seen as an integrated whole and that is scalable in scope.

In the context of the Cold War, many systems ideas became closely aligned with nascent cybernetics, that is, the "entire field of control and communication theory, whether in the machine or in the animal" (Wiener, 1965, p.11). Although its use in weapons development and procurement raised many ethical issues, applied systems theory continued to widen its scope in biology, ecology, and sociology, along with other disciplines. It continued to expand as an influential 'unified' approach to overcoming the 'separateness' implied by the mechanistic world-view. Presently, its use as a holistic and integrated tool to solve a wide range of scientific and technical problems is still expanding.[51] Its relevance to my concerns lies not in its structured *engineered*

50 See James Miller 1978 (1995) for an explicit model framework for the scalability of living systems that "exist at eight levels of increasing complexity: cells, organs, organisms, groups, organizations, communities, societies, and supranational systems." (also, Miller & Miller, 1992).

51 The spread of this way of thinking about complex problems has been enormously productive in research areas such as network theory, where disciplinary boundaries were effectively transgressed

sense, but rather its approach treating complex observable phenomena as open, connected, and somewhat accessible to discipline-independent interpretation.

In 1993, systems scientist C. West Churchman made the comment that the I Ching was a prototypical example of a systems approach: a human effort "to model dynamic processes of changing relationships" (in Hammond, 2003, p.13). At the risk of losing any empiric credibility that I may have accrued thus far I propose the consideration of the following perspectives that perhaps loosen the idea of systems thinking from the constraints of the contemporary engineered world. I agree with Churchman's appraisal of the I Ching, and add that the relational yin-yang synergy underlying the I Ching well-illustrates a key 'systems' feature: scalar independence. Another would be the active Confucian directive on how to understand the world through a "completion of knowledge" that is

> rooted in sorting things into organic categories. When things had been classified in organic categories, knowledge moved toward fulfillment; given the extreme knowable points, the inarticulate thoughts were defined with precision. (Confucius, translated by Pound, 1969, p.31-2)

Much of my camera-based creative work, in its intuitive and resonant observation of 'reality,' is directly linked to this prototypical naming of the world that represents a necessary reductive ordering: a framing of difference applied to what is essentially an indeterminate and holistic reality. German philosopher Nicolai Hartmann suggests that categories so "gleaned step by step from an observation of existing realities" form a "new ontology." He posits that these

> cognitive categories are the first condition of our knowledge, [that] they are not unknowable, but can be known only indirectly. [And,] if they are known at all, they are, we might say, rather the thing known last. And this order is irreversible. That explains why they are hardest to know. (2012, p.37)

This suggests one reason for the difficulty of creative endeavor generally: that the systematic classification of the world, while a necessary feature of knowledge, has to be framed *through* the individual (idiosyncratic!) experience of reality. I place my own creative engagement with the world under this latter imperative.

And finally, regarding an important feature of real world dynamic systems—the focus of my research—Rod Swenson, artist and systems theorist, makes the fundamental observation that both human beings and every other ordered system are "flow or process structures" (2000). But what governs this flow, the movement of energy, as it occurs within an ordered system? In a very general sense, energy follows explicit pathways or 'protocols' that are a key feature of evolving and self-organizing systems.

Protocol

The concept of protocol as I frame it here should provide some understanding of how a (social) system directs its energies along certain collectively defined pathways.

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because the forms of certain phenomena could be mapped at a systems level across neurobiology (neural networks), sociology (terrorist networks), and telecommunications (network dynamics and structure).

This process is typified by the concept of language which I suggest is a special case of protocol.

It is not easy to escape the gravitational pull of any dominant world-view, and in the sense that language itself is one expression of a world-view, one's mother tongue is not to be escaped as an influence on thought or even embodied existence:

> Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society. It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. The fact of the matter is that the 'real world' is to a large extent unconsciously built up on the language habits of the group . . . . We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation. (Sapir, 1929, p.209)

The question of language is vast, complex, and contested. For my purposes here, I follow Sapir's hypothesis that language causes a deep shift in our lived experience of reality and that language learning causes very real alterations in the embodied neural structure and activity of the brain (Locke, 1997; Mechelli et al, 2004; Kuhl & Rivera-Gaxiola, 2008). Further, I see this as a prime demonstration of the concept of a protocol[52] as *the existence of a refined, defined (learned or imposed) pathway for energy to follow in the 'service' of the system that generated the protocol. A protocol does not carry any energy itself although by definition energy is expended when a protocol is applied.* That system may be an eco-system, a brain, it may be a social organization: protocols as energy pathways are systemic and exist everywhere.

Language then may be seen as a special case that helps to understand protocol. *Language as a shared protocol forms some of the flows of (sonic) and embodied energy between the Self and the Other.* It is special in the sense that it led to the ability to make the sustained leap of abstraction from the phenomenal world to the embodied (in mind and from mind-to-mind). This abstraction process is essentially the obverse of the transition from oral to written language where a fundamental shift occurred in the activities of the human species: from the embodied to the external-ized. Learning or constructing a language is a fundamental process of socialization. The fabric of a social system is dependent on the generation of these shared proto-cols. Later in Chapters 3 and 4 I will explore the relationship between the process of the defining pathways for energy to flow via—protocols—and the evolving structure of a social system as a complex interweaving of idiosyncratic and collectively-defined pathways. It is the differential movement of energy along these pathways that causes the entropy of situations to change.

52 The closest points-of-departure for the term 'protocol' would be: "6c. In extended use: *the accepted or established code of behavior in any group, organization, or situation; an instance of this*. 6d. *Computing* and *Telecomm. A (usually standardized) set of rules governing the exchange of data between given devices, or the transmission of data via a given communications channel.*" (OED)

Entropy, Order, and Life

It is obviously not possible within the scope of this text to explore the full range of ideas and research that has appeared in the 'science world' regarding the relationship between life and energy. The relationship is profound, as suggested by physicist Ludwig Boltzmann (quoted in Thompson, 1917, p.12):

> Available energy is the main object at stake in the struggle for existence and the evolution of the world.

However, I would like to point out a few salient developments, starting with a bare primer on thermodynamics, followed by a sequence of ideas initiated by particular individuals during the 20th century that together form a scientific basis for deeper considerations of the issues.[53] Of fundamental importance to my concerns in this PhD is the correlation between the availability of energy and the maintenance of order in a system as well as the expression/reception of energy by living beings.

There are four Laws of Thermodynamics (Zeroth, First, Second, and Third), two of which are potent predictors in their direct application to everyday living and the operations of everything from our body-systems to the entire planetary ecosystem to the cosmos. As with much of science, the Laws are framed through the precise language of mathematics such that 'natural' language 'explanations' of them are not the Laws themselves, they are simply loose translations of the Laws.

In the words of German physicist, Rudolf Clausius, considered to be the founder of thermodynamic science, the First Law states that:

> In all cases in which work is produced by heat, a quantity of heat is consumed proportional to the work done; and inversely, by the expenditure of the same amount of work the same quantity of heat may be produced. (1879, p.23)

This First Law is known as the law of conservation of energy: conventionally stated that energy may be neither created nor destroyed, it "addresses the energy content of [a] system" (Clausius, 1879, p.23).

The Second Law, proclaimed with only slight aplomb by chemist Frank Lambert[54] is "[t]he biggest, most powerful, most general idea in all of science" (2011). It "demands further conditions for the existence of a process" (Reis & Bassi, 2011) where "[i]n a system, a process that occurs will tend to increase the total entropy of the universe" (Thermal-FluidsPedia, 2010).

Directly arising from the Second Law, there is a fundamental connection between energy and order that can be generally expressed as the common-sense statement: it takes energy to maintain order. Energy, contrary to its bland appearance on the printed page, is not a static *thing*, but a dynamic *condition* to say the very least. The self-organizing tendency of energized Life is about creating and maintaining order. What is important here is the deep relationship, expressed by the Second Law,

53 Further reading includes: Brüssow, 2007; Ho, 1998; Lotka, 1922a & b; Schrodinger, 1944; Capra, 1996; Schneider & Sagan, 2005;, Odum, 2007; Georgescu-Roegen, 1976 & 1976; Soddy, 1912; Pimentel, & Pimentel, 2008; Price, 1995; Prigogine, I., Nicolis, G. & Babloyantz, A., 1972a & b; White (Leslie A.), 1943 & 1975; White (Lynn), 1967; Kleidon & Lorenz, 2005; among others.

54 For a very basic non-specialist's explanation of thermodynamics see Lambert, 2011.

between the availability of energy and the maintenance of order in any system. This principle will be encountered numerous times later in this text.

In the search for a scientific platform on which all sciences could be ostensibly 'unified,' biophysicist Alfred Lotka in the early 20th century was one of the pioneers to propose an approach based on the recently framed Laws of Thermodynamics, and in particular, the Second Law.

> The creation and existence of disorder in nature is a spontaneous process that follows from "the Second Law . . . (the Entropy Principle)" according to which, the entropy of an isolated system that is not at equilibrium always increases. (Mahulikar & Herwig, 2004, p.212)

There was a perplexing issue, though, when the Second Law was applied to living systems. Recalling the relationship between entropy and order, a living organism, considered in isolation, contravenes that Law in that it autonomously or autocatakinetically[55] increases the local order of the cosmos *through its own presence*.

There is one phenomena that counter-intuits the Second Law if only locally: that phenomena is Life. Life, in the form of an organism (as a highly ordered bio-system), locally decreases entropy (producing order) 'naturally.' The recent recognition of the "law of maximum entropy production" (MEP) suggests that the "spontaneous production of order from disorder is the expected consequence of basic laws" (Swenson, 2001):

> What does [MEP] have to do with order production? . . . [I]f ordered flow produces entropy faster than disordered flow (as required by the balance equation of the second law), and if the world acts to minimize potentials at the fastest rate given the constraints (the law of maximum entropy production), then the world can be expected to produce order whenever it gets the chance. (Swenson, 1997b)

Otherwise, the Second Law implies that in a *non-isolate* (open) system that perhaps something else could happen. In a development parallel to his framing of GST, Bertalanffy's work in biology was the first to qualify the fundamental relationship between the energy flowing into a (bio)system and order arising in that system. He proposed that regarding the Second Law bio-systems needed to be considered as open systems. I use this rationale about open systems—as the model of amplification I develop in the thesis fits the general definition of such a system—to suggest that amplification may be applied to a range of bio- and other systems. This was a key requirement regarding how the phenomena of life was framed: as fully embedded in a wider continuity (of energy flows).[56]

In the case of Life, as with other self-organizing open systems, there appears to be a threshold in the input energy to a system that 'allows' for autocatakenesis to form an organized system and produce order. Prigogine (1977, p.272) proposed this as a special principle governing certain systems—that by an "order through fluctu-

55 From *auto*- "self" + *cata*- "down" + *kinetic*, "of the motion of material bodies and the forces and energy associated therewith" from *kinein*, "to cause to move." (OED) A system maintains its "self" as an entity constituted by, and empirically traceable to, a set of nonlinear (circularly causal) relations through the dissipation or breakdown of field (environmental) potentials (or resources), in the continuous coordinated motion of its components. (Swenson, 1991, 1997; Swenson & Turvey, 1991)

56 See Leibniz' 'Law of Continuity' (Leibniz in Mates, 2004, p.163).

ations" that results in a "dissipative structure" created by

> the continuous flow of energy and matter from the outside world; their maintenance requires a critical distance from equilibrium, that is, a minimum level of dissipation. (Prigogine, 1972a, p.23)

This order is dependent on that minimum and relatively stable level of input energy. When that localized point of energy flux is reached the system will 'use' that order to increase the overall entropy production to satisfy the Second Law. "Ordered flow, in other words, must be more efficient at dissipating potentials than disordered flow" (Swenson, 2000).

In brief conclusion, Life—as a 'spontaneous' self-organizing expression of indeterminate energy—remains an enigma, as it has across all the centuries of human existence. However, the model of Western science and specifically thermodynamics (among numerous other systems), proposes fundamental correlations between the phenomena of Life[57] and the energetic operations of the observable universe.

Back to the Body

Perhaps the most obvious element of life is the phenomenal presence of the Self in the world as "a self-organizing and self-reproducing entity" (Adams, 1991, p.865).

As a coherent and highly complex configuration of heterogeneous matter and energy, a living organism,[58] a body, possesses an intricate array of means to interact with the available and changing flows of energy that are present in the surrounding environment. "Biological systems are highly complex and ordered objects" (Prigogine, 1972a, p.23). Further, this ordered life in the self-organized form of a body-system will tend to disorder and in-coherency without a relatively stable in-flow of energies:

> What an organism feeds upon is negative entropy. Or, to put it less paradoxically, the essential thing in metabolism is that the organism succeeds in freeing itself from all the entropy it cannot help producing while alive. (Schrödinger, 1944)

At the same time, a living organism is an open system. The sustained way in which an organism interacts with the variable flows around it governs how survival will proceed. "The process of life is the activity involved in the continual embodiment of the system's pattern of organization" (Capra, 1997, p.159).

Evolution[59]—as a process arising from the constant flow of change and the

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57 Darwin did his work on evolutionary theory before any substantial theories of thermodynamics had appeared, so it is not surprising that his theory did not consider these restraints and possibilities.

58 The word "organism" derived from "organ" that derives from the Greek word "ergon" of which a cognate is the origin of the word "work." (OED)

59 The word "'[e]volution' hardly does the job. The word's Latin origins refer to the unrolling of a manuscript, and it's more of magicians blackbox or cartoon caricature than an explanation to most people. Interestingly, Darwin himself hardly ever used the word, preferring 'descent with modification.' Not all societies, however, are so handicapped. In 1898, the scholar Yan Fu translated Thomas Huxley's 1893 book "Evolution and Ethics" into Chinese. The Darwinian theories of human evolution expounded therein found ready acceptance in China, in part perhaps because they reflect some traditional Chinese folk beliefs about the stages of human development, which involve a progress and from foraging, cave-dwelling ancestors to fire-using and house-building ones, and then to agricultural

continual emergence of difference—may be seen as the localized process by which a species, as an incrementally variable organismic expression of Life, modifies and optimizes its relation with these changing flows. It is closely tied to the concept of dissipative structures as theorized by Prigogine, who

> recognized that living systems are able to maintain their life processes under conditions of non-equilibrium. . . . A living organism is characterized by continual flow and change in its metabolism . . . Living organisms continually maintain themselves in a state far from equilibrium, which is the state of life. . . . When the flow of energy and matter through [living organisms] increases, they may go through points of instability and transform themselves into new structures of increased complexity. This spontaneous emergence of new structures and new forms of behavior, which has become known as self-organization, is the basis of the phenomena of learning, development, and evolution. (in Capra, 1996, p.86)

The individual organism is constantly adapting to incremental environmental change through the general process of homeostatic regulation. External energies that are most important for the survival of the individual organism are sought after via sensory systems and engaged by the body-system through metabolic organization. Over the longer time scales during which a species develops—longer than the life-span of the individual organism—energies necessary for propagation are optimally engaged. Without the process of propagation—fundamental to life as a continuous expression of coherency—a species goes extinct. Interestingly enough, though, Life is a continuous phenomena: our present be-ing is simply another formal and organized expression of energy extending continuously backwards in time to an indeterminate genesis. When available energy flows are high, evolution accelerates, and life flourishes (Odum, 2007, p.238): life expresses itself forwards in time as a continuous force self-organizing its own coherency in direct relation to the existence of localized anisotropic distributions of energy. When the drawing-in of energy is not adequate, the organism loses its viability, subsequently its coherence, and ultimately its life. Individuated presence is over, although Life as a wider phenomena still goes on.

Because Life is a process of the fundamental engagement of external energy flows—continuous during the entire viable life of the organism—it may be at least partially modeled as a process of amplification as generally outlined in Chapter 1. The four basic processes within amplification—input, amplification, feedback, and output—frame distinct aspects of the model based on the formation of flows associated with each one. Those functions include sensing energy sources, projecting amplified energies outwards, and the production of energy reserves (for somatic maintenance, growth, maturation, maturity maintenance, and reproduction). The intermediate production of energy reserves act as a buffer between the organism and fluctuations of necessary energy sources in the environment (Jørgensen, 2001, p.39). While this is an extremely reductive model, but it gives a good associative fit to a wide range of organismic functions. In later chapters it will provide a framework for exploring the dynamics of individual presence and human encounter as well as wider-scaled self-or-

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beings. In his translation Yan Fu rendered the word 'evolution' as *tianyan*. Chinese characters can be read in several ways, and one way of reading these characters is as "heavens' performance" - the heavens in this instance meaning all of creation. Yan Fu's phrase is now obscure and defunct, but heaven's performance strikes me as a beautiful and illuminating way of describing Darwin's discovery, for evolution is indeed a sort of performance." (Flannery, 2010, p.5)

ganizing social systems.

Input

A human body's sensory input organs—for example, the classically-defined systems of sight, smell, hearing, taste, and touch; eye, ear, nose, mouth, skin (integumentary system) among others—correlate a variety of energy flow relations such as amplification, filtration, absorption, reflection, and attenuation. These specific band-limited sensory systems are quintessential evolutionary adaptations to external energy flows in that they are tuned to engage or resonate with a select array of those energies. Important incoming signals undergo transduction and amplification (as modeled by biochemical and bioelectrical processes) at the site of reception so that they are perceptible to either the peripheral neural system and/or, transmitted along discrete pathways to different structures in the brain, the central neural system: "perception is the translation of environmental signals into neuronal representations" (Dukas, 2002, p.1539). Impinging energy flows that are unimportant to the homeostatic functioning of the organism tend to be deflected or, when not dangerous, simply ignored. The organism would not be what it is without the full immersive effect of all flows that it came to be within.

The highly complex central and peripheral neural system depends on the amplification and internal transmission of input signals for the basics of cognition. It also depends on the overall body-system to supply reserve energy for that amplification process. Recalling that an amplifier requires an external energy source, the body itself has to have an external source. It absorbs small but precisely tuned quantities of energy directly through the classical sensory organs, but much more energy is drawn in by the pulmonary and digestive systems. Over time, the body gathers and stores energy (reserves) to operate internal amplification systems (neural communication systems) and to optimize its potential for external expression. The time-scale for amplification processes are widely variable—it takes different amounts of time to accumulate different quantities of potential energy sources—all processes necessarily act in concert in the maintenance of organismic and species viability.

Feedback

Feedback mechanisms monitor the effects of particular impinging flows and expressions and subsequently compare them to stored or embodied memory. Accumulated evolutionary patterns are expressed through positive and negative feedback mechanisms that act to dynamically adjust the body-system within the constantly changing environment. Indeed, the entire organism, every species, and all life in general are both the products of and subject to this adaptive evolutionary process. Without proprioceptive (and other) feedback mechanisms that distinguish between essentially vital or lethal energy flows, and distinguish its relation to them, the organism is constantly at risk of losing viability.

The nervous system, or as labeled by Evans as "the conceptual system" (2010, p.22) works as an electromagnetic receiver along with its sensory information storage system to first transduce the flow and then, via specific pathways, to record its effect in the brain as a temporally sustained trace—a memory. Simultaneously, the condition of the body-system is comparatively monitored, sampled, by other parts of this same neural system. If the flow appears to adversely affect the viability of the body-system, the body is stimulated to avoid, attenuate, or alter that locally present flow: "our construal of 'reality' is mediated, in large measure, by the nature of our embodiment"

(Evans, 2010, p.42). Repeated stimulation of the central neural system via synaptic processes observed by pioneering neuro-psychologist Donald Hebb caused the formation of what he termed *engrams*, or units of stored neural memory. This led to "Hebb's postulate":

> Let us assume that the persistence or repetition of a reverberatory activity (or "trace") tends to induce lasting cellular changes that add to its stability.… When an axon of cell A is near enough to excite a cell B and repeatedly or persistently takes part in firing it, some growth process or metabolic change takes place in one or both cells such that A's efficiency, as one of the cells firing B, is increased. . . . It seems that short-term memory may be a reverberation in the closed loops of the cell assembly and between cell assemblies, whereas long-term memory is more structural, a lasting change of synaptic connections. (Hebb, 1949, p.110)

Operation of positive and negative feedback systems, reacting to an external environment, also takes place at the level of gene regulatory networks[60] (GRN), a "complex control system underlying [organismic] development" that has "probably been evolving for more than a billion years." These networks of energized matter are comprised of precise protocols or "hardwired genetic regulatory codes, the role of which is to specify the sets of genes that must be expressed in specific spatial and temporal patterns." This set of electro-chemical reactants, "the most potent of all biological control systems" is modeled as a networked "assemblage of information processing units" that is "essentially a network of analogue computational devices" that can adjust itself in response to environmental perturbations (Davidson & Levine, 2005, p.4935).

The incremental changes in the single organism's behavior and fundamental energy configuration are magnified through the process of mistakes or successes (within environmental flows) that together cause what is called natural selection. This is where individuals of a species are removed from viability when, among other factors, the feedback mechanism or energy absorption system is not functioning optimally in relation to available flows. A feedback mechanism is integral to the natural selection process that also generates feed-forward systems that allow the organism to quickly respond to known signals—those previously experienced and stored in memory. The long-term process of natural selection may be understood as a process that generates a changing set of embodied memories or configurations of the self—protocol-driven pathways—as 'forced' by surrounding energy flows. The primary importance of the neural energy absorption, storage, and retrieval system is demonstrated through the use of memory as a crucial element of the feedback system. Without feedback, an organism-as-amplifier (of Life) is neither efficient nor can it optimize its function. The individual is unable to project its amplified energies towards the goal of enhanced viability. This is one reason that it is unusual for an organism to contain systems that have no direct function. Redundant sub-systems may appear when external flows are changing rapidly—a state of more profound disequilibrium—

60 This is a very simplistic framing of the obviously complex functions of the cellular regulation. See (MacAdams & Shapiro, 2003) for an example of a 'systems biology' approach for simulating a single cell (bacterial) organism's regulatory structure. Note also, for example, in (Davidson et al, 2002) where the cumulative cellular development structures are modeled as networks. A network is a prime example of a scale-independent systems concept that is widely applicable—perhaps more so than amplification!

where a particular organism or a range of organisms are in optimized dynamic equilibrium with environmental conditions that no longer exist. A condition of extreme disequilibrium of energy flows is the cause for mass extinctions: Life itself becoming redundant!

Presence

The expression of presence is an essential characteristic of the self-organized body-system. Presence is an announcement of be-ing and viability and is predicated on the outflow of energies from the body-system through the conversion of input energies from one form to another.

This conversion process—supporting homeostasis and other metabolic functions as well as overall increased order—also generates waste (heat) energy: energy that is not essential to the longer-term maintenance of the body. Heat production is one expression of the process of life as it organizes concentrations of energy and matter.[61]

Humans have particular transmission modes that provide energetic evidence of presence. These include the body as a whole (the infrared radiation arising from thermo-regulation and other electromagnetic manifestations in the visual radiation spectrum, along with electro-chemical pheromone emissions), muscular action (mechanical action as the final expression of caloric energy burn, precipitating spatial movement), and the voice (and body) for transmitting an energized sonic disturbance. All of these are crucial to the survival of the ensemble body-system. They each have, directly or in-directly, a function that is integral to the maintenance of viability. For example, the instigation of intentional muscular action gives the body an extremely versatile potential for interacting with localized energy flows and thus 'announcing' presence. All of these expressions are predicated on a model of complex metabolic network (energy) transformations occurring at a cellular level.

Energy expression as the essence of presence demands that the body is a net source of that energy. Recalling that one of the fundamental characteristics of life is its transitory nature, the body cannot sustain energy transmission *ad infinitum*. Whether it is expressed as short-burst muscular energy or as the more long-term wastage of metabolic burn, any outflow has a threshold end-point. Optimized and effective control of energy output is a distinguishing feature of a viable organism that suggests the organism is responsible for changes in the external environment and the flows that comprise it. Accepting the principle of continuous connectedness in the cosmos as I have suggested prior, the effect of this presence is experienced throughout at least the observable universe.

Coda

This chapter modeled the body-system as a dynamically optimized amplifier operating at a variety of scales and tuned to the variations of its environment.

Life, in the specific form of a body-system, is an ephemeral process of creating order. The body-system collects a variety of energy inputs and re-projects them outwards along specific pathways of *expression*. These forms of embodied expression

61 "Energy is needed to replace not only the mechanical energy of our bodily exertions, but also the heat we continually give off to the environment. And that we give off heat is not accidental, but essential. For this is precisely the manner in which we dispose of the surplus entropy . . . so that [we] can afford a more intense life process." (Schrödinger, 1992, p.74)

are how the Self causes change. This is also how it expresses presence to the Other. In the next chapter I will explore how the fleeting presence of the Self is the basis of a wider and crucial field of engaged encounter, dialogue, with that Other.

3 :: Dialogue and the Other

Introduction

I am in the train riding from Oslo to Stavangar, Norway, on my way to visit my friend Steve, his wife Anna, and son Joshua. The train takes about eight hours for the trip, with the half-way point being Christiansand. It seems that not many people are interested in going to Stavangar that day and as we pull in to Christiansand, the car I am in empties completely. I see an old man standing with a cane on the platform. He slowly climbs into the train and appears at the door of the car I am in, he seats himself maybe ten rows ahead of me. All the seats in the car are facing the same direction, backwards to the direction of travel. I am seated at one end of the car, my back to the wall. I can see the back of his head barely protruding above the seat towards the other end of the car. The train pulls out, another four hours of rather pleasant scenery and winding motion ahead before we arrive in Stavangar. I am immersed in the motion and virtual landscape passing my eyes. Quite some time passes, an hour or more. I am no longer aware of the presence of the old man any more when suddenly a voice in English says, "Come, we must not be as two animals, we must speak!" He has not turned around. I am stunned, feeling simultaneously ashamed and curious and almost afraid. I stand up and walk to his seat and sit down next to him. We speak. He tells me his name, Peder O. Dahl. He tells me many stories of his life on a small island in the west coast fjords of Norway. He never tells me directly, but he is clearly in ill health, and I

intuit that he is going home to die. He speaks of the Nazi occupation, of the rune-stone ring that is near his house on the island, of the storms that sweep in off the savage North Atlantic. He tells me of one night when an especially intense storm was raging and he was awakened by something, he did not know what. He felt compelled to go to the stone ring. He lit a naked candle and walked out into the storm to the ring, and stood at the center for a time. The candle was never extinguished by the wind or rain.

I do not recall what happened when we arrived in Stavangar. I did get his address and sent him a postcard some weeks later thanking him for our dialogue. I spent a few pleasant days with Steve, Anna, and Joshua before returning to Janine's in Oslo and on south to Germany. I never heard back from him. The trace of the encounter, resonant memory, persists to this moment, vividly.

Having examined the living Self in the cosmos, in its own field of presence and in its relation to be-ing, this chapter will explore a succeeding iteration that I argue forms the *leitmotif* of human existence. That notion is the energized encounter with the Other or *Dialogue*. To begin with, I will sketch a re-definition of the word "dialogue," a definition that has evolved as a core driving concept in my creative practice over the past two decades. I will examine in some detail the characteristics and qualities of attentive and focused encounter-as-dialogue. Through an exploration of basic examples I provide a conceptual framework for the practical dynamics of encounter to be identified and understood better. The meaning of the term "mediation" is expanded as a particularly important feature of human-to-human encounter. Near the end of the chapter I will introduce a basic definition of creativity that arises naturally out of the preceding definition of dialogue. This is followed by comments on a particular expression of my creative praxis, the dynamic of teaching, where the facilitation of learning situations is a special case of engaged and energized dialogue.

Defining Dialogue

The ordered and coherent body-system, the energized Self, does not exist as an isolated phenomenon. As a self-organizing and self-aware configuration of energy and energized matter, human life is in deep and implicate relation with the flows that comprise the cosmos. A factor more immediate to our Self-imaginings—often limited, as they are, to the deeply held belief in the fixity of material being—we, like a selection of other species who share this planet, are social animals. We do not occupy our world alone nor are we unitary except in that finite materialist frame of reference. Existence is experienced in more or less direct constellation with an array of other individuals[62] of the species through a process of formally ordering or socializing our interactions. This process is not just in response to the basic evolutionary needs of pro-creation, but for the broader need of Life to propagate itself: for Life to propel Life into the indeterminate future. These rich and complex relations also have a crucial role in the evolution of meaning in our individual lives where even "[b]asic patterns of thought appear to reflect a fundamental concern with social relationships"

62 Sociologist Charles Cooley (1902, pp.1-5) emphasizes interpenetration rather than mere constellation.

(Baumeister and Leary, 1995, p.503). David Bohm (1987, p.19) suggests this evolution of dividual and collective meaning is itself an intentional expression of (transformative) change of the Self. The presence of change, evolution, is a fundamental and vital ingredient within holistic collective existence.

Whatever fluid relationship the Self establishes with the sensual world is deeply affected through what becomes myriad encounters with the Other. This is a fundamental condition of be-ing, or, perhaps, *the* fundamental condition of be-ing, this catalytic dance arising between the Self and the Other in the transitory incarnation that is human Life. The goal here is not to posit a reason for being, but rather to take aspects of what is experientially faced within life, now, and examine them in the Light of the energy-based world-view that drives my own creative engagement.

In all its forms and fields of action, the dance between the Self and the Other is a reciprocal dialogue and it is this dialogue that defines much of our experience of be-ing. It is difficult to imagine life without this dialogue, and whatever the case, that image would be only theoretical, as life is always bound to these complex expressions and impressions between the Self and the Other. This dialogue is not merely the sonic expressions of language-as-protocol—limiting the idea of dialogue to that would be to ignore the vast range of actual energy transmissions that move between each of us: it is not merely the actions of Platonic interlocutors, passing the symbolic *Logos* back and forth. Dialogue, as I define it, encompasses that expected flow and far more. It is more than a conversation of limbic systems. It is more than an exchange of coded semantic posturing. It is more than the prosodic, auditory cues that can produce hormonal effects (Seltzer, et al., 2012, p.45). It is more than the understanding precipitated by mirror neurons linking sender and receiver via "the transfer of gestural meaning" (Rizzolatti & Craighero, 2004, p.183). It is more than information transfer. In essence it is independent of cultural or social limits aside from our own tendencies to filter: to see what we want to see, to hear what we want to hear, to feel what we want to feel. *Dialogue is the empowered and open movement of energies across the perceived space that separates us: from the Other to the Self and from the Self to the Other.* It embodies the creative potential for (r)evolution and change in life where "change in meaning is a change in being" (Bohm, 1987, p.15). Energized *Dialogue* and its resonant effects inform much of our life experience and the qualities of our existence. The sometimes joyful, sometimes painful, always formative and reciprocal relation with the Other, with others, becomes the fundament of life and be-ing.

In the process of preparing for the performance "Antithesis: Dialogue" in 1989, I had my initial encounter with the German Hassidic philosopher Martin Buber with his book of essays "A Believing Humanism - Gleanings." The durational performance sought to activate an idea of encounter that is "based in the principle that productive, dialectic contact between members of the human community" is "a prerequisite for cultural evolution" (Hopkins, 1989). It was inspired in part by Buber's brief essay, "On Genuine Dialogue and the Possibilities of Peace," and specifically the following passage:

> That peoples can no longer carry on authentic dialogue with one another is not only the most acute symptom of the pathology of our time, it is also that which most urgently makes a demand of us. I believe, despite all, that the peoples in this hour can enter into dialogue, into a genuine dialogue with one another. In a genuine dialogue each of the partners, even when he stands in opposition to the other, heeds, affirms, and confirms his opponent as an existing other. Only so can conflict certainly

> not be eliminated from the world but be humanly arbitrated and led toward its overcoming. (Buber, 1969, p.202)

Juxtaposed with my initial forays into open performative situations, Buber's sentiment provided a strong resonant source for organizing my creative efforts in a direction completely counter to the rigid and formal (and commodifying) structures and protocols of art (education) institution, "The White Cube," and the Art World. His somewhat mystical framing of Dialogue and human encounter pointed to a *power source* that I had intuitively grasped, but had not been able to articulate when framing my creative pursuits. Resonance with his expressions stimulated further exploration into facilitating—as a core creative praxis—more open (and indeterminate) human encounters within a distributed community setting.

For that performance I stayed home for two weeks. In the gallery space, I left only a desk, a telephone, and a stack of maps with an open invitation for anyone to come over to my house, anytime. For the duration of the performance, my home became a communal space for precisely what I found quite missing in the sterility of white-cube-defined encounter: it became a space of humane Dialogue in a wide range of forms. For example, I was interviewed daily by phone by a group of 30 elementary school students who were intrigued by the idea that this strange event might be 'art.' More than 150 people made their way through my *living room* in a spontaneous cumulative flow that brought many individuals into random encounter. There were shared meals, long conversations, parties, performances, and a sense of suspended anticipation that could hardly have occurred in a typical gallery situation. Documentation was limited to a guestbook and a few random photographs taken during the process: *you had to be there*.

Reflecting on the social cataclysm of the Holocaust, Buber frames dialogue as an immediate imperative where "the busy noise of the hour must no longer drown out the vox humana, the essence of the human which has become a voice." As adversarial counterbalance to conflict, Dialogue stands as "fulfilled speech, the speech of genuine conversation in which men understand one another and come to a mutual understanding" (1969, p.198-9). While Buber focuses in particular on the cessation of conflict in human society, I was struck by a more fundamental principle, that of the innate power of open engagement, in his terms, "genuine dialogue," to build foundational relations that become a dynamic *source* in society and especially in a more localized community. The facilitation and maintenance of these Dialogues in any social system then becomes the constant challenge: "dialogue is ahistoric in that each coming day brings a new imperative for communication" (Hopkins, 1989).

In his best known work, "I and Thou" (*Ich und Du*), Buber advances dialogue as the essence of human encounter and furthermore suggests that the human encounter is the source of actualized reality itself, where

> [h]e who takes his stand in relation shares in a reality, that is, in a being that neither merely belongs to him nor merely lies outside him. All reality is an activity in which I share without being able to appropriate for myself. Where there is no sharing there is no reality. Where there is self-appropriation there is no reality. The more direct the contact with the Thou, the fuller is the sharing. (Buber, 1958, p.63)

My notion of Dialogue, however, with its grounding in 'energetics,' takes on an even wider sensibility than Buber's conception of the vocalized exchange. Although it

specifically addresses issues germane to practices and situations that I have encountered and facilitated in media arts, and especially within the contemporary phenomena of 'distributed presence,' I contend it is widely applicable to any social situation. While I acknowledge the conditional consequences (around trust, conflict, and social order) that Buber proposes, my own practices extend much further into the textures of the energized exchange inherent in human encounter. These explorations depend on a significantly more intensified concept than Buber's, while resonating with his belief that the dynamics of human encounter is key to *be-ing*. Tracing the more profound dimensions of the energized relation between the Self and the Other, following I will explore this wider framework of being.

Beginning with conception—itself the culmination of a prototypical energized and energizing dialogue between two Others—the Self first experiences the intersubjective, liminal, and immersive Dialogue with the mother; birth initiates another relation with the world and the flows that comprise it. These initial experiences of Dialogue leave a profound impression on the Self and affect all subsequent Dialogues where interaction is more external, extensional, and yet still profoundly, humanly empathetic.

As the Self, embedded in the social milieu, begins to mature, changes in perception occur. Bohm points out that a tacit and accretional "metaphysics of analysis into parts . . . as a complex and very pervasive illusion" begins to build up where

> from early childhood we learn to accept the notion that the world is constituted out of a tremendous number of different and separately existent things. Among which is the self as a 'physical body,' sharply bounded by the surface of the skin, and then as a 'mental entity' ... which is 'within' this physical body and which is taken to be the very essence of the individual human being. The notion of a separately existent 'self' thus follows as an aspect of the generally accepted metaphysics, which implies that everything is of this nature. (Bohm, 2004, p.120)

It is this illusion of separation that has profound consequences in life and it needs to be understood as a convenient form of "metaphysical art that fits our general experience within certain limits, [but is] not an expression of how thing really are" (p.121): that is, fundamentally *not separated*. Within this play of "tacit metaphysical thought" (p.120) the sphere of active connection grows. Encounters may be dislocated by temporal and spatial distance as we experience the expressions of remote Others. Side-by-side, back-to-back, face-to-face, hand-in-hand, remote, close, the shifting constellations are infinitely indeterminate even in our finite and transitory lives.

Recall a moment of encounter, the process of an activated, embodied encounter with an Other. You perhaps share a common state of affairs with this Other, perhaps a common familial background; or a common protocol of intimacy; common social, cultural, and linguistic background: you have spent a significant amount of life-time with this person. Yet, as you face this Other, groping through body-filtered senses, searching for energies emanating from the form before you, you feel as though there is a solid wall, that you receive nothing from this Other. You can see them, but no more than that. All possible expressions in your conditioned arsenal of amplified, energized *presence* cannot get through to that Other: mute, dumb silence; frustration, bleak sadness, and disappointment. You face a Stranger across a gaping void bordered by an impenetrable wall. A wall that "is above all the admission of a fundamental vulnerability" (Bradatan, 2011). You blindly gather your energies and strain to

throw them high enough to pass over the wall, or, with brute force, look to breach it. You lay your Self open to any advance, any possible expression from the Other, but none arrives at the opened gate of senses. You give up and walk away. Perhaps another time, another place, another instance where the flow of life might return to the relation.

Conversely, recall that moment when seated across from an Other—facing you across another abyss, the exotic Stranger—you share no mother-tongue, no social history, no cultural roots, no familial closeness. And yet, through the most subtle means, there is a flow. More importantly, there is a resonance, you momentarily bridge the gap, you touch an essence of be-ing and the reality of shared be-ing. Apprehended through the eyes, through embodied presence, there is a recognition of the vitality of life. There is the chance of connection—the unlimited potential it brings to the fore—in the transitory and electric nature of the encounter. The world drops away and there is only the visage of the radiating Other in view. Tunnel-vision when the flow is all between you and the Other. Inspiring, inspired be-ing that lasts for a time, but it is seldom sustainable for long: it is followed by the bitter-sweet taste of its passing.

Moving away from the second encounter, you feel inspired, life rushing, rising through embodied presence and bursting out with vitality. You feel the energy readily available for expression, you can sing out. The Other is inspired as well. It might even be that there are other humans crowded around—feeling the energy of creative genesis arising from the two in Dialogue—straining to vicariously participate in the electric exchange. How can this be, two entering in a reciprocal spending of life-time, of life-energy, giving of attention, and both turning away, deeply energized and inspired?

> There was one older man, an excellent fisher and skilled in all kinds of woodcraft, who was pleased to look upon my house as a building erected for the convenience of fishermen; and I was equally pleased when he sat in my doorway to arrange his lines. Once in a while we sat together on the pond, he at one end of the boat, and I at the other; but not many words passed between us, for he had grown deaf in his later years, but he occasionally hummed a psalm, which harmonized well enough with my philosophy. Our intercourse was thus altogether one of unbroken harmony, far more pleasing to remember than if it had been carried on by speech. (Thoreau, 1995, p.169)

It is precisely this reciprocated movement of energy, a fundamental opening of flow, that is at the heart of any true Dialogue. Indeed, the activated presence of this energized, resonant, and open flow is core to the definition of Dialogue: passing our life-energy across to the Other, spending our life-times in attentive presence, openly receiving the diverse energies of the Other. This is the essence of Dialogue: it drives our desire to seek out, to repeat, to sustain the choreographed dance between Self and Other. This essence is "not like the blood that circulates in you, but like the air in which you breathe" (Buber, 1958, p.36).

Another example, drawn from my long-standing creative practice, is that of the photographic portrait.[63] Over the years I have accumulated several thousand images

63 For visual evidences of this body of work, a search on the 'portrait' keyword in the tech-no-mad (b)log will yield several hundred images. There are also several other documentations at

of Others. In the catalog essay for a major solo exhibition of my portrait work at the Niépce Museum in France, I wrote that photography has a "fundamental connection" with the "ineffable spiritual essences of Light" and portrait work specifically embodies the "powerful spiritual element of human contact and dialogue." I have always approached the process of portraiture as a sharing of a "ritual act of image-making" where I am "acutely self-conscious of the flux of energies that circulate between subject and photographer." Indeed, the genesis of most of the portrait work I have done lies

> somewhere between veneration and love. Veneration through the energies of Time and Light that are arrested and that preserve Life in this special, transformed state; Love through the powerful force of dialectic human relationship ... [where] it is possible to make the photographic act deepen the ongoing dialogue between two humans. (Hopkins, 1992)

In the terms of Dialogue, the instance of photographic portrait image-making takes place in a continuum of human relation,[64] and often it is in the context of ongoing exchange, a *relationship*. In a majority of cases, even with people who I made portraits with somewhat spontaneously—people I had simply *encountered*—I close the circle of energized exchange by making sure a print or an emailed copy was returned to them. As is the case in any public ritual, varying social protocols guide the relational interaction that is the photographic portrait. These protocols both promote certain actions and discourage others within the context of that particular *form* of Dialogue. When engaging in the protocols as I understood them—at the auspicious moment—a group portrait of strangers (the unknown Other) simply *happens*. This is evidence of the power of shared protocol in Dialogue; however, shared protocols cannot overcome all distance between us.

The Gap and its Architecture

As several theoretical models of communication suggest (Craig, 2007) it seems there exists a fundamental separation, or gap, between the Self and the Other. Contingent on one's world-view, this separating gap is defined partly by the presence of the energized matter that makes up our bodies and by the fact that our particular embodied form of matter cannot be collocated or commingled with another body. There is the warm and wet topology of sensual engagement, but this is not collocation or becoming-the-Other. The Self will never share the same point-of-view as the Other. My eyes cannot be collocated with yours nor can I see through your eyes. I may exchange places with you, but when all is change along along what physicists call the arrow of time,[65] what you experienced there and then, I cannot experience there and now. The interstitial chasm exists within constant change and flow and it exists as long as life is embodied. Some world-views that include characterizations of transcendence suggest a unification, an omniscient perfusion of oneness after embodiment ends, but here and now we all face the challenge of hypostasis, the puzzling duality of existing in a transitory, corruptible, sedimentary body now that is yet

[http://www.neoscenes.net/images/portraits/index.html].

64 See Chapter 4 for an in-depth definition and discussion of this concept.

65 See Arthur Eddington, physicist, for an early description of the concept "arrow of time" (1929, p.69,

connected with an apparently detachable and transcendent spirit before, during, and after. It is a conundrum:

> Two individuals, 'I' and 'the other,' are spatially separated beings. However within the depths of their minds, they are connected to each other by an invisible thread in virtue of a potential, unconscious dimension of what we may call the 'cosmic consciousness.' If we can think in this manner, we will be able to discover an entrance into the potential experiential dimension beyond the opposition between 'I' and 'the other.' (Yuasa, 1993, p.183)

"Mind the gap!"

As suggested earlier when exploring the concept of energy, there can be no complete lack of flow, anywhere, anytime. In the encounter with the energized Other, there is always something expressed, even if it is 'merely' presence. The complex energy of presence radiates outward from both the Other and the Self and is a constant and pervasive condition of life that is not subsumed by traditional Cartesian limits. It is "a property of a person" that varies in time and between individuals (Lombard and Ditton, 1997). Always we are exposed to the impinging energies from Others. Always we express our presence to the cosmos, always we are transmitting and receiving: because we are alive, and even when not, relative time ensures a continuing resonance.

> The truth of communication (...) shows itself to be duplicitous: Communication can actually take place when it *appears not to* take place, and it can appear to take place when actually it fails to even begin. This possible failure of communication, the 'irreducible uncertainty' implied in the very fact of communication . . . is constitutive of communication in the same way that silence is constitutive of sounds, or that noise is constitutive of transmittable signal. (Chang, 1996, p.254)

Closing eyes, covering our skin, breath shallow, turning head and body away: we are still there to the Other. Walking far, far away, across the landscape of our earthly be-ing, I am still thinking of you, reflecting, processing the energies that you shared with me. My memory of you was activated when energies received from your embodied form entered into mine and resonantly altered my body system. Memory is the trace left by your life-energies. Presence is displaced within relative and shifting time after you attentively spent your life-energy of that shared life-time with me. Your formative presence permeates my embodied Self. It changes all and is changed by all.

"How do I get through to you?"

Mediation, mediatory carrier, and protocol are related in the sense that the mediatory carrier (as a *form* of energized matter) carries energy along the protocol-defined pathway. Mediation is the process of carrying energy across the gap in the Dialogue. *Dialogue requires the presence of a mediatory carrier. It is important to keep in mind that whatever it may be, it is only the carrier: it is not the energy itself.* The difference lies in the material qualities suggested by media (plural of 'medium') as "substance"

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80).

or "vehicle." This confusion is the root of many deceptive encounters between the Self and the Other: that the medium carrying the energy across the gap is confused for the energy itself.

At the same moment the directed, amplified expression of energy leaps across the gap towards the Other, it becomes clear that no matter what pathway, what mediatory form of energized matter, what configuration we use, at least some energy is lost in expression. This is partly the nature of the gap. It is also partly because we are never able to perfectly amplify and focus our embodied energies. What becomes of the flow of energy then? Is it always subject to dissipating loss in the process? How might we imbue greater *actuality* to its self-limited potential? What are the conditions of flow and how best can we nurture it and focus it? How can it be optimized to ensure sufficient reception across the gap when a base condition of the process is a kind of dispersion, a subtle *wastage, a slippage*. And crucially, where does the dissipating waste energy go?[66]

If mediation, as I just defined it, *were* perfect, there would be no misunderstanding, no distortion of meaning, no conflict, no alienation in the world. The theoretical condition of perfect expression suggests that all energy would be moving directly through us—that is, with none of the distorting or blocking effects of even embodied presence. If mediated Dialogue were perfect, we would be transcendent and in full sensual contact with the universe and the Other already. Clearly we are not: the Tower of Babel did not reach heaven and the perfection of transcendence is one step further on than we can manage.

Mediation is lossy for the simple reason that it signals the (material) introduction of a defined and restrictive pathway (protocol) for the expressed energy to flow within. This is clearly illustrated by an amplifier which, when operating, directs its input signal and amplification energies together along a specific pathway defined by the circuitry. The lossy-ness that Bohm (203, pp.294-99) frames as a detriment to the creative potential of dialogue, is a result of distortions applied by "fixed assumptions" and "rigidities" that inherently operate within the life systems we are immersed in. These assumptions are a kind of "misinformation" that accumulates within the body itself, directly threatening its "creative intelligence" and viability. To counter this challenge to open Dialogue, where creativity is, at best, "an occasional occurrence," these "rigid but largely tacit cultural assumptions" have to be "brought out and examined." This is the locus of openness in Dialogue, the occasion of the Self moving into a "new order" (Bohm and Peat, 1987, p.243). This is also where a primary tension exists in any Dialogue: between the rigidity of the mediatory pathway, and the potential of openness (or what could be called alternate pathways).

If overcoming the lossyness is never completely possible, are there ways of optimizing attempts to bridge the gap? This question presumes the world-view that I have endeavored to map: a world-view where reality is comprised of flows (everywhere, we are of those same flows!) that are unbounded, transcendental, and completely pervasive. Self-organizing Life imposes (mediatory) form on these flows; life directs pathways in the originary self-organizing and subsequent process of living ('living' as the 'use' of those flows in the creation of entropy). In the moment that the embodied manifestation of flow presents itself, a negation of flow also appears: attenuation, filtration, or blockage. Blockage is the reciprocal of flow: the attenuation or seemingly absence of flow. Blockage is to flow what cold is to heat. Blockage is the

66 This last question receives attention in Chapters 5 and 6.

evidence of flow that is drained away from one actual pathway to another potential pathway: a flow that is *elsewhere*. It is a constant underlying condition of our embodied presence. It reveals itself through the presence of more or less defined stricture or directedness of (mediatory) flow pathways. The presence of a strictly defined pathway suggests that outside of that pathway there are limited possibilities or allowances for flow. The model of the amplifier exhibits this function precisely: it is a system that gathers extant flows, directs them along a specific pathway and, at the same time, through its very operation, causes a fundamental distortion of the surrounding matrix of flow.

Loss may be seen as a reaction that occurs to the dispersion of the energy it takes to form or to participate in a mediated protocol-driven encounter. Life consumes energy in time. *Life-time correlates with life-energy.* For the individual, both these parameters are limited. Refining or controlling an expressive flow from our Self takes energy: defining a pathway requires energy. Energy is dispersed in the refining/defining process. Unfettered (available, potential) energy is a (the?) source for Life; conversely, applying bounds to energy is draining. However, directed flow is a cumulative and necessary feature of social engagement, and within that directed flow lies the imperfect essence, the conundrum of human connection.

"Didn't you hear me?"

As bodies grow and evolve, through childhood and on into later life, our internal relation with potential mediatory pathways tends to become more limited, more defined, and more rigid. The body tends to reify, to become sclerotic. The same tendency occurs in relation to external pathways. We are taught that some pathways are appropriate to our social or cultural situation and some are not. We refine our behavior, attenuate our expression, dampen our enthusiasm. We get comfortable with the known. Culture itself may be defined as the accumulated set of collectively-sanctioned energy exchange pathways between all selves and others among a particular grouping of humans. It would also include the embodied traces of those pathways. The presence of these pathways is a fundamental formative structure that is impressed into our existence within that cultural system. "Socialization," in this framework, may be understood as the process of forming, being formed by, and of using certain pathways for our energies and subsequently learning to attenuate, ignore, or re-direct other internal and external flows. Socialization often proceeds with little regard to the idiosyncratic potentials of individuals, although every viable social system must exhibit a certain tolerant balance between individual and collective pathways. Social systems as a cumulative expression of human encounter are in a continuous process of incremental (or catastrophic!) refinement of their constituent energy exchange pathways.

William James' work in psychology produced an early framework for this tendency for 'correlation-based learning' in his "Law of Contiguity" that states:

> that objects once experienced together tend to become associated in the imagination, so that when any one of them is thought of, the others are likely to be thought of also, in the same order of sequence or coexistence as before. This statement we may name the law of mental association by contiguity. (James, 1918, p.561)

This was followed by David Hebb's work (Hebb's Theorem) previously framed in Chapter 2, ultimately leading to contemporary neurophysiological research into such processes as long-term potentiation (LTP) of synaptic transmission (Paulsen &

Sejnowski, 2000) along with synaptic (neuro)plasticity. It gives hope to older folks—that the plasticity of the brain does *not* completely disappear later in life—an old dog may learn new tricks! However, the tendency is such that there is a lower energy threshold in sequential neuronal firing for sequences already once followed. It is generally easier to do something the third or fourth time than the first. This neurological condition models what exists as a rather constant tension in life: how the embodied Self exists between change and stasis and how one deals with the indeterminate flow of life.

Applied socially-defined pathways may or may not synchronize with our own individual sensual impressions of the world. They may not optimize individual viability either. It is normative that a social system imposes its 'vision' on the individual. The individual often willingly takes on that vision or world-view even when it is in deep conflict with the individuals actual sensual impression of reality. The level of willingness is tempered by the totality of relation between the individual and the social system. It is in the disconnect between the self-assessment and the collective assessment of flows and the consequent applied pathways where a fundamental schism arises in personal evolution. While the subjugation of the Self within a collective of Others might seem harmless, non-threatening, or merely as a pragmatic necessity for individual survival, it exerts a fundamentally formative affect on the Self. It is one source of madness—madness being defined as the need for and the consequent generation of inputs and expressions that are not acceptable to the social system.[67] If the disconnect is great enough, the individual, needful of 'pathological' input or expression of energies, will be spurned by the system—banishment, confinement, or even death at the hands of the collective.

As a result of this process of social impression or re-formation, as we mature within a system, the complexity and idiosyncrasy of our filtration system tends to decrease. Pathways, once open and flexible, reify. It is this *conservation* process that causes the likelihood for inspiring encounter to narrow over time, to narrow in focus, to become exclusive rather than inclusive among any changing constellation of Others. Participating in a sociocultural system is a process of adapting to sanctioned pathways for impression and expression.

Ranges of Mediation

Dialogue, when defined as the activated exchange of energy between the Self and the Other, suggests an infinitely wide range of rich encounter with an ultimately unknown potential. Applying a dialectic sliding scale[68] to the qualities of encounter, we

67 The Collection de l'Art Brut, established by Jean Dubuffet, in Lausanne, Switzerland comprises a powerful example of how arbitrary social acceptability is. The works in the collection are from individuals who had been deemed clinically 'insane.' These individual expressions were not at all considered 'art' until Dubuffet, in a protracted struggle, 'proved' they were by winning at least partial social blessing in the form of a place to house the works. It is a singularly astonishing collection, and, in my opinion, the best single art collection in Europe.

68 When teaching about ideas that hinge on the infinite variability of the cosmos I often find that the limit-less-ness is too much for students to comprehend. In this case I resort to what I have found to be an effective tool for illustrating the infinite variability between two systematically related (abstracted!) concepts. I place the two terms at the end points on a sliding scale. This is *only* a mental tool to communicate that there is a (systematic) continuity between the concepts. Once this principle is understood, the continuity may then be extrapolated in relation to other abstractly-

can place at one end the prototypical Dialogue that is re-production, the creation of 'new' life. Near the other end of this scale we might place the following encounter:

> *I am sitting in a room. There is a sound outside. The door bursts open, an unknown Other steps in. The stranger absorbs the visual and sonic energies radiating from the Self, the skin, the eyes, the mouth, the clothing, for several milliseconds. The Other's eyes receptively scanning the face and body. The Self feels the flicker of the gaze across the body. The Other has in his hands a source of energy that has been concentrated through the wide-scale operations of the techno-social system: a weapon. The Other then makes a minute muscular movement that projects a massive expression of that techno-social system's coalesced energy into the embodied presence of the Self. The body-system of the Self is removed from biological viability within seconds, after which it slowly surrenders its remaining thermal and ordered chemical bond energies to the surroundings. Excess sonic energy bounces around the room, deafening first, quickly attenuated, and finally falling on inert and un-hearing ears. The Other is changed forever by their own energized expression and by their participation in that particular techno-social system. The impression of what that expression has wrought on the embodied presence of the Self is impressed, etched, into the embodied being of the Other and cannot be erased by anything save passing life-time which eventually attenuates those traces.*

Across the range from affirming and creating life to precipitating death, the exchange of energies that comprise Dialogue exerts a complex (cosmos-wide) effect. All pathways for Dialogue may be placed along that sliding scale—from those affirmative and inspiring to those that seem destructive and negative. However, the application of value judgment to the flow of Dialogue is something of an artifice, as the outcomes are *always* unpredictable and indeterminate. There is no 'bad' or 'good' energy, there are only more or less constricted pathways precipitating differing levels of flow. While the dialectic of flow and attenuation or blockage seems an appropriate tool, it is important to keep in mind that blockage is merely a 'localized' lack of flow and that blockage has no real *essence*. Again, the analogy of cold being the absence of heat rather than actually being a quantifiable thing itself is appropriate.

Change in the Self is a result of the open reception of the energies of the Other and change precipitates difference. Difference, as the existence of a potential gradient, precipitates flow. Ultimately, it is the degree of openness-to-difference that stimulates the possibilities of flow and that subsequently effect the energizing potential of the Dialogue encounter.

Optimal Conditions

Dialogue proceeds when pathways are open and available between the two participants. It is a collaborative process and arises both actively and passively—imposed by a synthesis of available external social pathways and initiated by autonomous individual preference. There is always an implicit and explicit conflict between the internal and external frameworks that define the evolving pathways. Conflict, at its base, is the result of im-/ex-pression being diverted by the presence of alternate pathways,

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defined variables. This tool is used numerous times throughout the text.

and a lack of resonant empathy: conflict is energy directed *at* rather than *to*.

"I hear you!"

Energetic openness is a dynamic state where the Dialogue participants have settled on a range of possible pathways along which each are capable of moving their life-energies. Blockages may exist in other areas, but the two have found that there exist pathways that allow for sufficient and sustaining flow. Psychologist and educator, Mihalyi Csikszentmihalyi, in his 2008 book "Flow," suggests that one finds flow when "there is a clear set of goals that require appropriate responses" (p.29). The framework for these goals is generally applied by the framework of the social system that one is participating in, as are the 'appropriate' responses: they can hardly exist in a social vacuum. The need for goal-orientation is predicated first, however, by the need for some minimal shared *protocol* along which flow might occur.[69] Observing that the species is a self-reproducing system of individual organisms one could say that there is always some potential for (re-creative/re-productive) exchange. And likewise, to restrict the concept of flow to the species alone is to ignore the tremendous range of energized encounters that humans have with other life-forms and more: flows are occurring all the time everywhere, and potential exchange and encounter with the cosmos would seem to be constant. It appears, though, regarding the human-to-human encounter, there are certain 'conditions' that must be met for flow to occur.

In the context of quantifying flow Csikszentmihalyi uses the terms 'psychic' entropy and negentropy.[70] For a psychologist, this makes sense, but I would extend his idea from the more abstract term 'psychic' to the wider term 'energy' as it was invoked by Schrödinger concerning living organisms in general. Psychic 'activity' cannot occur without embodied life-time passing and with this, life-energy. It is not possible to expend 'mental' energy in the abstract. Merely thinking about something uses energy: a synapse is a 'movement' of energy. The thesis of embodied cognition suggests that always "the human mind must bear the imprint of embodied experience" (Evans, 2010, p.42), and the maintenance of mental 'images' (memory, information), and activity (thinking) takes energy.

Well along in my creative practice of occupying various social situations in order to facilitate spaces for encounter and Dialogue, I was invited to propose a project with the following limitations—it had to 'occupy' a gallery space for two hours a day, one day a week, for eight weeks. Taking place at the List Art Center at MIT, the exhibition[71] space had four networked computers connected to the internet, and each one with a video projector projecting the live screen content on each of the four walls. In the process of framing this performance series, entitled "Eight Dialogues," I observed that technological "mediation introduces an overwhelming oppositional force [compared] to

69 Ogden Nash, American master of 'Light' verse proposed two approaches to establishing an open pathway in "Reflections on Ice-Breaking" (1941, p.259): "Candy / is dandy / But liquor / Is quicker."

70 Negentropy is a term for 'negative entropy' coined by physicist Erwin Schrödinger (1944). "The negative counterpart of entropy, as a measure of the order of a system or the amount of information contained within it." Because life (and other self-organizing systems) appeared to run counter to the Second Law of Thermodynamics in the sense of decreasing their own entropy, Schrödinger gave the 'quantity' its own name. (OED)

71 The exhibition, "PORT: Navigating Digital Culture," which ran January 25 through March 29, 1997 was curated by Remo Campopiano and Robbin Murphy of artnetweb. It was a series of "scheduled, time-based Internet projects by individuals and groups [that were] projected into the physical gallery space and accessible over the Internet [for] the duration of the exhibition." (Murphy, 1997)

the power of face-to-face contact" (Hopkins, 1997). In order to explore the effect of the mediatory pathway, I proposed a series of eight two-hour dialogues with eight different individuals (recruited through a general call to my extended global network). These Dialogues had no ideological thematic or other goal, and were mediated by the entire cumulative technology of internet devices and protocols including IRC.[72] I was physically located in rural Arizona, while my collaborators were scattered across the US and Europe.

This project/performance demonstrated to me that despite the intensity of the mediation between myself and the Other—a complex set of layered protocols for directing energy via many mediatory carriers across the significant distances involved—that it was possible to have an energized exchange. Indeed it was something of a personal revelation that with focused, concentrated, and attentive *presence* there could be a substantive and inspiring exchange. Dialogue could proceed, energy could flow from the Self, through the keyboard and motherboard, modem, telephone wires, into fiber-optic cables, through routers and switches, across many hundreds, thousands of kilometers, through another modem, computer, to screen, to eye, to the Other, and back. More crucial to the character and potential of the Dialogues was the ability to be open and that factor is bound up in the perception of empathetic presence, attention, and focus. Of course, accompanying this highly mediated exchange was also the experience of loss as was described earlier. This performance suggested a sliding scale that the energy exchange potential of a Dialogue sits on. The scale 'factors' characteristics such as the 'level' of mediation, but more importantly the 'level' of attentive presence of the participants. Changing external characteristics (intensities, protocols, pathways) of the mediation will alter the character and potential of the Dialogue and inform the ways that the individuals 'connect': so does changing the capabilities (via openness and attentiveness) of the Self to connect and resonate with the Other.

When "Eight Dialogues" took place, as continues now, there was a rapidly expanding exploration of the capacity of 'new' (telecommunications) networks to successfully create and nurture novel forms of human connection. There is no question, now, that this is possible, under certain crucial conditions. The next chapters will suggest what some of these conditions are, but I would briefly suggest that the coincidental alienation arising from the lossy-ness of a particular (digitally) mediated pathway suggests a fundamental flaw in the continuous hype of utopian (and perfectly ubiquitous) tele-connectivity (i.e., Seltzer et al, 2012). For me, the only questions are what are the total effects of mediation and the applied protocols and the resulting lossyness of each protocol on the participating community of human beings; is the cumulative vitality of the community sustainable via these pathways; is it the site of creative engagement?

These questions are especially pertinent in the present moment where technologically mediated community is continually eroding the embodied face-to-face encounter that is necessary for civil society to exist. Tactical media writer, Eric Kluitenberg, in his 2011 netbook addressing the subject of the "Arab Spring," points out that

> the central organising logic in these great public gatherings seems to be to 'take the square'—the shedding of private identities in favour of public roles, and the physical encounter with the unknown other. These remark-

72 Internet Relay Chat, a protocol developed in the Finnish University Network (FUNET) in the late 1980s for synchronous text-based communications across IP (internet protocol) networks.

> able emanations of public protest break all forms of 'electronic isolation.' Once again the point seems to be re-emphasised that 'the political' can only properly unfold in the theatre of the grand urban public space. Contestation requires physical embodiment to draw it away from insular discourse circulation and the self-contained affective feedback loops that feed on the libidinal energies and desires of entrapped broadcast and online media audiences. It seems that only the transgression into public spaces can break the hold of these insular electronic circulations."

Recalling that the movement of energy *is* change suggests that the two participants in a Dialogue are embracing change and indeed are changed in the instant that open encounter occurs. As the expressions from the Other are received into the body-system of the Self, very real alterations occur in that system. In an engaged Dialogue both the Self and the Other are forever changed. The site of revolution, the Revolution that will not be televised, is the Dialogue. It is the site of transformative be-ing. And, as is expressed in many systems, when internal change is fomented, the world changes.

"What did you get out of it?"

The potential and actual outcome of Dialogue is not the materialized presence of *something*. Indeed, our language, as the reductive framing of our present material world-view, is very much set in a Euclidean space populated almost solely by Newtonian objects and discrete forces externally applied to those objects. Furthermore, a quantifiable object or action is often the default metric for judge the outcome of an encounter. However, an (intuitive!) energy-based approach provides a much more powerful means to ascertain the dynamics of relation. What are the conditions of flow? What are the sources and destinations, the pathways of flow? How are the pathways defined and restricted? What are the potentials of flow via available pathways? By critically examining the nature of the pathways and sensing the qualia of the flow, a deeper understanding of dynamic encounter is cultivated beyond strict Newtonian determinacy. This, finally, brings us to the question of creativity—where the open flow is realized—and which I will address in the next section.

1+1=3

The presence of energy movement is the essential nature of creativity: the transformative revolution of inspired encounter and flow is its ground source. Csikszentmihalyi arrives at essentially the same point as I have arrived at here, though following a rather different pathway. His work, based in extensive psychological research on wide population groupings focuses on assigning particular psychological states as previously mentioned to conditions of flow (*psychic negentropy*) and blockage (*psychic entropy*) in situations (2004). A psychological state, as a neuronal configuration, is a transitory energy 'state.' Open encounter precipitates an alteration of that state.

The correlation of openness to *fear-less-ness* cannot be overestimated. Fear is the greatest antidote to the creative—the fear of failure, the fear of the unknown, the fear of rejection—it takes many forms. It exists at the leading edge of openness as a force of resistance or blockage; in this, though, as with the reciprocal relationship between heat and cold, resistance has no 'substance' but is merely an absence of openness.

"Fear [as] an indicator" is frequently encountered in the creative: it "tells us what to do" in the sense that what is feared most is probably of the most value "to the growth of our soul" (Pressfield, 2003, p.40).

When the two, the Self and the Other, engage in the vital relation that is Dialogue, the encounter may be considered optimal if, when moving away from it, each experiences the heightened energy of inspiration. The energy of the two seems more than additive: it appears that from two singular beings of energy there is an excess that is introduced or that arises. This phenomena is the result of energy flow, of Dialogue. The experience of the movement of energy is itself the source: reemphasizing Bohm's (2003, p.296) contention that

> in a truly creative dialogue . . . when the rigid, tacit infrastructure is loosened, the mind begins to move into a new order.

That new order precipitates seeing the world differently. Perhaps this 'peak' experience is what we most desire as we again and again seek out the inspiration of encounter with the Other.

Allowing space for the indeterminate is a crucial strategy in facilitating open encounters and I consciously avoid the constant pressure to map out the discursive space of the learning situation. Artist and educator Adrianne Wortzel (1997) wrote of a series of encounter performances I initiated as part of the blast5drama events in New York City:

> John sees one-to-one conversation as the only form of revolution left in the world. John provided a series of dinners; one with each blast5drama Editor. No agenda or conversational menu was presented – creating an empty space between one participant and the other which, in turn promotes a certain discomfort, accompanied by a strong urge to flail about demanding criteria. But one realizes in time that the experience exists in a state of being without identification tagging, allowing something both natural and definitive to happen between people via talking. Because he can bear the consequences of not imposing any structure or rationale on an event, John’s work, in a way, evokes the genre of outsider art.

The essence of creativity in the energetic framework I am elaborating is the presence of flow. When the moment of open connection occurs, the participants in Dialogue instinctively know it. It is a release from stricture, it is dynamic. It *flows*. However, it is also transitory, and it changes in time. Indeed, it is not infinitely sustainable in the sense that the capacities of the embodied and expressive self are limited. The body gets tired: its access to energy is limited, it is incarnate. A peak experience is peak because life-time passes and the embodied Self reaches its own limits as that time passes.

Conditions for creative encounter and exchange at first contact are dependent on the existence of an open pathway: or simply a state of openness. Given that it is not possible to close off all flow into, through, and out of the body system, there is always a potential shared pathway for energy movement. The more openness—the presence of wider and more diverse pathways for the Self and the Other to engage through—the greater the potential for flow. This correlates to the sharing of a particular protocol ("I can play the blues." "Oh really? I can sing the blues!"); or to the overlapping of a wider range of available protocols. The ambient conditions in which

the encounter occurs are important as well: those conditions will impact the flows that will ultimately pass between, *move through*, the individuals.

Creativity is frequently posited in a temporally or spatially coordinate milieux—a particular city, an era, a social institution, a 'movement,' or a cultural organization:

> Milieux of creativity therefore ought to be seen as places and institutions that attract human beings who possess unique competence within different areas. (Törnqvist, 2004, p.241)

However, a more descriptive means of appraisal comes down rather to the qualities of the Dialogues that are occurring within those milieux. After a visit to Dessau, Germany and Gropius' Bauhaus complex it was clear that the influence of Bauhaus, widely felt decades on and thousands of kilometers away had more to do with the series of intense encounters between an attentive grouping of human beings and less to do with where it took place. The buildings themselves were merely hollow shells lovingly maintained via remnants of energy resonating from that illustrious past. Of course the encounters were located in time and space, but both those two parameters are also simply convenient assumptions. I think of the influence as waves radiating out from a disturbance in water—the disturbance being the energized flow of a series of "1+1=3" encounters.

Teaching

In the context of the energy-/flow-based definition of Dialogue just detailed, I will briefly explore another integrated aspect of my creative practice that I introduced in Chapter 1: education and learning (or better yet, teaching and facilitation). A teaching situation is essentially a random (serendipitous, auspicious!) configuration of humans who have arrived at an encounter by following a certain set of socially and personally prescribed pathways. The social 'reasons' for the encounter are less important than the fact that it *is* an encounter, a potential Dialogue. Of course, social 'pre-tensions' may completely dominate the character of the encounter as there are often socially-applied mandates (punishment/reward systems) for how the encounter should proceed. The challenge for a facilitator is to push away oppressive social mandates and protocols so that idiosyncratic internal pathways might be explored in the context of a multiplicity of encounters *among* participants.

One way I have found to stimulate this openness in a typical university setting is through a primary Dialogue exercise. Recalling the 1+1=3 equation, this basic exercise empowers the individual at the same time as building up a foundational energy source for collective expressions. I facilitate it as following: depending on the time-span of the course, I ask the students to meet daily or weekly with an Other (generally self-organizing this after the first time I randomly pair people off). The criteria for the first (and as many subsequent pairings as possible) is that they do not 'know' that Other. They are to meet somewhere and engage each other for two hours. There is no thematic, no ancillary demands except that they remain attentive, focused, and concentrated during the encounter. I do occasionally suggest that they perhaps reserve a neuron or two to mentally record their actions and reactions, but generally recommend a basic *be-here-now* consciousness. The sheer indeterminacy of the encounter with the unknown Other tends to surface this consciousness independent of any over-riding pre-tensions.

The exercise is repeated on a regular basis so that everyone eventually has a two-

hour encounter with everyone else. I have found that this simple exercise has a more profound impact on the potentialities of the learning encounter than any other I have tried.

The generation of locally relevant protocols for Dialogue and the sharing of life-time and life-energies are crucial for the evolution of a vital learning community. It evolves as the site for the shared accumulation of inspired energies that subsequently become the source of creative flow among participants.

> For revolutionary educators, knowledge exceeds its semiotic end products; it travels intertextually within demarcated systems of intelligibility. Critical knowledge is understood as persistently open, disclosive, incomplete, and open-ended. In this way it remains cautious in the presence of reified social relations and epistemological distortions that occlude the social ontology of knowledge and its processual journey from fact to value. (McLaren, 2001, p.122)

This enfolding of the 'educational dimension' of my wider praxis is an example of how, when appraised from an energy flow point-of-view, the potential dynamic of one situated encounter is essentially similar to any other. From a more traditional point-of-view, they would be divergent in their philosophic and social grounding, their 'appearance,' their materialization, and their subsequent actualization. A classroom is an energetically particular site of an encounter, as is a kitchen table, the front seat of a car, a pub, and so on. To be sure, each encounter is partially governed by certain prescribed sets of socially-defined protocols, but *any* encounter is the site of potential creative (r)evolution through wide-spectrum Dialogue as I have defined here. It is this principled approach to materially differing situations that demonstrates the power that an energy based world-view provides.

A baseline criteria for the learning encounter is that if the two (or more) who are involved cannot walk away from that encounter *inspired*, then the process is in need of change: an adjustment of the flow and/or the condition of openness needs to be considered.

My own practice takes this challenge very seriously—both in teaching and in creative media arts endeavors as I frame:

> *Teaching is an action, an action that embodies the creative as a way-of-doing: a life praxis. In a matrix of social structures it formalizes the path of movement of energies between two people, the teacher and the student. At the same moment of this formalization, equal energies must reverse the implied hierarchy of this polarization and exchange the roles of the participants: the forces applied by the social matrix are re-configured or simply discarded. The two collect the sum total of their knowing, rooted in their sensual awareness, and bring it to the forefront of relation. The harmonic flow, the oscillation, thus initiated must hold as its frequency the organic synchronicity of the two individuals and the existence of formal structure must dissipate into a Presence of genuine Dialogue.*

Approaching the teaching encounter, I endeavor to empty myself of expectation and judgement arising from the imposed social order and instead allow the agenda to arise from the dynamic of the collective encounter. I believe that a relevant and transformative agenda can arise from any configuration of people and my role is to help

optimize the conditions for that to happen. However, precisely where on the (full!) spectrum of Dialogue that the encounter occurs is crucial to the character and potential of ensuing creative flows. As a facilitator, I push back on what I perceive to be the strictures applied by the general social protocols and mandates that are implicitly applied to the situation.

When dominant protocols are pushed away, the fears associated with encountering the unknown are reduced: the creative potential for alternate pathways of expression are enhanced. These conditions may be prompted in several ways. A first step is to acknowledge the existence of these dominating flows that show up as more-or-less implicit assumptions that individuals form (or adopt!) about their reality. This recalls Bohm's (2003) contention that these assumptions often rigidly block creative potentials that exist in a Dialogue. Once these assumptions are identified and seen for what they are and put aside if necessary, participants may begin to construct their own pathways predicated on the dynamics relevant to the immediate collective encounter. A second step is for each participant to identify personal energy sources. Without some awareness of an energy source, expression has no consistency and the individual is left in the situation of randomly being energized or not. When sources are clearly identified, the participant can begin to optimize their internal energy flows that then serves to optimize the collective situation.

It is common, for example, in situations I have facilitated that a robust critique of the classroom setting (the architecture, the schedule, the setting, the Lighting, etc.) erupts when the realization collectively surfaces as to just how oppressive most institutionalized 'educational' situations are. A relevant discussion ensues about what situation would optimize everyone's embodied feelings: this is usually followed by action implementing that process. It seems basic, but the assumptions surrounding contemporary education make such simple considerations anomalous when they should be foundational to any learning. (As an energy-mapping framework, the *bagua* of *Feng Shui* is not a peripheral concept in this instance!)

The whole process is extremely dynamic. Indeterminacy alone may drive some participants to reject the open field of encounter. This is a result of the participant being accustomed to a more rigidly-structured—probably "banking-styled"—educational process (Freire, 2000, p.72). When presented with a more open and indeterminate structure, a certain percentage of participants will recoil in a deep fear (of the unknown). Each individual has a different capacity for experiencing difference, openness, and the ensuing (potential for) change. Learning is essentially what occurs within a body-system in the state of openness that ensues when encountering the Unknown. As evolutionary organisms, we are tuned to approach the unknown while being aware of the implicit risk and with 'eyes wide open.' It is at this instant, receiving energized input, that we are exposed to potential change. A facilitator's role is to balance risk mitigation with a fearless and robust exploration of openness—preferably with a bias towards the latter!

Coda

In this chapter I circumscribed the scope and power of human encounter and Dialogue between Self and the Other and its potential to effect change and to source the creative. The complex interposition of the mediatory carrier—especially when seen from the traditional Cartesian/mechanistic point-of-view—often obscures the actual connectedness of energy flows. When intuitively considered as energy movements and

resonances that exist unbounded by those traditional temporal and spatial models, the affects and the general dynamics are perhaps more apparent. It is not what is expressed, but how it is expressed: the "what" is the presumed 'materiality,' the "how" regards the qualia of the energy flow.

It is worth reminding the reader about the fundamental difficulty of articulating these relations of flow. 'Natural' (English) language as a social protocol-driven pathway imposes explicit and implicit limitations on the potential for exchange in our asynchronous Dialogue here. As a writer, I struggle to 'properly' re-form words and linguistic structures, pathways, that have been defined and partially reified prior to my own existence. I am constantly drawn back into the rigid structures of the language and my own fraught use of it. I hope that the next chapters present plausible evidence that a holistic and principled understanding of human encounter provides a more powerful perspective on its qualities especially as they are increasingly affected by protocol-defined (technological) mediation. The next chapter looks specifically at the wider social context of encounter and Dialogue: the effects of techno-social entrainment and the complex pressures that consequently come to bear on wider human relation. As you read onwards, however, please keep in mind the power of the Dialogue. Situated in those energized encounters is the indeterminate essence of creative change and personal (r)evolution that cannot be sustainably suppressed by any imposed social structure.

4 :: The Continuum-of-Relation

Introduction

This chapter continues along the arc of trajectory that began with individual presence, continued through the Dialogue, and now moves into an exploration of aggregate human encounter. I will introduce several concepts with refined definitions relating to the dynamics of human relation. The two most important of these are the "continuum-of-relation" and especially, "technology." The idea of the continuum-of-relation provides a context for a discussion to the social; while an energy-based definition of technology is crucial for exploring the dynamics of the wider social system. The last half of the chapter explores the social system as a progressive expansion of the concept of Dialogue that I presented in the last chapter. I will explore emergent collective configurations of the social using a somewhat over-simplified dialectic of (social) network versus (social) hierarchy. This will provide a basis for interpreting a wide field of social dynamics. Part of the exploration is a meditation situated 'on the road' contextualizing my relationship with that major flow-defining feature of the social system where I came to be and an ongoing factor in my nomadic creative practice—that is, the Defense Interstate Highway System—or, generically, *The Road*.

"What are we together?"

Transitioning the dynamics of energized Dialogue from the abstract and isolated one-on-one to a wider social context requires some understanding of the aggregate set of relations that comprise a social system. The vital fabric of any social system is

ultimately composed of the momentary and sustained array of these Dialogues that have occurred and are occurring across the entire system. The ideas outlined below attempt to clarify ways that one might dynamically approach social relation as a process of energy flows.

As social animals, individual humans live their lives largely within what I call the "continuum-of-relation." I define this continuum, which envelops the term Dialogue proposed in the previous chapter, as *the total accumulated network of relations, expressed as activated exchanges of energy, as Dialogues, that have occurred, are occurring, and will occur between members of the species*.

The concept of the continuum-of-relation depends primarily on the assumption that we are in a holistic, continuous, and intertwined reality. I use the concept keeping in mind that it is an artifice that focuses attention on what I call 'the social': ultimately the flow of these relations may only be *abstracted* from the continuous manifest cosmos. It is important to always keep in mind the holistic nature of the cosmos and acknowledge that the widest set of (non-human!) relations affects the qualities of and operations/flows within this (human) subset. Interpretations of Quantum entanglement[73], as with Indra's net, the "butterfly effect," and the unity suggested by autopoiesis,[74] intimates that whatever change we initiate affects the entire cosmos, simultaneously. In these suppositions, there exists a deep interconnectedness that is prior to the social, prior to incarnate existence. This point alone would prompt a radically altered way-of-going if taken to heart.

The continuum-of-relation is proposed as a framework or context for refining a superfluity of shared modes or pathways for the transmission and reception of available energies. These shared modes arise through the collective processing of the experience of those experiential energy flows. Humans, in the process of sharing life-time and life-energy, exchange information, presence, experiences, memories, insights, knowledge, wisdom, and attention. Biologist Richard Dawkins labeled the collective mental outcomes of these encounters "memes," suggesting a socio-cultural parallel to genetic structures (1989). Accepting that these are neuronal configurations of energized matter, "memes should be regarded as living structures ... not just metaphorically but technically" (N. K. Humphrey in Dawkins, 1989). Anthropologist, Richard Adams labels these traces, cultural traits, as "cultural inheritance" refer to "the variation in time of (spacio-temporal, energetic) forms and meanings" (1991, p.858). In the process of sharing and in a sense, resonantly replicating these specific energy configurations, participants in a cultural system exchange life-energy and share life-time in order to further the survival of their social collective and to generate meaning in their shared lives.

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73 This is Einstein's "spooky action at a distance," somewhat out of the context of the original, written in a letter, in German, "*ohne spukhafte Fernwirkung*," in 1947 to Max Born. The full sentence, translated by Born, communicates Einstein's frustration at the inexplicable: "I cannot seriously believe in it [quantum theory] because the theory cannot be reconciled with the idea that physics should represent a reality in time and space, free from spooky actions at a distance" (Einstein, 1971). Was Einstein's brilliance sourced in a overwhelming need to explain *everything*?

74 The term coined by Francisco Varela (along with Maturana & Uribe) in framing "living systems" in their classic 1974 article "Autopoiesis: The Organization of Living Systems, Its Characteristics and a Model." "The autopoietic organization is defined as a unity by a network of productions of components which (i) participate recursively in the same network of productions of components which produced these components, and (ii) realize the network of productions as a unity in the space in which the components exist."

Refining the concept of the continuum-of-relation begins with recognizing that its constitutive Dialogues form the granular or micro-structural texture of all wider social structures. This alone places tremendous import on the immediate conditions that the Dialogues take place within and how they proceed. All the while keeping in mind that 'extracting' individual Dialogues from the wider system is a thought experiment, as they cannot in fact be 'extracted' from the continuum-of-relation. As atemporal and aspatial flows of energy between difference—between individuals participating in the wider system—the vast net of these Dialogues constantly immerse the individual. The self-organizing coevolution of individual and social relation includes the ongoing optimization of its collective relationship to formative pathways of engagement with the surrounding flows of energy. Relative to the indeterminate dynamic of these flows, the drive for individual viability ensures persistent pursuit of collective relation: individual survivability is correlated with socialization.

The socialization process generates (among other effects) *collective memory* that is—in concert with collective proaction and reaction—a powerful means for engaging those external flows. The continuum-of-relation forms the framework where a range of shared modes or pathways for the transmission and reception of available energies are refined. These shared modes, as cultural traits "passed on through new learning by others" (Adams, 1991, p.858), arise through the processing of the collective experience of those energy flows. Collective memory is only possible through the development of an abstracted representational system or language (Halbwachs, 1992, p.43-9). Recall from Chapter 2 that language—as a fundamental tool for collectively defining potential pathways of action—is a special case of protocol and is elementally bound up in the concept of technology. The generation of shared protocols, language being only one of them, is a fundamental process of socialization that is necessary for the fabric of a social system to arise. The delineation of (protocol-defined) pathways for energy to flow through/along becomes a primary feature of the evolving structure of a social system. The evolution is a complex and dynamic interweaving, layering, and intersecting of both idiosyncratic and collectively defined flow pathways.

Technology, in this context, is then *an array of specific individually adopted or discovered, collectively-refined and optimized pathways that govern any and all of the flows of energy that cumulatively form a social system*. Technology is prima facie evidence of the actuality for human life to alter and distort pre-existing flows as it endeavors to optimize its relationship with those existing energy sources. Manuel Castells proposes that "technology is society" (2000, p.5); Wiebe Bijker, sociologist (1987) strongly argues that the social cannot be understood or even represented without technology nor can the technological be considered independent of the social framework that it arises within; anthropologist Leslie White links technology with cultural systems:

> Technology has been the great prime mover and the architect of cultural systems, by and large, throughout the long course of cultural development. (1975, p.178)

And, philosopher Ivan Illich suggests that

> a technology incorporates the values of the society for which it was invented to such a degree that these values become dominant in every society which applies that technology. (1978)

Later in the next chapter I will invoke the term "techno-social" to indicate the

deep relationship between the cumulative set of protocol-driven energy flows and the collective human engagement that generated them. By adding the term "system" to the phrase (henceforth, techno-social system is abbreviated as "TSS") I indicate the holistic, *related*, and embedded nature of the ensemble. It is not possible to participate in any social system and remain unaffected by the collectively-generated protocolar limits that these pathways, these *technologies*, apply to individual energy expression and reception. At the same time and in a similar way, it is not possible to be human and to be unaffected by the protocolar limits that the body-system applies to incarnate presence.

It is precisely because of the inability of a materialist framework to access the subtle and complex effects of technology in our present (social) moment that I believe that this re-framing is well justified. As I hope to illustrate, the application of this modified definition of technology—situated as it is in the continuum-of-relation—directly addresses numerous critical issues that currently assail the entire life-support system of the planet.

Networks and Hierarchies

The fundamental social concepts of *hierarchy* and *network* are now brought into the discussion as end points on another sliding scale—one that is fully immersed in the continuum-of-relation. This scale traverses the cumulative flow *qualities* of the inter-personal relations that comprise the ground of the wider social system. Both concepts correlate structurally with the relative energy gradient or power differential between participants in the system. In this regard, they function as one possible dialectic for examining the dynamics governing social systems. The ends of the scale represent ideal situations, and actual social situations only asymptotically approach such ideals. Recognizing that neither of these ideal structures exist in reality, all social systems may be generally understood as complex hybrids of the two. Where a social system sits on that scale is largely defined by the cumulative degrees of pathway freedom that exist between individual participants.

I will begin with a few brief observations on contemporary network research that is evolving rapidly, followed by a general examination of the nature of networks versus hierarchies. Here I am speaking about a social architecture where nodes are equivalent to dividual humans, and between those nodes there are potential (protocol-defined) pathways of energy exchange (Dialogues).

Networks and their structural complexities have become the subject of intense study across numerous disciplines[75] to the point where there is now the emergent new discipline,"network science." Modeling and simulating networks across a wide range of systems has proved fruitful in understanding energy and power relations. Following is a brief review of some of the efforts in this regard, noting that the mathematical knowledge necessary to utilize much of the research places it well outside the scope of this text.

As a outgrowth of Joseph Moreno's sociometry, Social Network Analysis (SNA)

75 To point out some of the threads of network research: in bio-systems: (neurobiology, neural networks genetics, molecular biology, cellular biochemistry, metabolic networks (Wuchty & Almaas, 2005; Wuchty et al, 2005)); eco-systems: (food webs and climate dynamics - Steinhaeuser, Ganguly, and Chawla, 2011); and social/technological systems: (the Internet, transport, power grids, warfare (Moffat, 2003; Carley 2001)).

evolved from quantitative analyses of social relation, and is currently a very active field of inquiry. Social network analysis applies algorithms from graph theory[76] to identify both patterns and variables in the structural relationships within networks (Wasserman, 1998; Kadushin, 2011). As with other threads of network analysis, SNA generally weighs the *statistics* of relation rather than individual qualitative attributes. The relationship between the theory's algorithms and actual mediative network (technology) is not always explicit. It is a useful approach to the question of the 'architecture' of relation that it obliquely includes: it deals with systems and as such provides scalable insights into the dynamics of social structures. It is also deeply tied with the quantitative realm of mathematics, and as such, it is referenced in the creation of network protocols. In many cases of human relation the quantitative informs *knowledge*, while the qualitative informs *be-ing*.

It was physicist Albert-László Barabasi's framing of what are now called "scale-free networks" that first demonstrated the power of subsequent network models to simulate "an underlying architecture" of relations and flows "governed by shared organizing principles" (2003) in a wide variety of systems. This moved network science into a more qualitative understanding of power relations among participating nodes.

Another approach is the social construction of technology (SCOT) that, as framed by sociologist John Law, "distinguishes in its presuppositions and its metaphysical roots, between people and societies on the one hand, and the world of artifacts (and the natural world too) on the other" (2003, p.3). This approach suggests an underlying synergy, although the absolute division between things and people is a problematic relic of materialism that informs, though at some level is the antithesis of, the energy-based model that I present.

Actor-Network Theory (ANT) looks to "understand the mechanics of power and organization" (Law, 1992, p.2). It frames society as a scale-independent heterogeneous network: a structure inclusive of disparate elements (both abstracted and materialized, 'animate' and 'inanimate') that models the dynamics of a social system. Law sees ANT as a means to a more holistic analysis of combined social-technological systems that are fundamentally dynamic *processes*, and where the social, including individuals, is "a patterned network of heterogeneous materials." By drawing heterogeneity into the model, Law acknowledges that many energized configurations—flow-directing 'technologies'—'act' within the fabric of the social. Where Law suggests that "[a]ll phenomena are the effect of or the product of heterogeneous networks" it is a short jump from the patterned network to energy flow—retaining all the abstracted structure, but leaving the 'knock-on-wood' *stuff* behind. We then arrive at the network as the site of "action itself" (p.5): energized exchange, indeterminate re-configuration, and dynamic relation.

Overall, the analysis of real networks faces a challenge in coping with large, adaptive and open, self-organizing, multi-agent social systems. Computational tools for testing various hypotheses are limited by incomplete data sets and the dynamic real-life complexity of actual networks (Carley, 2002, p.12). It is precisely the weakness of detailed computational (algorithmic) approaches that suggests that more holistic models—ones containing fundamental principles "combining the methodologies of social networks and computer science" (Carley, Lee, and Krackhardt, 2002, p.90)

76 Graph theory delves mathematically into the quantitative and ordered mapping of relations between discrete objects.

along with other innovative world-views—are necessary. This is where an energy-based and scale-free 'systems' model seems most helpful.

Networks model emergent and cumulative systems. These systems rely on the movement of energy along pathways defined by a shared protocol and between vital nodal points that act to source, concentrate, transmit, and refine the shared flows. A minimum network would be the dyad: the *relational* instance of a Dialogue that exhibits some sort of mutual reciprocity where "flows and exchanges" are important (Kadushin, 2011, pp.2-3). There is no particular maximum extent of a network. Beyond a certain numeric size however, the structural relations among nodes tend to have proportionally greater imbalances in localized density and connection strength along with complex energy-dependent instabilities related to protocol/control application. In many network-centric systems this is not necessarily a 'problem' but rather a direct expression of network fundamentals that include dynamic evolution and change. Networks are temporal and *evolve*, as any self-organizing system does: they are the site of reaction and action. Relations between nodes are intersubjective, contingent, and dynamic, often with a high potential for innovative transmission/reception and protocol development: a *connected* autonomy is highly valued.

Actual autonomy, sometimes expressed as idiosyncratic behavior, is never an isolated state, however. Kadushin, reflecting the thesis of Buber's "I and Thou" suggests that we are never *not* in relation to other humans:

> The network paradigm denies that any organization or social unit can be understood apart from its relations with other units. The 'personality' or core characteristics of any unit are seen as stemming in part from its relations with other units. That is, beyond the attributes of pairs of units, the *pattern* of relationships with the rest of the network helps to explain the nuances of relations between any pair. (2004, p.14)

This overall pattern is dictated by the qualia of the ongoing Dialogues within the network.

In an ideal network energy (information, knowledge, resources) move(s) homeostatically among all nodes: free and open flow tends to equalize available energy distributions. It is important to note that in dynamical open systems, significant (temporal and spatial) energy differences do arise when parts of the system are exposed to energy glut or lack. However, the shared protocols of engagement are flexible and any node can effect or 'propose' an evolutionary flow 'adjustment' in response to individual need: feedback is located at the nodal level and networks proceed at the speed of life. Simultaneous expectations of flexibility along with the dynamic tendency towards homeostasis (or balance) are fundamentals of a network. Psychologist Fritz Heider suggested that

> [a] balanced state exists if all parts of a unit have the same dynamic character. . . . If no balanced state exists, then forces towards this state will arise. . . . Either the dynamic characters will change, or the unit relations will be changed through action or through cognitive reorganization. If a change is not possible, the state of imbalance will produce tension. (1946, pp.107-8)

This reinforces the observation that the ideal network is not attainable, and a state of constant adjustment is necessary: a state of tension, a state of flux.

A basic hierarchic system model has the same node-and-protocol-driven-pathway elements as a network. Conversely, though, it may be defined by a greater resistance to change, with a stasis-of-relation between nodal points leading to a longer-term constancy (or rigidity, depending on point-of-view). In a hierarchy the general character of the protocols that define potential energy flows between individuals have more of a centralized focus. This centrality depends on the wide-scaled surrender of dividual (nodal) autonomy (especially in terms of the origination of the protocols that guide the sharing implicit in Dialogues). There is a consequent centralized dictation of reductive and standardized protocol, and thus the centralized control over the pathways of energy flow between nodes. As emphasized when exploring the energized body, those pathways *reach into the embodied self, and affect the way reality is experienced*. Human encounter and relation is limited by the retention of energy-consuming structural order-of-relation implicit in those protocols: nodes conform to allowed or 'acceptable' flows, not vice-versa. To ensure conformity, a centralized regulatory (feedback) system monitors relations between nodes so that mandated protocols of encounter dominate.

Neither of these idealized social models are attainable. The cumulative self-organizing fabric of the social system suggests a constantly shifting, hybrid, and continuous field of change affected by all flows: we might call it simply a "net/archy." The differences arise largely as an effect of the varying degrees of freedom that available or potential protocols apply to the nodal/human relations. The sourcing and dynamic evolution of the protocols that govern energy-flow pathways between participants are crucial metrics of the evolving qualities of relation. This field of change is expressed simultaneously as a participatory site of tension, simmering conflict, dynamic encounter, and the vital renewal that is necessary for any viable system.[77] Control vies with autonomy at all scales from the deeply embodied to the global.

It is important to recall that any social system, any net/archy, requires an energy source to maintain the desired or imposed level of order. In all cases, the basic energy source is the node-as-embodied-human-being. As these energy needs exist at all scales (in relation to the maintenance of order) there are multiple layers of amplification and feedback across the entire system. It is generally possible to trace a chain of energy sources for a net/archy back to, for example, the food necessary for each (heterotrophic human) node to maintain viability, and further to autotrophic sources, and from there to sunlight. (Although the complex inter-connectedness of system-wide energy relations may make it difficult to discern holistic flows.[78])

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77 As an example, Václav Havel's well-known essay "The Power of the Powerless" (1985) contains a profound exploration of the nature of power in an extremely hierarchically-controlled social system near the end of its existence. It is a system that "for a thousand reasons, can no longer base itself on the unadulterated, brutal, and arbitrary application of power, eliminating all expressions of nonconformity. What is more, the system has become so ossified politically that there is practically no way for such nonconformity to be implemented within its official structures." (1985) It is the application of power via protocol which exerts the control and eliminates (as that exertion becomes more and more intense) any spaces for autonomy to exist. But these systems reach a saturation point where the control (and feedback) system, a necessary structural part of it, begins to absorb all the energy available to the system overall—destroying it from the 'inside.'

78 Biologist Howard Odum developed and applied a system for exactly this is his extensive field research into eco- and social-systems behavior. There is no space here to examine the details, but his 2007 book, "Environment, Power, and Society for the Twenty-First Century - The Hierarchy of Energy," lays out the conceptual tools necessary to trace the energy flows throughout complex systems.

Participation is an active and dynamic process that demonstrates an individual's *relation* to the dominant protocols in a net/archic system. One primary mechanism to ensure participation is a complex arrangement of coercive 'rewards' and 'punishments' that are propagated from more centrally situated social power concentrations. Castells (2004) suggests that every social system (state)—as an

> institutional system that mediates and manages the dual relationship between domination and legitimation, and between development and redistribution, under the influence of conflicts and negotiations between different social actors (Castells, 2004, p.361)

—has these sets of more-or-less refined protocolary pathways for participation delimited by perceived rewards and punishments. Differences between systems are only a question of degree and of the materially manifest framework of the pathway sets. However, it is easy for discussion couched in materialist parameters to become formulaic recitations as to the quantities of particular materialized coercions: contact is lost with the actual qualities of the energy exchange process itself. To maintain a focus on the energy exchange, it is necessary to transcend the material issues.

The (energy) cost of not utilizing the existing pathways, or of forming new exchange pathways may be extreme. The social system absolutely needs its constituents to use ordained pathways, this is how the system accumulates energy to maintain viability. Unsanctioned pathways, when discovered, will fall under an explicit or an implicit program of 'punishment.' Explicit punishment may be as simple as compromising the body-system of the individual participating in the illicit pathway: a task delegated by those 'in control.' This is the dominant method of punishment, and indeed, most coercion eventually 'impresses,' impacts, the embodied presence of the individual.

These issues easily become obscured by the apparent complexity in the 'forms' of energized matter that we face in our sensual engagement of the world. Some elements that may seem like rewards in the short term end up being punishments in the long term. Availability of excessive energy sources like (rich) foods (as a 'reward') may result in an over-consumption that eventually compromise individual viability: "[a] people can be just as dangerously overpowered by the wattage of its tools as by the caloric content of its foods, but it is much harder to confess to a national overindulgence in wattage than to a sickening diet" (Illich, 1978). Consequently the system will absorb large quantities of energy to drive a regulatory (health) system that seeks to mitigate the effects of the food energy glut. "'Too much' or 'too little' is equally fatal to organic existence" (Mumford, 2003, p.351). No system is a homogenous entity. Rather, it is an amalgamation of competing and conflicting sub-systems, each with their own frameworks for participation, each struggling to exert hierarchic dominance through their selected flow pathways.

Countering the operation of coercion is the potential of open human encounter that the net/archy also presents. Recall from Chapter 3 the phenomena where two individuals have an energized Dialogue and an excess of energy (inspiration, spirit-coming-into) arises. Extend that model to the situation where, in a dynamic open collective, a net/archy, there are multiple energized Dialogues occurring between participants. Accumulating from these is a source of collective energy[79] that the parti-

79 The term 'social capital' comes to mind, though because of its abstracted meaning maybe it misses the point of an actual energy *source*. I conceptualize it as a 'social energy bank.'

cipants may tap into. This collective accumulation of energy is the formative source of any social system. This is not cognitive psychologist Hutchins' 'distributed cognition': it is not merely "thinking that is distributed across a network of people rather than just being located in one person's head" (Agre, 1998). It is a wide-spread open flow of energy exchanges. The accumulation process requires that the individual participants have, in their own embodied presence, a source of energy. Network viability and vitality is predicated on an available energy source for the participants. With this source, the participants can project their embodied energies outwards along a pathway of shared-protocol to their peers.

The struggle between hierarchic and network tendencies, control and autonomy, stasis and dynamism, centrality and distribution exist at all scales within the continuum-of-relation. It is manifest in individual potentials, and in vast, globe-spanning flows. The key conflict lies in how the feedback and control tendencies tap into the inspired flows between individuals who are willing or unwilling participants in that system. This is accomplished by the imposition/adoption of various protocols on/by the participants.

Wherever a protocol is utilized—that is, the situation where the energy exchange between two individuals is directed along that particular socially-defined pathway—the locus of control of that protocol gains some fraction of the energy exchanged. At the same time, energy in conserved—the First Law of Thermodynamics states that energy can be neither created nor destroyed. The implications of this concept are profound. Whenever the Self, in Dialogue with the Other, use a particular protocol to conduct that energy exchange, some of their embodied energies are 'transferred' to the locus of control of the protocol. Granted, the locus of control may be highly diffused, distributed, contested, or shared; the process always taps off some energy and directs it towards that nexus. As a protocol becomes more and more rigidly applied, that 'percentage' rises.

In order to establish a life-affirming pathway, participants in any system need to be aware of the protocols that direct and form their energized encounters and Dialogues. Each of the many-faceted protocols they submit their ex- and im-pressions to will inevitably tap off some of their life-energy and, consequently, life-time, in 'service' of the system. How one participates and is present in each and every Dialogue will directly support or erode the centers of control. The empowering qualities and creative potentials of the idiosyncratic encounter with the unknown Other are enhanced when attention is directed away from a control nexus. Within even the most strictly regulated system, though, there is always a potential for the explosively creative encounter: *system control is never complete*. There is always the potential for the consciously-invoked situations where idiosyncratically-generated protocols might erupt into the Dialogic fields that constellate the continuum-of-relation. In this regard, a special source of resonant inspiration is Hakim Bey's 1985 (2003) panegyric to creative liberty, "T.A.Z.: the temporary autonomous zone, ontological anarchy, poetic terrorism." He suggests the idea that there are interstitial 'zones' available within any system where autonomous actions, flows, movements might take place outside the purview of dominant command-and-control systems. These zones may be created and activated both strategically and tactically in order to destabilize although the idea is not to work in opposition, but to proactively create an alternate pathway: essentially turning ones back to dominant ones. The zone is temporal—it *incorporates* only for a time—and it is relinquished when the social system begins to negatively impact the explicit freedoms accessed. It is a radically different politic from that of 'opposition to dominance'—which may in many cases function as a prop to sustain that-which-is-op-

posed. It is perhaps better to turn ones back to the dominant and forge that new pathway.

"*Where are we going?"*

It is a difficult but not an impossible challenge to begin to identify the technologies that direct us within the energy of their altering flows, despite being completely immersed within those flows.[80] They can be felt, experienced, stepped away from, examined, and altered to the degree that we have, through life, gained the ability to do so. Those abilities are related the extremity of the altered flows and the embodied openness of our evolutionary neural system. Awareness precipitates a modicum of control over how we alter planetary and cosmological flows through our own presence and the application of our technologies. These are the technologies along whose pathways we are carried, and along whose pathways we project the energies of our presence. These pathways are cumulative, intertwined, layered, and are finely nuanced by the multiplicities of human encounter occurring across the continuum-of-relation. They extend from individual and idiosyncratically-evolved and narrow and stony paths to broadly shared, macadamized and black-topped routes with appropriate speed limits carrying hundreds of thousands of Others along, their energies *ensemble*, in hydrocarbon-fired Legion. The questions arise, then, where are we going? and how will we get there?

All Roads Lead to Rome

> *The fragment of 16mm film is grainy like any family film of this vintage. It shows, with silent Kodachrome (in)fidelity, an American family in 1958, looking like many families of that mid-Century modern time: it shows the nuclear family orbiting the parked car, travel-trailer in tow. One older boy, and two little girls, the mother holding a swaddled baby sitting in the front seat with the door open: no seat belts or child restraint devices then. The father, invisible behind the gently clattering Bolex movie camera recording the scene, is perhaps calling out instructions. These modern, post-war nuclear families were economically autonomous—in the Imperial landscape of burgeoning material plenty—to the degree that there was a working father. In this case as with many, that paternal work was for the military, with tens of thousands of defense contractors active in the country, supporting the massive military-industrial development surge of the Pentagon machine in the mid-1950s. The post-WWII militarization of the country and evolving strategic necessities of the Cold War extended to the far reaches of the continent, and affected every life within the US and indirectly many beyond its borders. Despite a deep recession in the spring of 1958, my father, as the highest-ranking civilian in the JCS (Joint Chief's of Staff) Strategic Air Command program decided to leave 19 years of Top Secret work for the Pentagon, the last five in the frontier Territory of Alaska, to join the newly created Federal Aviation*

80 This is perhaps of the same nature of the conundrum of how fish might come to "know" about water. It seems that one pays little critical attention to a technology that was in place around them before their 'formative' years. 'New' technologies, however, are different and carry the (threat) of the unknown and of change, and are regarded with some (justifiable!) suspicion.

Administration at the heart of Empire, Washington, D.C.

Four weeks into life, I embarked as a passenger in a Plymouth Suburban station wagon with a travel trailer hitched to it on a drive down the longest single continuous stretch of gravel road in North America—the AlCan Highway, 1,675 miles—constructed in six months in 1942 to supply the ensuing rapid militarization of Alaska following Pearl Harbor. The road-trip totaled 5126 miles from Anchorage, Alaska to Washington, D.C.; it took four weeks.

Upon arrival in the Nation's Capital, the Zero Milestone, in October 1958, I had spent half of my life in a car on the road. This percentage would gradually decrease over time, though it was frequently augmented. It certainly would have been much faster drive had it been 20 years later when the Defense Interstate Highway System was complete.

This epic voyage allowed the option of meditating on the significance of the Dhao te Ching's 'ten thousand things' directly in this case: the return distance in miles. A mantra said for each one, as they pass by quickly or slowly, and in the end, at the end of the road, one is sure to transcend. Or, as was the case with Odysseus: at least plenty of roadside attractions to develop a certain immoral fortitude.

In the sense that all writing is autobiographical—that it arises from the embodied life-energy of the writer as life-time is spent—all the words here are deeply rooted in the personal experience of hydrocarbon-fired movement that began on that snowy September day at Elmendorf Air Force Base in Cold War Alaska. The restless movement has not yet stopped nor has the sense of psychic dislocation and of discovery that it precipitates: I am a nomad, I have only psycho-spiritual homes and surrogate families. Rather than spending money on *things*, I would rather spend money on *movement* that precipitates encounter with Others. A nomad is aware of and driven, spatially, by the ever-changing flux of energy of the encompassing flows. Those are the energies of encounter with the Unknown: who, what, lies ahead? Anchored by certain known pathways and way-points, the constant movement, a "sacred drift," is a pilgrimage of "intentional travel" (Bey, 1993).

At first it was a movement in the carriage of others, but gradually, self-propulsion and self-direction takes over, albeit not without the baggage of former dependent times: baggage that includes the obvious familial detritus, but also the entire range of cultural construct present in "mid-century-modern" American life at the time—itself an array of protocols that altered, are altering, the energetic fabric of Life on the planet.

The Road takes on many forms as a protocol-driven social construct: from the "safety" and "finitude" of Al Gore's Information Superhighway "specifically tailored for [the] California audience" (Adrian, 1994); to the braying of ATV's across a desert already rolled flat by Gen. Patton's tanks on maneuver; to the ubiquitous 'freedom' signified by the adolescent driver's license; to the instantaneous irruptive and life-changing violence of the auto accident; to the forging of a mature, idiosyncratic 'road less travelled' along the way.

The Unknown

A creative (tech-)nomadic life on the road is an exploration of the unknown: it is a movement towards the verge of the controlled: going to the edge. Or perhaps it is only a parody of that, especially when following the remnants of Route 66 from Chicago to L.A. these days. That fabled two-lane route, the first monument to the glutted freedom of abundant hydrocarbons, is now almost completely displaced by the Defense Interstate Highway System. And of all the deployed technological protocols emanating from the bowels of mid-century modern America this single one, this *system*, is perhaps the most (de)formative of the country. It exists exclusively as a result of the hydrocarbon glut that paralleled its deployment.[81] So much for getting your kicks, so much for guiltless, autonomous freedom, so much for the unknown when every exit mirrors the last!

Movement provides multi-dimensional access to a range of phenomena, practices, and social manifestations of presence in the world now as well as in the experiential and historic past.

> Travel, like existence, is a non-figurative art. Travel is in the head, it is the allegiance to a complicated spatial ritual and is a radical simplification of existence. . . . Travel is anamorphosis.[82] (Baudrillard, 1990)

It is far more than a (mere) change in appearances—from the stay-at-home to the Road Warrior—it is a potential for encounter, the organismic (orgiastic, orgasmic?) encounter with the unknown: that is the most compelling reason for travel. The potential of the unknown is a gamble for the traveler, for the nomad. Starved for food or adventure, a generic potential proffers the possibility that there are better energies available there, up ahead, than here, or back there.

Unfortunately, it takes energy to maintain mobility, where mobility is directly correlated to quality of life and to the extension of life into the future, the (dis)continuance of Life on the planet. Although, in the case of the internal combustion vehicle, a localized nipple of hydrocarbon nutriment is necessary: *intake is necessary before motion and expression*.

A road-trip begs to be shared—an Other or two to make it an encounter with two unknowns: the path and the Other, with only the most general of destinations pre-determined or not. With a friend or perhaps an unknown Other, a hitch-hiker, the road-trip takes on a more complex shape—as there will surely ensue psychic movements, Dialogues, that spark between the Self and the Other in the space of the over-riding Unknown.

Why take on the unknown? The nature of the cosmos is such that when change is a (the?) primary feature, the unknown is a basal condition of our awareness. The energized and indeterminate encounters of Light and Gravity in the formation of differentiation and difference ensures that there are unknown (though not unknowable) configurations at all scales everywhere all the time. To pretend this is not the

81 See Kaszynski (2000) for a compelling history of that system. The rules governing its construction, use, and maintenance span many tens of thousands of pages of Federal Code.

82 Greek *ἀναμόρφωσις* transformation, n. of action < *ἀναμορφοῦν* to transform, < *ἀνά* back, again + *μορφοῦν* to form, < *μορφή* form. A distorted projection or drawing of anything, so made that when viewed from a particular point, or by reflection from a suitable mirror, it appears regular and properly proportioned; a deformation. (OED)

case will back you into a walled corner: behind that thin wall lies monstrous unknowns. You may think it's quite comfortable, there with back protected by the apparent known, but, as the citizens of Jericho and Berlin both found out, walls may fall to the most unlikely causes and at the most inconvenient times. This makes hiding in a corner, avoiding the unknown, an act of self-deceit. There is no place to hide. Best to sally forth and meet ones fate. As the warrior Arjuna discovers under the tutelage of Krishna, it is better to stride—or be driven, as Arjuna is lucky enough to have Krishna as his chauffeur—out to meet the world replete with all its unknown *potentials*.

Maybe a faster way to find the unknown these days is to get off-road altogether for the bushwhack. Bushwhacking, my preference, is the art of overland travel specifically *not* via established pathways. It is a method to relinquish the illusion of long-term control over the *trajectory* of the body. By exposing the body to the unknown, one has to respond in real time, in the present. This present invites the presence of be-here-now and within that state of be-ing, the embodied self yields to that edge that divides the controlled from un-controlled. The edge is precisely the locus of active transformation and change. Making the next step into the unknown is, literally, an act of trust in the body, in a belief that entering the unknown will present *possibility*. Whether or not this possibility is merely the chance of the continuance of the species (in a biological framework), the projection of life into the not-now, the future, or whether it is an operative pre-condition for a transcendent state I cannot at this moment comment on. Somehow, this is a question that the individual has to pose self-wise each time they approach the edge.

There remains the question of what will we encounter, aside from the unknown, along the way. There are sure to be rather random irruptions of ordered progress—diversions, roadblocks, detours, breakdowns, accidents—that accompany any technological system as reminders of the relationship between energy, order, and the ultimate entropic failure of those systems. *That's the thing about technology, Rule Number One: it fails*. Political scientist Langdon Winner (2003) suggests that:

> Deeply buried in our experience of modern technology is the elementary terror that powers we sought to control will escape our command and come back to injure or destroy us. . . . As we construct complex, tightly coupled, geographically extended, powerful, but ultimately precarious systems, one result is a world filled with ticking time bombs waiting to go off.

Yes, of course it is possible seek solace in the apparent determinacy of hard science and engineering, and to look at all these phenomena as being explainable through thermodynamics, but this would negate the emergence of layered meaning carried by portents, omens, and direct karmic messages in life: beware, technological failure is indeterminate!

Despite all the talk of doom, couched in the consuming change of climate, and in the waxing instabilities of powerful global net/archies

> [w]e suspect that even though travel in the modern world seems to have been taken over by the Commodity—even though the networks of convivial reciprocity seem to have vanished from the map—even though tourism seems to have triumphed—even so—we continue to suspect that other pathways still persist, other tracks, unofficial, not noted on the map, perhaps even 'secret'—pathways still linked to the possibility of an

> economy of the Gift, smugglers' routes for free spirits, known only to the geomantic guerillas of the art of travel. As a matter of fact, we don't just 'suspect' it. We know it. We know there exists an art of travel. . . . The sacred drift is born again. Keep it secret. (Bey, 1993)

With this, I refer you to the tech-no-mad (b)log that continues with a secret sharing, *ad infinitum*, of the creative fruits of a long nomadic drift through the unknown.

Coda

For the individual, the energetic relationship with the social system, immersed in the continuum-of-relation and directed by the protocols of technology, is a deeply *formative* relationship. Life moves along flow pathways: directed by a socio-cultural or perhaps evolutionary desire for *more,* it impels, carries, drives us along, *ensemble, and in relation*.

This chapter endeavored to set up a framework for understanding the dynamics of the energy-relationship between individuals within a social system. These relationships, operating as Dialogues, are fundamental constitutive elements of any social structure. The qualities of the many individual Dialogues that cumulatively form the fabric of a system are predicated on the characteristics of the protocol-driven pathways that exist between participants. These pathways evolve—at least in principle—to optimize the usage of energy flows available to the system.

The idea of a net/archy, as an infinitely variable social structure self-organizing the degrees of freedom and flow relations among participants, acts as a powerful tool for discerning the dynamics of particular social systems. In the next chapter, I will explore flow dynamics in the context of a few specific examples of deployed tech-no-social systems. Key to understanding these systems is an awareness of the formative properties of protocol.

Recalling from Chapter 2 that a protocol is a form of control exerted on energy flows: in a social system, questions such as—who is doing the controlling, why this protocol and not another one?—move us immediately into the space of politic as a manifestation of power flows in that system. There appears to be a direct connection between the relative forms that utilized protocols take and who in the social system controls those protocols. In recent times, it seems that the individual has less and less influence on widely-accepted social pathways of energy exchange. This situation suggests that other factors need to be examined—the relationship between energy put into a communicative act and the applied protocol, and where any surplus or excess energy 'goes' in the process of loss. It has to go somewhere, given the First Law of Thermodynamics. It could simply diffuse out into the chill of interplanetary space, a hint of the heat-death[83] to come. That happens, but more crucially, power accrues temporally to those who deploy a protocol. I will address these issues in the next chapter as I explore some particularities of cumulative social systems and the flow-control regimes that are deployed as integral elements of those systems.

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83 heat-death n. (see quot. 1930): 1930 J. H. Jeans *Mysterious Universe* i. 13 The second law of thermodynamics predicts that there can be but one end to the universe—a 'heat-death' in which the total energy of the universe is uniformly distributed, and all the substance of the universe is at the same temperature. (OED)

5 :: The Regime of Amplification

Introduction

Amplification, as a model to explore the relationship between different systems and the movement of energy within and between them, is the focus of this chapter. The chapter opens with a framework that addresses several crucial points: how social systems function as energy amplifiers, how that amplification proceeds, and what the effects of these amplification processes are. I will re-introduce the generic term, "techno-social system" (TSS) in detail and nested within that, I will place "The Regime of Amplification." To illustrate the principles of flow-control that techno-social systems exert on the energies at their disposal, I will present a number of specific examples: the military, glass, and radio. While these examples may seem disparate, even arbitrary, they each serve a specific purpose in elaborating my key arguments around amplification. The first, the military, provides an example of an amplified and directed projection of energy that a TSS depends on to protect its viability; the second, glass, is an example of how a TSS will re-configure available sources of energized matter to deflect unwanted flows or to specifically direct flows; and the last, radio, a redistribution of electro-magnetic energy, looks at the fundamental technology upon which this thesis was predicated.

It should not escape the reader's attention that over the preceding three chapters I have continually narrowed the focus of these conceptual and abstracted sub-systems of the cosmos, to this final exemplar, The Regime. I see this particular system not as an archetype, but instead as the actual techno-social system we are participants in at this moment. Public awareness of what I propose as the undergirding of The Regime—

the Military-Industrial-Academic complex—has largely receded into 'mid-century modern' history. Its signature realities, however, are very much present and operational in the world. One point of this thesis is to raise the contention that we are still very much living, submerged, in that Regime and the flows that it has cumulatively altered.

The Techno-social-system as Amplifier

In the process of exploring the relationship between energy flows and human systems, there is an additional concept—a subset of the continuum-of-relation—that is pertinent to the discussion. That subset is the "techno-social system" or TSS. Here the TSS[84] is defined as *the entire collective and applied system of proactive (or reactive) human intervention in the surrounding distribution of energy flows; it includes the resulting human dependencies arising from the processes that form the system and the ensuing redistributed flows as a whole.* The emergent self-organizing structure of the TSS defines the pathways for the mediated transmission and reception of energy between humans in the continuum-of-relation. Of course in actuality there is no monumental singular TSS: the globe-spanning cumulative TSS is an evolving integration of countless scalar sub-systems that are in constant flux of size, relative potential energy, extent, and consequent influence: as are all expressions of life at all scales. I use the term TSS as a prototypical or idealized example of structured social relation that I will expand upon below. I have relegated specific examples mostly to footnotes.

The dynamic process of evolutionary optimization combined with constant change causes systemic and idiosyncratic difference to arise between individuals in our widely-distributed species. This individuation gives rise to an energy hierarchy that is essentially a dynamic differentiation based on how well the individual body-system is optimized in relation to available flows. Lotka (1922a, p.147) suggested that

> in the struggle for existence, the advantage must go to those organisms whose energy-capturing devices are most efficient in directing available energy into channels favorable to the preservation of the species.

Related to this energy hierarchy is the condition that individual viability within the TSS is secondary to collective viability. Viability is generally governed by the evolving position of the individual within the hierarchy of the ordered TSS. As energy flows are concentrated within the system, judicious use should, technically, increase viability. There are, however, numerous countervailing instances that make power concentration dangerous. Over-consumption when there is an energy glut manifests itself, for example, as an epidemic rise in obesity in the energy-rich developed world.[85] It could be said that the obese individual is merely storing up reserves for future lack, but

84 Prior usage of this term seems quite random across engineering, science, sociology and commercial texts; there is evidence that it has some pedigree within the "systems thinking" world. See, for example, Fuchs and Obrist, 2010; Jolly et al, 2005; Raffi, et al, 2009; Orlikowski and Barley, 2001; or Vespignani, 2009. I could not locate its usage before 1960 though I suspect that is more likely a result of a lack of database search possibilities. What I did find was that there is not a monumental and pervasive usage, so I propose that my applied definition seems quite reasonable. My definition significantly expands the existing scope of the term based on my definitions of 'technology' and the energy-flow sourcing of social systems that I present here. I have been using the term for at least a decade myself in other public contexts (Google rankings reflect this).

85 See Bleich et al. (2007).

clearly the cost of such extreme storage is high.

In the coordinated processing of unevenly distributed energy flows, the TSS will emulate individual organismic processes such as those modeled by amplification. The effective and optimized utilization of energy sources is necessary to maintain the ongoing coherency and structure of the TSS, just as it is with an organism. The fundamental structure of the TSS arises through the evolution of various systems of amplification of the flows necessary to insure general viability. *The system will commit a major fraction of available energy sources to preserve the pathways of energy expression that prolong its existence in the materialized form determined by its apparent situation.* This collective need to survive as a stable and coherent entity—an expression of concentrated power—may be seen as an emergent scalar transposition of the drive of individual organismic life to prolong itself. This 'need' to project into the future puts the system in immediate and sustained (thermodynamic) tension with the constant entropic change that it is subject to.

The established order of the TSS is threatened by that change and consequently there is an ceaseless struggle to secure energy sources so that change may be controlled. Stability of incoming flows and the existence of stable pathways to utilize those flows are of maximal importance to ongoing viability. The process of amplification, deeply integrated in the TSS is one critical expression of a powerful collective will to maintain coherency, order, and thus, the long-term viability of Life.

Amplification—the identification and definition of the incoming signals, the identification of the sources of the amplified energy, the structure of feedback mechanisms, and the ultimate target of directed output—is determined by coordinated and collective actions in the TSS. Amplification processes initiated within the TSS create foundational systems for defined and optimized pathways for the flow of energy—their cumulative structure in the present is the "Regime of Amplification." The Regime insures that the collective coordination process, as an expression of sustained order, is supplied with the energy to initiate and maintain itself. Ongoing maintenance of the organizational processes that structure the pathways of amplification is crucial at all times:

> . . . human social organizations constantly reconstitute themselves through a flow of members and other adjunct materials, information, and energy. (Adams, 1991, p.866)

Following is a more detailed examination of the constituent processes of amplification—input, amplification, feedback, and output—as scaled up from the body-system to the techno-social collective. The processes are essentially similar to those involving the single organism: they simply manifest themselves at different spatial and temporal scales, and with different material distributions throughout the TSS.

The TSS is collectively enabled to interact with its surrounding environment through the combined sensory input systems of the individuals presently and formerly participating in the system. It is through this distributed (net/archic) sensory system, at least partially unified by shared protocols, that the TSS collectively identifies relevant energy flows. There is a general correlation between the specific inputs required for the viability of the individual and those necessary for the collective. However, there is the added level of complexity that the embodied participants in the TSS are themselves input energy sources for the overall system. The primary way that an individual participates is by providing their embodied energy—the available surplus energy of their own body-system, their life-time, their life-energy—in service of the

coherent expression of the TSS. *Active individual participation is the fundamental energy source of any coherent TSS.* Without this source there can be no system.

No other energy sources may be tapped without first the structured mobilization of individual humans along with the directed expenditure of their life-time/energy. Of course, in the case that there are the previously concentrated energies of former participants,[86] a limited subset of individuals in the system may have access to energy concentrations that are orders of magnitude greater than the embodied energy of an individual, but at some point, those energies were originally concentrated or accumulated through the embodied efforts of individual participants, willing or unwilling.

Individual embodied life-energy, then, as the primary energy source for the amplifier is applied to a variety of processes within the realm of the TSS. The primary task is to secure other concentrated energy sources, more commonly known as re-sources. The vast range of primary resources for the TSS would include everything from other humans, plants, animals, the sun, and other diverse quantities of energized matter.[87] These energy sources—though perhaps not directly involved in the maintenance of the individual body-system—are collectively deemed necessary to insure the continued viability of the TSS itself. Every system settles on a fluctuating range of energy resources that are actively sought after, collected, stored, processed, and utilized to amplify specific collective actions. The precise mix of resources arises through a process of optimization that is a necessary feature of efficient energy usage.

The identification of which flows, which signals should be amplified is a core issue in the ordered continuity of the TSS. The process of identification and utilization most often proceeds along pre-existing or 'traditional' pathways. In the general case, pre-existing pathways are fundamentally informed by collective memory. Indeed, pre-existing ordered concentrations of energy that are the necessary precursors for amplification are likely to be the resources for the next source to be amplified.[88] This is usually the case where a 'higher' technology is deemed necessary.[89] Viable systems give at least token attention to alternative, redundant, or fall-back sources and a certain amount of collective energy is expended in identifying new ones. The attention with which a TSS considers alternative sources correlates to a qualitative metric of viability of the system: how well it anticipates change.

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86 For example, the refined uranium reserves that were once extracted from the ground by long-dead Navaho miners: "we found excess mortality for lung cancer, pneumoconioses and other respiratory diseases, and tuberculosis for Navajo uranium miners. Increasing duration of exposure to underground uranium mining was associated with increased mortality risk for all three diseases." (Roscoe et al, 1995) The life-energy of those miners was an originary source for the cumulative energized configuration: nuclear weapons. That ensuing energy concentration was definitely not under their control.

87 See Pimentel & Pimentel, 2008, for an in-depth discussion of energy sources.

88 Significant quantities of natural gas are used in the recovery of petroleum from tar sands in north-central Canada: The NEB's 2006 oil sands Energy Market Assessment states that the amount of gas used in oil sands production will rise to 2.1 billion cubic feet a day in 2015 from about 700 million cubic feet in 2006. ((Canadian) National Energy Board, 2007)

89 'Higher' and 'lower' technology may be thought of as those arising from more or less complex systems. A 'higher' technology requires a larger (more extensive) and often, more precise infrastructure that in the end requires more energy simply to maintain (to 'order'). The entropic decline of order is responsible for this continuous need for energy input, with more energy input necessary for the more ordered and precise system. This situation alone casts doubt on 'high-tech' solutions to any 'energy crisis' as each successively higher technology is likely constructed on the previously-existing technology infrastructure, itself a primary cause of the current energy crisis.

Changes in available energy sources necessitate changes in the energy flows to be amplified and the form of those flows—fundamental shifts in the pathways of amplification. New pathways are often in the process of incremental development at any moment in the life-time of a TSS. When a major shift in energy sources is occurring—where the energy to maintain order does not have a viable pathway between the source and the individuals who make up that system—the TSS is vulnerable to inexorable forces of change in the form of rising disorder or re-ordering. It can be said that the existence of a distinct TSS is tied closely to the protocol-driven pathways of amplification that it evolves to interact with available energies.[90]

In a pluralistic TSS where individuals literally 'have a voice,' (or may express their idiosyncratic life-energies more easily in a public way) there may also be a plurality of incoming energy sources, with several competing directly for the 'right' to be amplified. This increased complexity arises at the granular level of individuation in the TSS, with its primary source the idiosyncratic expressions of all its participants. A system with greater 'freedom' creates a more complex field of action that may confuse and obscure the dominant pathways of power that it expresses. However, a well-defined pathway from clearly designated input sources is usually present: a dominant signal that covers an area of reach, or a signal that goes further or has a greater strength than all the rest. The overarching locus of control will express itself directly or indirectly by what is already being amplified and by what pathways are already being utilized. If not obvious, these may be uncovered with careful observation of the basic constellations of power forming the TSS.

Recalling that the amplifier itself needs an external energy source or sources, the primary task for the TSS is to secure at least one, although in fact, there are usually several. An energy source that is 'multi-modal'—one that can be used by a variety of amplification pathways—is most valuable to and most sought after by a complex TSS. The greater the complexity of the system, the greater the value of a multi-modal source. Hydrocarbons, and among them, petroleum, are the most obvious contemporary multi-modal source of external energy for the Regime; electricity, independent of its genesis is also a multi-modal source; and of course, individual humans are as well.

The 'site' of a complex amplification system may appear to be distributed but amplification depends on a process of explicitly (hierarchic) *concentration* or *aggregation*. Localized variation will determine the form that the TSS takes when establishing flow pathways. It may, for example, construct elaborately optimized step-wise pathways for the concentration of energy at intermediate stages that are subsequently easier to tap as an ensemble.[91] In the optimal case, the TSS simply has 'easy' access: it has to expend less energy than it gains overall to both secure the (re)source and to extract surplus energy from it. This may translate as a spatially local surplus of a particular source or it may mean that there are fewer energy demands on securing the source—less competition with other systems, a less demanding environment for the participating humans, and so on.

The demands of the TSS on a resource are variable in time; although temporal

90 Further reading on the efforts of The Regime to harness 'natural flows' may be found, for example in McPhee, 1989; Reisner, 1993; Adas, 1990, 2006; and Sampson and Maas, 1974.

91 The distribution of petro-chemical refining is a good example of a single input stream distributed widely to individual processing points that differentially refine the stream into a tremendous range of energized materials: fertilizers, plastics, lubricants, fuels, chemical stocks, etc.

dependency is directly correlated to complexity. The system must be able to cope with a range of demand in reaction to changing external conditions. This requires significant powers of anticipation, awareness of the moment, and consequent mappings of potential future conditions as suggested by collective memory. Just-in-time systems are dependent on pre-existing pathways, but cannot react to an overarching change of fundamentals and are subject to rapid collapse when supplies are disrupted. Substantial (usually standardized and unique) pathways, bound by the inertial realities of reconfiguration (or 're-tooling'), face a similar challenge. As external conditions shift, the TSS must rely on existing pathways to maintain interim viability. Risk of disorder is increased when maintaining a pathway that does not accurately reflect the actualities of those changing conditions. The concept of (energy) reserves—the same issue as with an individual organism—enters the picture here as a means of coping with variation in energy supply. Any TSS will have to have an optimized policy for the storage and utilization of reserve supplies of energy, whatever the form it may take.

Regardless of extent, the TSS must maintain a dynamic balance within a constantly shifting environment. If the degree of adaptability of the TSS falls too far below a relative threshold value, the ability of the system to maintain dynamic equilibrium and long-term viability is compromised. A robust feedback system is formulated to prevent this. The complexity of a feedback system is directly correlated to the overall complexity of a TSS and that may be generally correlated to the number of individuals participating in the system.

Optimization

The specific pathways that self-organize within the evolving TSS will tend to take on higher and higher degrees of interdependent complexity with increasing energy input. Conversely, as complexity increases so does the internal energy drain on the amplification process. To minimize internal energy waste some parts of the system must be involved in an optimization process. Optimization, as a collective (technological) expression corresponding to organismic evolution, is the foundation of all efforts to order the pathways of energy flow within the TSS.[92] As a process of coordinated and defined action dedicated to TSS viability, it is realized through feedback and feedforward systems.

Optimization, based on a sampling of flows in the surrounding environment, initially depends on the collective embodied memory storage capabilities of the individual participants. As the complexity of the TSS increases, external memory storage systems become necessary to organize the increasing volume of information[93] needed to frame the optimized relation of those intricate technological pathways. The externalization of what was once embodied memory is a fundamental evolutionary step in any TSS. As externalization proceeds, the feedback system becomes less and less

92 Optimization is also the underlying motivational force behind all technological innovation: engineering may be characterized as the focused effort to optimize the usage of available energy or energized matter based on the actual application of the ensuing engineered flow.

93 "What is being destroyed more quickly than the ozone layer is the subtle layer of irony that protects us from the radiation of stupidity. But, conversely, we may also say that the subtle film of stupidity, which protects us from the lethal radiation of intelligence, is also disappearing. We are secreting information at such a rate that it is polluting the higher layers of the mental atmosphere with its non-degradable waste, gradually destroying the kind of atmospheric girdle which protects us from our secrets being totally dispersed into artificial intelligence (the way molecules are prevented from totally dispersing into space)." (Baudrillard, 1990)

dependent on the individual participant. Consequently the value of the generic individual decreases to the degree they may become merely an anonymous energy source for the TSS: a cipher of life-energy, *a quantity of energy*. The increased complexity of collective memory also makes the demand that more complex protocols and standards (as abstracted and reductive subsets of 'engineered' reality) are developed to further secure and optimize available pathways. A regulatory system that functions as a feedback pathway carefully records, quantifies, standardizes, and codifies all parts of the amplification process in the service of contingent efficiency.

Integral to the optimization process is what is commonly known as a command-and-control function that monitors ordained flows of energy and their respective pathways. As one part of this function, the TSS will evolve a reward-punishment scheme for individual participants supposedly operating as efficient life-energy sources. Individuals engaged in activities that are irrelevant to the needs of the system—literally 'wasting' energy—decrease the efficiency of the overall system. Generally, in terms of absolute numbers of participants, larger systems are able to tolerate more individual variation or waste. This occurs because the granularity of the command-and-control system cannot always reach down to where individual activities are monitored. *When perfect feedback occurs—that is when all possible variables in the process are monitored—amplification will absorb all of the input energy flow, rendering itself impotent to any form of energy expression except as internally applied in self-monitoring.* TSS evolution to this extremity of a self-observing regime usually precedes a complete collapse[94] unless, of course, the TSS has an extremely potent energy source.

Rate-of-change is a primary variable as a protocol-driven pathway undergoes optimization. Large changes generally proceed more slowly than smaller, incremental ones. A widely standardized pathway is more difficult to alter because of its inter-relation with correlate pathways, but at the same time, it further optimizes the system's energy usage possibly leading to reserves being available for innovative change. The wider the extent of structural standardization the greater the inertial resistance to change. Standardization is a determining factor in the ability of a system to adapt to changing external conditions and its implementation puts the system into a heightened state of dynamic tension with its environment. Standardization leads to the tendency for established and formal pathways of energy flow not to undergo incrementally large changes, or to change only in the face of overwhelming (catastrophic!) external flows that disturb or destroy the entire standardized technological framework.[95]

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94 Considering its strategic and tactical reliance on a nuclear weapons system to maintain its 'order,' not to mention the "Sŏn'gun" or 'military-first policy,' the Democratic People's Republic of Korea (DPRK) stands as a fine example of this kind of TSS. It proceeds this way even as large numbers of its population starve. It recalls the Stasi-enforced regime of the German Democratic Republic (GDR) where in excess of half a million people were employed to 'monitor' their fellow citizens in one form or another. This command-and-control system effectively destroyed the granular human-to-human potential of open Dialogue and the ensuing possibility for change and evolution.

95 The following is an excellent example of the effect of conflicting (railway width) standards: "The standard gauge of 1.435 meters has been adopted in many parts of the world, across North America and most of Western Europe for example. It accounts for about 60% of the railways. But other gauges have been adopted in other areas, such as the broad gauge (1.520 meters) in Russia and Eastern Europe accounting for about 17% of the railways. This makes integration of rail services very difficult, since both freight and passengers are required to change from one railway system to the other. As attempts are being made to extend rail services across continents and regions, this is an important obstacle, as for example between France and Spain, Eastern and Western Europe, and

The cumulative TSS always exhibits a conundrum: the existence of the system requires organized energy pathways that take energy to establish and maintain that requires an energy source that relies on ordered pathways of delivery. This is the incremental self-organizing process of techno-social development that ultimately depends on the availability of concentrated energy sources: bootstrapped Life.

The efficient expression of directed energy flows, of presence, is the culmination of the amplification process. Expression necessarily determines the capability of the TSS to protect itself from the interruption of its self-determined system of optimized existence. Arising in the context of internal or external energy sources, other systems are in direct and constant competition for energy re-sources. This explicit threat, along with the constant attrition of entropic disorder makes the appropriate and coherent expression of energy vital. The primary role for the amplified energy flow is to strategically secure the pathways for the concentration of energy to proceed. Implicit in this goal are two necessary factors—one is the maintenance of the feed-back or command-and-control systems for those existing pathways, the second is the process of securing future sources and facilitating those subsequent pathways.

> It takes the technical, social, infrastructural, and economic resources of an optimized globalized economy at its peak to extract and use our current energy flows, and even then oil production cannot be maintained. There may indeed be plenty of fossil fuels left in the ground, but following a major systemic collapse, most may remain there as that capacity dies away. (Korowicz, 2010)

In the following passage I will examine three simplified examples that represent specific intertwined pathways within the Regime of Amplification. They should provoke a clearer idea of the possible structural relationships and formations of energy flow that are set up within the Regime. I hope that they will also raise critical questions concerning its operational consequences.

The Legions

The first example, the military[96], is foundational to the TSS and may be framed as a basic expression of amplified energies. It is a complex fusion of pathways in its geo-political and material deployments and in its deep relation within the overall continuum-of-relation: its effects are projected throughout the planetary system.[97]

The military—a sub-set system of the Regime—incorporates all the requisite

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between Russia and China. The potential of the Eurasian land bridge is limited in part by these gauge differences." (Rodrigue, Comtois, & Slack, 2009)

96 In order to simplify the discussion I use the more generic term "military" rather than, say, "The Army," "military system," or "armed services." Within a TSS, the military is usually a deeply integrated constituent that cannot easily be abstracted from the wider system, where an army is usually imagined as a discrete entity.

97 The US MIA complex continues to throw objects far out into inter-planetary space—the furthest, Voyager I is 17,949,806,849 km from Earth, another year and it will 'officially' enter the interstellar medium—ostensibly in the service of science, but in actuality, it is a means to aid in maintaining the 'public need' for the wider MIA complex infrastructure for both R&D and the production of high-tech weapon systems. NASA, for example, is intimately intertwined both historically and currently with the testing, optimization, and deployment of missile and space technologies that are used more for DOD, CIA, and NSA initiatives than for 'scientific research.'

patterns of an amplification system: input signal (the human population and other available energy sources); amplification process (provisioning and equipping of the select grouping of people through the collective life-energies of the greater population); the feedback system (communications, command, and control systems); and the output signal (the 'armed' expression of amplified energy flow that secures the viability of the TSS).

In its most basic form, the military is a numeric subset of the wider population of a particular TSS—and all those individuals are its primary energy source. From 'outside' the TSS, the military appears as an amplified and coherent energy expression. A qualitative measure of that coherency is how effectively the military enforces the collective desires of the TSS. This mandate is accomplished primarily through active *or implied* operations that secure energy sources and that stabilize the pathways of energy utilization. It does not function in a vacuum, however, and there are close relations and direct flows between this subset system and the wider Regime it is embedded within.[98] There exist historical variations in the evolution and implementation of different military systems and their activities, but these are more than offset by the fundamental similarities across the entire range of human societies.[99]

The selection of participants for the military is crucial. Individuals are chosen for their overall optimized organismic condition or for particular characteristics necessary to optimize collective expression. Coherent expression demands that individual participants in the military are subject to rigidly-defined hierarchic pathways for all impression and expression. For this reason, they need to be highly socialized individuals who are willing and able to submit to strictly imposed protocols. This suggests that they are comfortable with having their position within larger flow pathways determined not by individual preference but by the hierarchic demands of the system. Protocol rules: eccentricity is not rewarded except as expressed within the certain narrow limits that guide the implementation the TSS's goals.[100]

The primary outward expressions of any military system are via weapons. Weapons are the final output of amplified and directed pathways of energy flow and require the complex integration of diverse input flows. Weapon systems range from the body itself to intensely complex concentrations of energized matter requiring the direct and indirect participation of millions of individuals to procure.

Consider the archaic sword as a simple idealized example. A sword materializes through a precise energy-intensive combination of iron, carbon, along with some leather, wood, and bone, perhaps with traces of manganese, chromium, and vana-

98 Complex existing (historical) diplomatic, economic, political, geographic, and cultural flows are present within any TSS and consequently influence in its ongoing relations with other systems.

99 The continued referencing of unique texts such as Sun Tzu's (2009) "The Art of War," dating back 2500 years, or Machiavelli's "The Prince" (2006) from 1515, attests to the 'universality' of the crucial social role that a military organization plays. Both are on the official Marine Corps reading list and "[a]ll Marines are to actively read and discuss books from the reading list." (Hagee, 2005)

100 This would include concepts such as "Rules of Engagement" that recognize that "[w]ar is tough, uncompromising, and unforgiving. For soldiers, the rigors of battle demand mental and physical toughness and close-knit teamwork. . . . In war, the potential for breakdown in discipline is always present. The Army operates with applicable rules of engagement (ROE), conducting warfare in compliance with international laws and within the conditions specified by the higher commander. Army forces apply the combat power necessary to ensure victory through appropriate and disciplined use of force." (Department of the Army, 2000) That said, the structurally destabilizing effects of 'rogue officers' are demonstrated with regularity across history!

dium. Every step of the process is dependent on the embodied life-energies of a significant number of individuals as well as the combined availability of particular resources that exist only in certain localized concentrations on the planet as a whole. Those locations have to be secured over a substantial period of time as it takes a long-term commitment of human resources to actually extract iron ore. The ore is removed from the matrix using other pre-existing technologies: hand tools, as well as Light and heat sources. The thermal energy necessary to render raw iron from ore requires that a fuel source be secured in a particular location where specific kinds of fires and furnaces are constructed. The raw iron is subsequently forged into a sword via the life-energy of an individual also in concert with other pre-existing tools.

The forging process requires a skill-set that an individual cannot directly assemble from scratch in a single life-time. Considering Odum's (2007, p.87) sense of information "as the parts and relationships of something that take less resources to copy than to generate anew," it is more energy-efficient for complex technical information to be compiled in a transmissible form rather than being generated anew at each instance. This process requires the presence of a stable enough TSS that allows for the transmission and preservation of critical information across generations. "To be sustained, a system must maintain enough copies without errors, shared widely enough to keep the structures functional and competitive" (p.225). The existence of externalized memory systems in turn require special protocol-driven flows themselves, a further energy cost directly attributable to procuring the weapon.[101]

The cumulative complexity of the production pathway is such that making a single sword is not an optimal outcome, suggesting instead that many swords be produced. It is not far behind the idea of multiples that an armaments 'industry' arises. This requires that an encompassing system of standards is developed. The entire process demands an ordered, coherent, and harmonized set of energy flows from many individuals such that the particular amplified signal, the sword, be properly actualized. The entire TSS becomes engaged in the process, as without the participation of a significant majority of the population, it is not possible to accumulate enough energy to control all the pathways necessary to produce the weapon. This wide-scaled participation represents a source of both social cohesion, or, in the case of extreme contributions of individual life-energy into the TSS, its potential failure.[102]

When all the necessary steps are completed in an optimized manner, the sword, the weapon, is handed to the optimized individual. A weapon amplifies the energy expressions of that soldier: it carries and expresses some of the amplified energy that

101 This is the genesis of Vannevar Bush's 'memex': "Science has provided the swiftest communication between individuals; it has provided a record of ideas and has enabled man to manipulate and to make extracts from that record so that knowledge evolves and endures throughout the life of a race rather than that of an individual. . . . He has built a civilization so complex that he needs to mechanize his records more fully if he is to push his experiment to its logical conclusion and not merely become bogged down part way there by overtaxing his limited memory. His excursions may be more enjoyable if he can reacquire the privilege of forgetting the manifold things he does not need to have immediately at hand, with some assurance that he can find them again if they prove important" (1945).

102 In (a draft of) an address to Congress, U.S. President Eisenhower made a specific and resonant warning about this situation where "One of the deepest concerns of the framers of our Constitution was to make sure that no military group arose to challenge the civil authority, and that no segment of industry be allowed to develop which was permanently and exclusively concerned with building the weapons of war" because what could accompany these is "the potential for disastrous abuse of power" (1960).

went into its cumulative aggregation. Ideally, it increases the efficiency of the individual soldier and his/her ability to secure the formative pathways of the Regime that they have sworn fealty to: it increases individual viability and, presumably, the viability of the collective. This increase however comes only after the soldier is trained to use it. To teach its optimized use, the 'boots-on-the-ground' experience of other humans, stored in living or external memory, needs to be available. Learning, the soldier forms both his/her body and embodied behavior in relation to the sword, optimizing the combined body-weapon potential. The potential energy of the combined system that creates the sword and 'makes' the soldier plus the life-time submitted to training for its use are the sources of increased effectiveness: its lethality. Without the complete set of refined pathways for concentrating energy, the soldier would not become a pathway for amplified expression. This is the fundamental process of arming a military with a particular weapons system.[103]

Each weapon system is the product of an extremely specialized process flow. The more complex the flow, the more energy that the TSS has to expend on maintaining the pathway and the structural elements of that flow. This consequently places a wider energy drain on the entire TSS and all its participants. Odum points out, however, that a TSS continues to evolve the ability to "incorporate new power and transform that power into military power . . . along with other structuring skills" (2007, p.305). Increasing complexity must also be offset by a resultant increase in the efficacy of the body-weapon combination. The weapon system as such must deliver a saturating energy flow, a lethal expression, to the enemy.

The atomic bomb dropped on Hiroshima in 1945 is the sword amplified by many orders of magnitude. The techno-social infrastructure required to produce the physically rather small device was colossal. It was, at the time, the largest secret weapons production system in spatial distribution, in numbers of people involved, and in energy consumed.[104] It included substantial sub-systems for the prospecting and mining of the uranium, for processing the uranium (comprising the largest single-purpose electrical grid sub-system ever constructed), and for the construction and operation of sophisticated facilities for research and testing in remote and extreme environments. All of these operated at a high degree of precision and with an ordered, coherent, and highly secure system of command and control down to the detailed regulation of individual lives. Altogether it was an enormously energy-intensive pathway to construct and maintain. It is no coincidence that its ultimate expression was the most massively concentrated and rapid release of energy that the world had ever experienced. It securely guaranteed the viability of the Regime of Amplification that deployed it for at least a few years:

> If used in numbers, atomic bombs not only can nullify any nation's military effort, but can demolish its social and economic structure and prevent their re-establishment for long periods of time. With such weapons, especially if employed in conjunction with other weapons of mass destruction such as pathogenic bacteria, it is quite possible to depopulate vast areas of the earth's surface, leaving only vestigial

103 A implicit thread running through all my father's work journals is the scientific and engineering side of weapon-system optimization, a process in which hundreds of thousands of US citizens have dedicated their lives to at any point in time in support of the (inter)national MIA complex.

104 The approximate cost (1996 dollars) for each of the three bombs detonated was USD five billion. (Hewlett & Anderson, 2000)

remnants of man's material works.[105] (DOD, 1947)

Feedback is critical to a military system. The rigidly defined flow pathways are constantly at threat from changing external and internal conditions and simple entropy. The history of the TSS is littered with both civilian populations and armies sacrificed through the rigid clinging to a specific set of pathways of expression. The slaughter came about when changing conditions de-stabilized those pathways, reduced the optimal efficiency of the military system below some threshold, and consequently ended its viability. Feedback is dependent on complex C3, C3I, C4, and/or CCIS[106] systems that report on the effects of the projected body-weapon engagement systems: situational awareness for battlefield effectiveness. These systems are vital to the optimization process. A military blinded by the loss of its feedback system is plunged into immediate crisis.

Feedback also must occur on a Regime-wide basis in the process of optimizing the relationship between the viability of the wider social system and the military subset. It is, of course, the primary reciprocal function of the military system to guarantee the viability of the wider life-prolonging TSS.

In the end, the Regime of Amplification deploys its military against any real or perceived threat—The War on (fill-in-the-blank)—fundamentally defined as a condition which obstructs access to external energy sources or that distorts the requisite pathways of flow within the system. The weapon systems deployed by the Regime have to provide a pointed and saturating expression of (destructive) energy to the enemy system: warfare. There are many nuanced examples scattered throughout human history where the specific dynamics are more or less complex, but fundamentally, the vast majority of events that take place among and between social systems are driven by a focused desire to sustain self-viability. This desire drives the preparation and deployment of military (militant!) pathways along which expressive/destructive energies might be projected.

Window Weather

All organisms, humans included, evolve ways of modulating and attenuating the changing flows that are potentially harmful to them. Humans are exceptionally well-adapted to utilize and re-configure available flows to secure incrementally increased viability. In one instance they discovered that they could manipulate the most common forms of energized matter at the surface of the earth—silicon and oxygen, with bits of carbon, sodium, and calcium—to create a substance that was, at human scales, relatively impervious and that could constrict extant or generated flows in a variety of ways. Subsequent to its discovery, glass performed a set of functions that would fundamentally alter the energetic relationship of humans with their environment. It also significantly altered social relation and the flows of energy within the burgeoning TSS. Even before human fabrication of glass, the sourcing of flint, chert,

105 Robert Oppenheimer's oft-quoted reflection from the Bhagavad-Gita: "I am become death, the destroyer of worlds." when asked later about witnessing the first atomic test blast "Trinity" in the New Mexico desert. (Oppenheimer, 2008)

106 C3 (Command, Control, and Communications); C3I (Command, Control, Communications, and Intel-

obsidian, and other forms of knappable lithics[107] was a primary influence on population location and clan/tribal viability (Andrefsky, 1994; Bamforth, 1986). Without the enormous advantage conferred via the tools and weapons produced from these substances, life in the Paleolithic was severely compromised.

The precise origin of the initial human fabrication of glass is unknown, but was likely an accidental occurrence somewhere in Mesopotamia around 3500 BCE (MacFarlane & Martin, 2004). Its utility as a robust and immutable container was eventually established and the technology for its production was widely spread during Roman times. Its use was largely restricted to a decorative substitute for precious stones outside of western Eurasia until the mid-18th century. Between the 14th and 18th centuries, the Venetians created a sophisticated production regime that raised the technological level substantially to include reflective (silvered) mirrors, complex vessels, and lenses.

The use of glass in windows—existing in Roman times but stagnating like many technologies after the collapse of the Empire—developed substantially between 1100 and 1600. It is this particular use that surfaced when I was living in Reykjavik, Iceland in the 1990s:

> *There is a word in Icelandic "gluggaveðri" that translates literally as "window weather." This suggests a kind of weather where it is much more comfortable sitting on the inside of the window than on the outside. Windows came to Iceland early, but glass was a premium commodity, so the half-underground sod huts of early Iceland might have only one 15 x 15 cm window set in a wooden door at one end of the hut. Better to be watching out this window than experiencing the full-bodied wrath of a winter storm, a rök,[108] a storm with the power to remove life from the body. By putting the sheet of silicon dioxide between the body and the storm, a sort of virtual world appeared—one that could be seen but not felt. Toasty, steamy warm inside with the sheep and ponies, blizzard outside.*

Anthropologist, Alan MacFarlane (2002), tracing the history of glass forward beyond decorative and limited household uses, suggests that without glass there would never have been a scientific revolution in the Western world. The use of glass in a wide variety of (transparent) *containers* made possible a range of fundamental experimental situations in evolving scientific endeavor. The results of those experiments over time increased the precision by which humans then controlled flows around themselves. This control liberated even more energy for innovation. This, by definition, led to more optimized living, leading to more efficient use of available energy flows, subsequently 'liberating' extra energy for knowledge propagation and further innovation in a cycle.

However, the spread of the use of glass was contingent on the stable availability

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Information Systems), etc.

107 Knapping is the process of impacting two stones (liths) together to chip one into a usable tool or weapon—arrowhead, scraper, ax head, etc. The stones most employed in this process were of microcrystalline silicon dioxide, that is, naturally occurring glass.

108 Icelandic, as in *Ragnarök*, the apocalyptic battle of Norsk mythology as laid out in Icelander Snorri Sturlsson's "Prose Edda" where the earth is submerged in the ocean, to arise, transformed, and repopulated.

of fuels for the very energy-intensive manufacturing process. It needs sustained temperatures above 600°C—almost as high as some worked metals. It also depends on a clean and controlled production environment and on sourcing the relatively pure silicon dioxide (usually in the form of clean sand), and the other necessary chemical ingredients. Historically, the necessary high-temperature fires or furnaces consumed tremendous amounts of wood and charcoal. Only a TSS that had an excess of these energy sources, initially in the form of forests, was well-situated to produce glass. Europe, after the Middle Ages, had optimal conditions for both the stable accumulation of knowledge and the energy (re-)sources to drive an innovation cycle.

The production of lenses and mirrors was intertwined with contemporaneous developments in optics, geometry, and perspective. It was optics that moved the TSS firmly into the mediated—where 'real' simulations of what was 'out there' could be presented or re-presented on 2-dimensional surfaces. Photography, as a further convergence of early chemistry (utilizing glass containers extensively) and optics, made these virtual re-creations ubiquitous. Winding still further forward in time, we come to incandescent Light bulbs that overcame the limitations of darkness; other evacuated glass tubes including the cathode ray tube made possible both radio and television. Radio was completely dependent on the principle of thermionic emissions which, via glass vacuum tubes or valves, formed the electrical circuits of early amplifiers.

These glass tubes were subsequently replaced by solid-state devices, most of which were constructed on amorphous silicon substrates, the same primary ingredient of glass. Every single digital device has—as a crucial and absolutely irreplaceable element—an integrated circuit whose primary material is the amorphous silicon substrate that the circuitry sits upon. It is no coincidence that we speak of complex cumulative protocols such as Microsoft Windows as a window on the world: one looked 'through' that we might see what is 'outside' without actually venturing out into the *rök*.

In view of where we have come from and where we have arrived in relation to this particular form of energized matter, it is no coincidence that our deep dependence on silicon dioxide is a means to attenuate the threatening flows that surround us. It also forms our relation to all frequencies of Light: energy that is crucial to Life. This is not to say that the dependencies on glass were any more important than, say, on the development of efficient delivery of energy in the form of agriculture, animal husbandry, charcoal, coal, oil (whale and others), and electricity. These flows are not separable from each other. They are all deeply intertwined where we find ourselves in the present moment, and also, who we are: we are always affected by altered and changing flows.

A singular conclusion of this short look at glass (through a pair of glasses on a glass screen!) brings me to define the "virtual" as being the *situation where one is experiencing an attenuation of energy flows (via some 'blocking' or 'diverting' technology) that otherwise would be impinging directly on the body-system.* This suggests that any discussion of the virtual not be limited to material 'delivery' mechanisms or mediatory (digital!) devices. Rather, a broad consideration of the character of flows between the Self and the Other, the Self and the cosmos, is needed: especially the relation between those flows and embodied sensory presence. The dialectic of reality/virtuality is fundamentally about the 'allowance' or attenuation of potential energy flows as they effect change in the energized body.

Radio Frequency

The third example of a TSS flow-control sub-system, radio, exemplifies the specific technologies of amplification in mind and indeed was one stimulus for this entire thesis.

As a ubiquitous feature of the contemporary Regime and a signature form of 'modern' media technology, radio[109] forms a crucial element to many amplification processes. Radio, as a globe-spanning re-direction and re-formation of electromagnetic energy is core to the Regime of Amplification. As a specific technological deployment of the TSS, it is 'merely' another defined and coherent pathway for the utilization and expression of these energies.[110]

Radio was initially deployed as 'narrowcast' point-to-point communications technology. It rapidly evolved another function as a one-to-many 'broadcasting' technology that, in its effect on mass social relation since, is perhaps greater than its point-to-point role.[111]

Where does radio as a protocol-driven technological pathway 'originate,' what are its ostensible boundaries? Is it sourced in the centralized broadcast production studio where there are a variety of electromagnetic amplifiers? Or is it centered around the massive signal amplifiers at the base of the antenna pumping megawatts of modulated electro-magnetic energy to the entire globe (and beyond)? Is it in the manufacturing process that fabricates the radios? Or is it in the radios themselves—the devices in wide distribution used for resonant transmission and/or reception of energy? Or does it lie in the basic extractives industries that provide the raw materials for the manufacture of the necessary metal, plastic and other parts for the entire noted infrastructure? Or is it in the electrical grid that brings the necessary electrical energy into all of these sub-systems?

To answer the question might seem difficult, but tracing the related flows of energy will help to understand radio *as a system* that includes all the elements listed above and possibly more. Within the framework of amplification that we have already established—input, amplification, feedback, and output—the relation of this particular pathway within the greater Regime should become clear.

What is the input signal that radio is amplifying? At the level of generic example it begins with the expression of embodied life-energy—a human voice or sounds (music as embodied life-energy projected into a particular pathway or instrument). These expressions are directed into a microphone and through the process of transduction,[112]

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109 All forms of 'wireless' *and* wired electromagnetic signal transmission and reception fall under the purview of the discussion. This would include television and especially mobile telephony and (inter)(net)work-based systems: the technologies are essentially the same.

110 For example: "Radio Nets: Corps radio communication facilities are provided at each echelon of corps headquarters, and at subordinate corps unit head-quarters as required. Stations are operated in both the field army and corps nets. In general, corps organizations provide their own radio station for operation in corps and army nets. Corps provides radio teletypewriter stations for entry by corps artillery and special units into certain corps nets. The nets established and those in which corps stations operate are discussed in detail in FM 11-92. The radio nets of the corps form an integral part of the corps communication system." (US Department of the Army, 1961)

111 The juxtaposition of point-to-point (peer-to-peer) and one-to-many systems correlate directly to the dynamic of the net/archy model of node-pathway relation. Radio, as a general expression, has a place at many different points on the net/archy scale.

112 A magnetic source in motion in an electric field is converted into electricity—simply another energy

the expressions, sonic energies, are converted into electro-magnetic flows. One direct input to radio, therefore, are the embodied voices and expressions of *a certain subset* of individuals who make up the greater Regime. Those individuals are active participants of the Regime to the degree that they surrender some of their life-time/life-energy to the system, into the microphone. Why are those particular voices amplified? There is of course a pathway in place, a code, a tradition perhaps, that determines whose expressions are amplified. Clearly the Regime, with the intrinsic need to maintain its own viability, cannot afford expressions that compromise this need. Input signals are selected that directly or indirectly contribute to the maintenance of the desired flows of power. A narrow selection of shared protocols (language) frames the energy delivery pathway to remote individuals scattered within the reach of the amplified expression. In a specific case, the elite of a regime will either delegate people to say (read) things for them[113]—to be the amplified mouthpiece of a numeric but powerfull sub-set of the Regime—or they themselves will speak directly into the input system. The ordained voices read messages and amplify sounds that reinforce the Regime's desire to *maintain control* over those who listen: insuring that they participate in the 'proper' pathways. In the ideal command-and-control system there is only one radio amplifier and many receivers. This guarantees that there are no conflicting energy sources or flows, and what flows that there are, are optimized. In other systems and situations, there might be numerous amplifiers, numerous channels, for sending voices out. In that case there is often a conflict to see who can be the loudest, who can say the most 'important' things, or feed the most relevant information or optimized energy to the people listening. Relevancy is measured by how well the signal energizes the listeners to support the maintenance of the overall Regime and the pathways that guarantee its viability.

The question of relevancy raises the issue of optimization and feedback. How does radio as a system incorporate feedback? Within the amplifier itself there is a signal feedback mechanism as described in Chapter 1, but if the *system* of radio is expanded to include the substantial pathway of what appear as ancillary processes, the scope of feedback likewise expands. This suggests that feedback occurs at many scales within the greater Regime: it is a *systemic* feature, independent of the scale of the system chosen. However, there must be some kind of feedback that measures the efficacy of the input-output loop—that is, between what is sent out as a signal to the individual participants in the Regime, and how well that energy influx activates their life-energies in support of the Regime. If the energy source is the amplified voice of the leader asking individuals to come assemble together to fight a neighboring Regime, one feedback would be how many actually show up. Or the amplified voice may energetically exhort participants not to consume energies that compromise their efficient contribution to the Regime, or vice-versa, that they should consume certain kinds of energies that enhance their 'value' to the Regime. In either case, the feedback metric would be whether or not the specific energy state of individuals change as measured by ordained observers. Again, this is the regulatory function that is absolutely necessary for the Regime to optimize its expression. The complex permutations of these

transformation (with loss!) among the many that occur throughout any complex technological system.

113 I recall when having dinner with the sitting US Ambassador to Iceland that he only spoke through one side of his mouth; what he said never seemed to come 'straight' from his Self, but rather was coming from the State. I began to comprehend that he was the mouthpiece of the State, and there was something of an embodied conflict acting out on his face!

stereotypical scenarios are numerous. Feedback provides information as to how well the specific or overall pathways of flow are maintained by the Regime.

The extent of the region covered by a broadcast is governed by the amount of energy available to the amplifier. The more powerful the amplifier output, the greater the energy input necessary. The greater the coherency of the output signal, the more complex the necessary amplification system. The more complex the amplification system, the greater the energy consumption of the amplifier itself.

The human voice expresses itself at a certain sonic energy level. Without amplification it has a maximum range of less than a kilometer, depending on atmospheric conditions. With amplification the physical range is limited only by the ability of the amplifier to 'inject' power into the signal without compromising its coherency. Theoretically, with an infinite amount of energy available, the amplifier can output an infinitely powerful signal, but this limit is approached asymptotically: incremental increases in output power require ever more input energy.

Back in the studio, the electrical impulse output by the microphone is modulated and fed into a series of amplifiers that increase the total signal energy by several orders of magnitude. This high-energy signal is then radiated, broadcast at a certain frequency out across a region. This signal gradually loses its strength: it is attenuated over a distance as it interacts with other energies. Small devices are developed and deployed that can 'hear' this electro-magnetic radiation through a process of resonance. Resonance generally depends on the condition where a transmitter and a receiver of energy having internal structures that react to similar stimulus. In the case of radio, specific circuit design elements introduce effective resonance between the transmitting and the receiving apparatus.

No part of this technical system operates without electromagnetic energy. Presently those sources are either batteries (concentrated energy sources that are readily portable), generators (that convert concentrated energy sources like hydrocarbons into electricity by transduction), or the mains electricity coming through an enormous electrical generation and distribution system (also operating mainly on hydrocarbons, hydro, or nuclear). Radio, as a specific pathway, is strictly defined by its relation to these primary energy sources. It is also strictly defined by the manufacturing processes that go into the construction of each of the component parts of the transmitting and receiving equipment. A complex set of protocols and standards arising within the TSS are the foundation of any such technological processes. These inform the range of intertwined pathways that overall make up the defined pathway of radio.

For the participants in the Regime that is 'providing' the pathway that radio represents, the effects are wide-ranging. When the Regime of Amplification choses to deploy a radio transmission system, it commits a certain amount of the life-energy of its constituents to establish the coherent and ordered system necessary to procure the protocol-driven pathway. Individual participants will have to exchange some additional life-energy for a radio 'receiver-of-energy' to assuage the loss of life-energy arising as a consequence of the initial Regime demand for their direct or indirect life-energy. The participant may or may not directly input life-energy into the establishment of a collectively determined pathway, but is required at least indirectly to do so by *paying attention*[114] to it. The Regime will 'encourage' every participant to demonstrate a

114 Attention is explored by scholar Michael Goldhaber in several articles from the intriguing point of view of the "attention economy," a term first used in 1971 by political scientist Herbert Simon. Goldhaber

desire for its potent expressions. This is the conditional price of participation. Sustained resistance to this condition results in the marginalization or expulsion of the individual from the overall system. The Regime may also make the absolute demand that the individual both 'own' and listen to one of these receivers-of-energy in a specifically prescribed manner. This is so that the Regime can extend its system of command-and-control and ultimately guarantee its own viability.[115]

Simply put, radio is a techno-social sub-system that depends on a variety of available energy sources in the greater Regime to power its amplified 'voice.' It is important to keep in mind that it does not, cannot, exist independent of the overarching TSS. The electrical power system that drives production and operation of the radio pathway is simply another set of pathways dictated by the needs of the TSS and that is, again, based on individual human life-times that are spent on sourcing, maintaining, and driving all of these sub-systems. There is no Regime without the explicit participation of a human collective that produce it through a direct and/or indirect expenditure of their life-energies spent on concentrating distributed energy sources in particular limited locations. This application of wide-scale alteration of flow is what underlies all Regimes of Amplification, all techno-social systems, and ultimately, all life.

Coda

Artist and techno-social activist, Armin Medosch (2006), in pondering the current situation and its potential for innovative action notes that:

> Around planet earth a tight information sphere has been formed. Whereas some artists explore this thicket of global communication networks with various probing techniques, it becomes increasingly clear that it does not make much sense to add just another communication channel to this already Babylonic mess.

He suggests that rather than participating in this 'mess' that the Regime has spawned, a creative strategy of turning away to create ones own systems and protocols of communicative connection and energized expression where

> artists focus on experimenting with their own signals and systems instead of relying on the commodified information infrastructures of the global media sphere. By creating mobile ad-hoc networks or by pointing antennas towards outer space or the depth of oceans artists literally open

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suggests that "[a]ttention … is an intrinsically scarce resource," that may be used to "enthrall" (enslave!). When attention is flowing towards someone that person gains a potential that can be converted into physical action by the enthralled. "A conversation is primarily an exchange of attention" where information is secondary to the need for this scarce commodity (1997). 'Paying attention' is essentially the same process of giving life-time and life-energy to someone, to a social energy bank (a social system), to The Regime.

115 Of course, the T.A.Z. exists interstitially within this pathway as in most others: pirate radio, jamming. micro-broadcasting, HAM radio, 'public radio,' streaming media, and so on. Control is never complete! For its purposes, the Regime maintains a more and more precise control system over the electro-magnetic (frequency) spectrum as (digital wireless) radio devices proliferate within the TSS. The specific history of development of this energy pathway would take many thousands of pages. The archaeology of (any recent) technological development is a fascinating place to start in the task of unraveling the pathways of energy expression that the TSS generates as it evolves.

up the horizons towards the possibilities of a new way of seeing and interacting with the world.

The next chapter will explore some of the profound consequences of the amplification systems that I have just framed. Creative engagement with these systems is dependent on an understanding of the flows of energy that they are comprised of. The deeper the understanding of those flows, the greater the potential to implement profound *and* subtle idiosyncratic alterations. These alterations, by establishing alternate pathways, have the potential to fundamentally de-power the Regime.

6 :: The Consequences of Amplification

Introduction

This chapter continues from the previous with an exploration of various essential effects that amplification processes apply to the systems they are a part of. This is followed by a look at the role of the abstracted instruments of money and code as deployed protocols directing many energetic relations within the Regime. It concludes with comments on how the individual is situated within the Regime, suggesting possible pathways of activated presence.

Amplification models a fundamental feature of life as we understand and experience it: a basic process rooted in a primary characteristic of the cosmos—that energy and energized matter are distributed unevenly at all scales—that *difference* exists. The term difference is used many times in this text, and it points to a fundamental character of reality and how we interact with it. Gregory Bateson's (1970) approach emphasizes that difference is crucial to the existence of consciousness of mind and that difference (between) is *the* source of information:

> In fact, what we mean by information—the elementary unit of information—is a *difference which makes a difference*, and it is able to make a difference because the neural pathways along which it travels and is continually transformed are themselves provided with energy. The pathways are ready to be triggered. We may even say that the question is already implicit in them. . . . Difference which occurs across time is what we call 'change.' . . . Every effective difference denotes a demarcation, a line of classification, and all classification is hierarchic.

Sourced in the potential gradients of difference, amplification processes tend to *increase* difference and consequently tend to push a TSS towards the hierarchic (knowledge/power) end of the net/archic scale.

Amplification pathways exist at many scales, from the microscopic and cellular to the macroscopic and cosmic. These pathways exist in deep relation to the anisotropic distribution of energy and and energized matter in the universe. As a fundamental process of altering those distributions, Life is inextricably bound to the flows that take place between and among the differing energy distributions. It would appear that life itself as it is revealed to us is an emergent and self-organizing process rooted in the use or redistribution of energy. We ourselves do not escape our immersion in this process even when we cease viability as individual organisms. More than merely subject to that continuous redistribution, individual and collective human presence is an expression that is simultaneously participating in every scale of the process. Indeed, we ourselves are simply another integral expression of a common phenomena: the energy flows that we sense and attempt to model.

Ostensibly on an arbitrarily-defined human scale, it is our exercise of temporary and localized control over some amplification processes that most immediately affects our viability. Understanding the consequences of interacting with various energy flows and initiating alterations in them is of major import to our short- and long-term presence. Although it is difficult to determine whether one scale is more relevant than another in 'normal' daily existence, we need to recognize that all scales have the potential to completely alter these human-scaled energy flows. Indeed, the scalar framing of flows is simply a residual metric of a materialist Cartesian world-view. We do have the possibility of changing any flow within the slightly-less-than-infinite reach of our life-energy. This is a process exercised within the continuum-of-relation that surrounds our collective experience of presence. In the end, if all phenomena (of reality) are intertwined, *connected*, then by effecting any internal or localized external change, we do change the entire cosmos.

Consequences

Amplification applies changes to the entire system that it is occurring in precisely because it is a fundamental re-distribution of the energy and energized matter. Arising from the complex human re-configuration of energy flows, large-scale imbalances directly impact the viability of billions of humans and the social systems that they participate in. When systems are out of balance—a situation that suggests that differential energy flows are in close juxtaposition—the probability and potential of the catastrophic change in or failure of a defined pathway increases. These types of adjustment are readily observed in the 'natural' flows that proceed around us at many scales. Humans are rather often caught in the cataclysmic release of energies that a TSS prompts either overtly in war or as a side-effect of attempts to control 'natural' flows.[116]

The process of choosing what energies we wish to have enter our individual body systems is directly affected by the indigenous environment and the existence of avail-

116 The wide-scaled alterations in the Mississippi River course called the "Old River Control project" by the Army Corps of Engineers and their cumulative affect on all of Louisiana and especially the 9th Ward of New Orleans comes immediately to mind. Writer John McPhee framed the Corps' attitude: "For nature to take its course was simply unthinkable. The Sixth World War would do less damage to southern Louisiana. Nature, in this place, had become an enemy of the state." (1987, p.4)

able pathways that we might easily tap into. To construct our own completely idiosyncratic pathway is impossible partly because of the evolutionary specificity of our body system but largely because of the prior existence of the pervasive and ubiquitous human TSS that we are immersed in. Pre-existing external human-influenced processes now affect all body input systems, from reproductive processes and sensory inputs, to the food we consume, the air we breath, and the water we drink. While it is still possible to physically relocate to where the direct affects are mitigated or diminished, our collective presence as manifest through altered flows is now *experienced* throughout the entire planetary system. Although human be-ing and presence, like any other energized phenomena, has always had some effect, it now sets an ever more (technologically) *altered* initial condition to individual presence. That condition is circumscribed by the global presence of the TSS and specifically the current Regime of Amplification.

That energy distributions change during the life-time of a system, exerting a pressure to re-arrange flow pathways, is a primary condition: as a normative condition of life is does not in and of itself signify a problem. However, fluctuations of energy that exceed the normal adaptive abilities of a system will occur.[117] When a system is exposed to a spatial or temporal surplus, concentration, or saturation level of energy, there is a range of compensatory responses. Saturation occurs when the system receives more energy through a specific pathway than it can safely utilize or attenuate. It eventually causes either a partial or total breakdown of the system. Partial breakdown is usually evidenced by some form of paralysis or the breakdown of certain sub-systems.[118] That is, unless the system adapts to the excessive flow. An excess energy source that comes more slowly in contact with the system provides the opportunity for adaptation if the system is flexible enough. Adaptation 'rewards' the system with access to extra energy that subsequently allows further hierarchic differentiation through the subsequent use of those energies in amplified expression: a cyclic increase in system complexity and viability.[119] The system will also use this source to evolve and extend its overall command-and-control structure deeper into constituent sub-systems. In the case of the Regime, this has the direct affect on individual participants of reducing overall self-determination, idiosyncrasy, and individual autonomy. The Regime also widens its spatial presence, thus securing other energy sources. An expanding sphere-of-action results in the system codifying—via protocols and standards—more pathways in greater detail which in turn make it increasingly difficult for the system to adapt to future change. As observed previously the consequential accumulation of knowledge places a burden on the system in that it now has to expend energy on the retention of this information into the future, at an energy cost. On

117 Entering what has been labeled by some as the "Sixth Great Mass Extinction" event that the planet has experienced since it formed, humanity faces what may be a cataclysm of a scope not witnessed by the human species before. (See for example Barnosky, et al., 2011; McElwain and Punyasena, 2007)

118 Again an argument originating with the over-consumption of food may be made: the epidemic level of Type II diabetes—causing body-system breakdowns— is one result of a saturation of high-glycemic food sources (see Riserus, Willett, & Hu, 2009; Wild, et al., 2004; Bergman, 2007; Bloomgarden, 2004). This brings us back to the obesity epidemic that points to over-consumption/production of food that is connected to availability of hydrocarbon-sourced fertilizers, and so on.

119 The temporal connection between the burgeoning availability and consumption of 'exotic' energy stimulants (coffee, tea, sugar, tobacco, cacao) and European intellectual 'enlightenment' is not coincidental. (See North & Selwyn, 2008, pp.153-168; and Melton, 2001, pp.244-253)

differing temporal scales, excess will always threaten viability. From the outside, the failure of the system may appear to be catastrophic or gradual but these observations are relative to the temporal and spatial frame of reference.

Scarcity also causes fundamental stress in any ordered system. It arises as a direct reciprocal of the process of concentration. The Law of Conservation of Energy, the First Law of Thermodynamics suggests that whenever there is a concentration of energy or energized matter, there is a equivalent decrease elsewhere.[120] Although all organismic systems do include some provisions for energy reserves there is a break-even point where gathering and maintaining too much reserve energy actually compromises immediate viability. Unless alternate pathways can be established that can make up for the loss of a necessary source, the overall presence of the system is compromised. The system is weakened and begins to shut down certain sub-systems which further reduces the possibilities of efficient self-regulation. The TSS is forced to decrease its overall expression, perhaps shrinking spatially, temporally, while at the same time lowering the integrity and degree of internal command-and-control. In this weakened condition, new or existing energy sources cannot effectively be located, concentrated, or utilized, and the level of order of the system is further compromised. Eventually, stored knowledge for interacting with the environment is lost. The final result being the return of that once-ordered system to a state of chaotic dispersal: collapse.

The relationship between the individual body-system and the TSS is critically tempered by the existence of these extremes—both in the excess and lack of necessary energy flows—and the wide range of possible variation in between. Whatever the situation with external energy resources, a participant in a TSS is required to proffer some life-energy to the system. This is the primary affect on individual be-ing. In the simplest case, this is accomplished when the individual contributes (spends!) his or her life-energy—within the protocolary pathway designated by the TSS—for a certain amount of their life-time. This has the direct affect of building up a substantial reserve energy source for the TSS, what I call the "social energy bank." This is essentially the same process as in the "1+1=3" of the network and of Dialogue.

The actual individual 'spending' process might appear to be more complex, but it may be as simple as 'paying attention' to the amplified and mediated output signals of the Regime. The act of paying attention is deeply affective precisely because it is the spending of life-time. Every moment of life-time spent paying attention to the output signals of the Regime is energy spent into that social energy bank: the Regime gains in its potential. This is because the attention paid to specific pathways of reception, pathways defined by the Regime, subjectively reinforce and optimize the use of those pathways by the Regime. The limits applied by these pathways determine the degree of personal autonomy available to individual participants. The amplified expression of the Regime becomes a field of applied action for its continuance—along with its formations and pathways of power. The amplified signal at all scales is by nature an expression of the ultimate desires of that Regime. Whenever the Self confronts those mediated flows

> [t]he problem is to find a form of association which will defend and protect with the whole common force the person and goods of each asso-

120 It is no coincidence that many places where hydrocarbons are being withdrawn from the ground (and subsequently trans-shipped to the developed world) are plagued with (social and physical) *dis-order* and chronic under-development.

> ciate, and in which each, while uniting himself with all, may still obey himself alone, and remain as free as before. (Rousseau, 1762, p.8)

And so the question should always persist: Shall I *pay attention*?

Regardless of ideological stance, participation is never a neutral exercise, whether one approaches it from a social, personal, or environmental point-of-view. Participation has repercussions that are as wide as the span of the Regime organizing the amplified flow pathway; as wide as the sphere of application of the collective life-energies; and as wide as the distributed scope of energy sources currently or potentially being tapped into. When 'spending' life-time or life-energy, feeding them into the social energy bank, the individual is making a very real contribution to *all* these fields of action. This direct connection exists because the individual is the primary driving source of energy for the TSS. The actuality of the Regime lies in the energy expenditure of willing or unwilling slavery.

The individual will participate in certain ways via coercion or cooperation: by being the embodied sampling mechanism in a feedback system (the forward observer); by allowing their life energies to be controlled by the sanctioned pathways of expression and reception (the producer and consumer); by identifying and modeling flow mechanisms (the scientist); by developing protocols and standards (the engineer); by controlling the flows (the administrator); or by performing as part of an amplified signal at the point of application (the regulator). Or, arising within the protocols of the Regime, an individual might even break pre-existing protocols and establish newer, more favorable, more energy-efficient ones (the agent of change).

The reductive process of choosing certain flows to be amplified results in the differentiation of energy available within the Regime. Variation between individuals—specifically in the abilities of individuals to optimize their relation with available internal flows—has a direct influence on their position because of that hierarchic differentiation. Those at a nexus of energy flows are theoretically able to selectively optimize their overall situation far better than those who are located in a peripheral region of reduced or rarefied flows. However, at the nexus of the social energy bank with its surplus of energy, the flows are often more highly ordered and as a consequence, more deeply bound to limiting protocol and standard. At the periphery, a wider range of indeterminate and thus potential energy sources exist.

Individual social power is determined by how close the individual stands to the immense concentrations of power that develop temporally and spatially within the Regime. Its expressions of power depend on the abilities of those core individuals to efficiently utilize those substantial aggregate energy sources. Those same concentrations of energy have the capacity to destroy any individual whose body-system is not resonantly adapted to tap into precisely that prescribed flow. At the same time, individuals at the periphery of the command-and-control systems of the Regime are less subject to the shock of catastrophic change that may occur at the centers of power precisely because their existence is less strictly bound by the rigid protocols of the Regime.

Within any life system there exists a deep and continuous tension between change and stasis. An ordered TSS tends to be conservative and traditional for two reasons, possibly more: 1) optimization is strictly about the conservation of energy in the process of producing and maintaining a set of pathways and, 2) it functions under the restriction that newer and possibly innovative pathways are most often constructed on the infrastructure of preceding pathways: there has to be a compelling reason to shift

flows away from existing pathways. With individuals as for large social structures, there is a certain inertia where pre-existing pathways are persistently easier to use. This recalls Hebb's postulate regarding synaptic plasticity—on the wider social scale, tradition—things are done this way because this is how they have always been done. The entire Regime, as the coherent expression of its predetermined pathways is directly threatened by processes of true innovation: change threatens The Regime.

Cash or Credit - Faith in Code

There are two important concepts that have a deep bearing on the overall process of amplification within the Regime: the first is money[121]; and the second, the 'digital' or 'code.'[122] A full treatment is far beyond the scope of this text, but it is apropos to reflect on both in brief, given their influence on the contemporary operation of the Regime and their relationship to protocol.

Within the current Regime, more so than ever before, the abstracted instrument of social exchange, money, effectively obscures the pathways of energy flow. Much of the globalized Regime is regulated by a feedback system *mediated* by this abstract 'instrument.' Money, especially as a driver of optimization, is largely abstracted from the energy flows that it is deployed ostensibly to regulate. The use of money is rooted in the reliance of large and complex social systems on externalized collective memory and thus abstracted systems of representation. Within the energy-based world-view I propose here, money is ultimately a socially-formulated, variably convertible abstraction of life-energy. Provision of legal tender by the Regime controls the value and general usage of the instrument. Its value is also affected by the trust of those participating in the Regime—a trust in the conversion process from the abstract to real and vice versa. Abstraction obscures the direct relation of life-energy inputs and outputs in relation to the social system. There are direct and indirect correlations between money and real energy exchange, but exchange of monetary 'value' is *not* the exchange of energy. On the contrary, amplification *always* requires real energy movement: it is fundamentally not an abstraction of energy. To trace the pathways of power in the Regime, it is vitally important to look for the actual flows of energy and to not get lost in the labyrinth of abstraction constructed around money.

Code and money are both likewise abstracted representations of Power that have to be actualized through two means: 1) a social system comprised of participants who choose to believe in the potential of the abstraction to causally effect material change in their embodied existence and 2) a way for the abstracted instrument to interface with 'real' (energized) momentary existence. Abstracted power has to have a way to apply change to individual and participatory life: it has to be *delivered* (as the essence of that change). The contemporary obsession with the top one percent of fiscal wealth-holders is largely misplaced because it focuses on abstracted monetary instruments rather than the pathways and concentrations of 'real' power/energy. The emphasis on the abstracted instrument permits the real power (structure) to remain

121 "Where any view of Money exists, Art cannot be carried on, but War only" (Blake, 1820) was the pithy quote that sat as the header for my original "neoscenes" web site from 1994 until 2004 when it was finally replaced by an under-utilized Paypal donation button.

122 That is, computer code or any other system of laws, rules, regulations, signals, or instructions that act to direct actual flows of energy. (from Latin *cōdex*, later spelling of *caudex* trunk of a tree, wooden tablet, book, code of laws. (OED))

intact, uncontested, and *in control*. And, perversely, the control arises cumulatively from the belief of both the 99% and the 1% in the system that has deployed the instrument. If the 99% stopped believing, the 1% would have no power over them. The 1% would have no power except to the extent they controlled 'real' flows of energy.

Code describes what a digital device can or should do in the abstract. Code needs the device (a configuration of energized matter) to realize its human-defined intention. Code without a consequent transmission of power (kilo-calories, joules, mega-watts, whatever) is a complete abstraction and is of no consequence except as it persists as a temporary trace in the memory of the coder or the device. The machine or interface that actualizes the code is embedded in a specific field of power flows (i.e., the electrical generation and delivery system, manufacturing systems that depend on transportation networks that depend on hydrocarbon fuel power, etc.). This larger techno-social infrastructure is essentially a field of directed energy flows that depends on a whole host of humans *believing* that the code, via that system, will actualize improvements in their lives. If doubt arises that the code will not succeed in this, the whole system begins to unravel. If it becomes clear that the code is failing to bring vital power to the user, they will stop putting their life-energy into propping up the system that deployed the code.

Codes—of religious teaching,[123] of social behavior, of the machine, and of economic instrument—all share the characteristic that they are completely dependent on being actualized this way, else they have no power. In the end, code is merely a socially prescribed pathway along which, potentially, real energy may be induced to flow. Because code, *the codex*, is especially efficient in the generation and deployment of rigid systems of protocol and standard, and most of all, command-and-control, code, as a system of digital representation, becomes more and more ubiquitous across the Regime.

Belief in code(d abstraction) produces a shared or centralized capital of potential power, but there always needs to be a tangible means for translation from code to embodied be-ing. The body is the primary means for code to become lived action or the source of applied and energetic change. It is the minimum device necessary, all other devices are simply collective amplifications of the body-as-energy source.

The present Regime, as any other, may be described as a hybrid code/energy (digital/analog)[124] system. The difference between the two correlates with the abstraction process between money and energy. A digital signal is digital only in a static and dormant (potential) and provisional sense. Just as money is the abstracted social representation for (potential) real energy exchanges, the digital (as an abstracted protocol for the organization of information) is a representation of what is, at base, a movement of energy. Digital information is a representation of some originary flow of energy 'out there': when the digital it is in motion, it is analog. Amplifying a digital

123 "Apparently, all societies develop religious institutions that give human individuals learned programs of dedicated behavior. Cultures prevail that motivate people to contribute to the maximum empower of society, but poorly adapted religions interfere with optimum functions. With the expanding role of society on Earth, the ethics of human behavior requires morality on a larger scale not much covered by earlier religious teaching." (Odum, 2007)

124 The digital is the abstracted (sampled) representation of the analog: a sampling of a flow that reduces the energized sample to a numeric (abstracted) coded value. This is the essence of a "digital-to-analog converter" that is the primary interface between the world of flows and the abstracted world of code. D-to-A conversion is a form of amplification.

data set does not impact the nature of the digital data-set in its abstraction. The amplification of a digital 'signal' is fundamentally the amplification of an analog signal: it is coded abstraction coming-to-be. By the discrete and representative nature of the digital, amplification is only an issue at the analog input and output. A unit of data on a spinning hard drive disk is a temporary set of aligned magnetic dipoles (which take energy to align!). To transfer data is to duplicate the highly ordered arrangement of dipoles in another location through electromagnetic amplification (and transmission) following a precise pathway within a highly defined and strict set of protocols: what is the sound of one bit flipping? Duplication/transmission *requires* the movement of energy.

For the body-system to interact with the digital, a movement of energy is necessary. The body cannot 'be' digital, it is embedded in and interfaces with the universe through the movement of energy. *It is vitally important to keep in mind that our 'interactions' with the 'virtual' or the digital require a complex global deployment of interdependent energy amplification pathways within the Regime.*

Coda

Our present deep-rooted relation to the digital and to media should remind us that we live immersed in a multi-layered and complex Regime of Amplification. This Regime requires energy sources to maintain its structure and the coherency of its amplified flows. Without energy sources its order will tend to disorder. *We are its primary energy source*. When we give our life-time into that system we are directly contributing to any and all formative pathways and mandated expressions of amplified energy that the Regime makes. We are also participating in the entire globe-spanning infrastructure of the TSS that the amplification process is built upon. In the process of participation, of paying attention to the flows of the Regime, of speaking in its codes and protocols, we have surrendered a portion of our life-energy in service of that amplification. Our life-energy is the force that actively expresses our personal autonomy, freedom, and self-determination: those are the fundamentals we surrender.

The wholesale human reconfiguration of surrounding energy flows has holistic consequences that we are only now beginning to recognize. Human intervention in global processes as a removed and god-like hand is more and more frequently discovered to have repercussions of indeterminate scale. These effects more than hint that we are not the omnipotent and detached observers we thought we were. With even cursory observation the consequences point to the reality that we are not separate from those (altered) flows at all! The difficulty that humans have comprehending our immersion in those flows and the magnitude of the effect our living has on the world is reason for some despair. Humans have constructed global systems of amplification that influence every aspect of the fundamental human (energy) needs. However, we are only one expression of this wider living system. We are merely localized expressions of self-organizing Life. We, therefore, are subject to all cosmological principles. We and all we do are 'natural.' This alone should be a reminder that the natural laws that our abundant neural systems perceive and codify apply to us as much as any.

> We often act as if we were not animals and did not have to live in a symbiotic relationship with our surroundings. We behave as though we were not part of the total ecology, as though in some way we were priv-

> ileged and could throw our weight around *ad libitum*. This, of course, is perfectly untrue. We are part of the natural order and must conform to the rules of that order. (Huxley, 1962)

If our be-ing, embedded in this system, distributes the energy of presence far and wide to influence myriad, what is a reasonable path of action? Are there alternatives? Yes and no. No, it is not possible to permanently or completely extricate oneself from the globe-spanning TSS. Nor is it possible to completely subtract ones life-energy from the equation of globalization and the ensuing techno-social processes of amplification. But, yes, in the sense that an awareness of which pathways we contribute to—both in receiving or transmitting our life-energy—is a crucial first step in countering what seems an inexorable decline in personal autonomy within the Regime. Unless we free ourselves and the flow of our life-energies—as they come, as they go—in relation to the flows of power that underlie the abstracted social exchange system, the Regime will efficiently absorb the life-energy of our unhindered participation, attention, and presence. Without that awareness, our life-energy will *de facto* flow toward enhancing the Regime: a contribution that may or may not enhance the sustainability or creative viability of our own lives. Our essential creativity should not be squandered; our dialogues, our creative practices, our arts should be be aware of all this. In the next chapter I will present several recent projects that demonstrate this awareness between the world-view articulated so far and my own creative media arts practice.

Based on the current global situation and what I have framed so far, it would appear that an *effective* awareness cannot be accurately framed or expressed through the traditional (and dominant) materialistic world-view. An approach positing the complete connectedness of cosmos-spanning energy flow that *includes our Selves* runs counter to the dominant world-view. I believe that a more holistic and inclusive view is necessary to understand the dynamic of our presence on the planet and in the cosmos. With a wider (and deeper!) view, and an implicit sense that we are part of everything else, it is not difficult to begin to see the correlations between our collective existence and the saturating effects of the Regime we are embedded in.

Of course, awareness is not action, and action, as the application of life-energy, is necessary to change the world. Action applied to shortening and minimizing the disruptive character of the pathways that we participate in seems to be one answer. But how to do this? The maxim of 'acting locally' would seem to apply, where the 'shortening' of net/archic system pathways could have the affect of reducing the waste energy generated by massive command-and-control feedback systems. The introduction of idiosyncrasy, a welcoming of difference, would also stimulate the opening of alternate pathways, having the affect of bringing the overall system into closer dynamic equilibrium with its surroundings.

We most impact the power concentrations of the Regime by cultivating an understanding of where our energy comes from, at all scales, where it goes, and most importantly, where our attention is engaged: on which signals, on which flows. In the process of paying close attention to the highly mediated, *amplified*, signals of the Regime, directed by its protocols, we confirm our reciprocal role as its optimized energy source. By (re)turning our creative attentions to the granular sources of the Regime—to the individual Others around us—and spending our life-energy, our lifetime in less mediated Dialogue with them via *our own protocols*, we immediately begin draining the Regime of its primary power source. We preserve those limited life-energies for more local and immediate encounters. It is within *these* energized encounters, these Dialogues between the Self and the Other, where transformation,

(r)evolution, and change are ultimately sited. As a media artist, it is this generation of localized protocols that is perhaps the most effective strategy to mitigate or even reverse the slide toward hierarchic centralization. It should be some solace that though we cannot escape the ultimate destiny of Life on the planet: *in the mean while we may choose to go with the flow of dialogue, embracing change in the Self and in the Other, here, now*.

7 :: Closing

Introduction

In the ideal I hope that you, the reader, rightly understood that the words here are only one trajectory through a creative practice as charted by an evolving energy-based world-view. After the more abstract discussion of the previous two chapters, in this concluding chapter I will sketch out some direct connections between that world-view and recent expressions of my creative arts practice. Following that I will then make a few final comments on the tech-no-mad (b)log and the keyword system it contains. And finally, I will make what I hope is not the last word in this Dialogue.

Hyvää ruokahalua![125]

It is no coincidence that many projects I have either initiated or participated in circulate around the encounters that occur *à table*. The holy energy of making, breaking bread, and sharing energetic sustenance is core to human social organization and relation. A shared meal is ever an intimate tableaux of human encounter. From the embodied energy necessary to prepare (or even grow) the food, to the act of shared consumption, I have a deep interest in the vibe of that encounter and how to facilitate the convivial[126] spirit. Given the Regime's wide-scaled re-ordering of the

125 Finnish: *Gjörðu svo vel, bon appétit*, g*uten Appetit, Skanaus*, *lift-lip,* etc.

126 Latin *convīvāl-is* pertaining to a feast, < *convīva* one who feasts with others, < *convīvĕre* to live together. (OED)

process of food production and consumption, the sustainable, sustaining re-introduction and application of private protocols is a creative imperative. Eating is far too crucial a function of embodied well-being to leave it to the vast and literal *waste-land* of monocultural production.

Theosophist, Hakim Bey (2003) is spot-on when he invokes

> Fourier and his concept of the senses as the basis of social becoming —'touch-rut' and 'gastrosophy,' and his paean to the neglected implications of smell and taste

as the basis or even root source for the radically activated social life. He subsequently emphasizes the profound import of the collective encounter:

> The essence of the party: face-to-face, a group of humans synergize their efforts to realize mutual desires, whether for good food and cheer, dance, conversation, the arts of life; perhaps even for erotic pleasure, or to create a communal artwork, or to attain the very transport of bliss—in short, a 'union of egoists' (as Stirner put it) in its simplest form—or else, in Kropotkin's terms, a basic biological drive to 'mutual aid.' (Here we should also mention Bataille's 'economy of excess' and his theory of potlatch culture.).

All of this is core to a humane and energetic practice of living. I am interested both in the procession of such events and happenings, but also in the effects they have on the dominant surrounding system. They tend to destabilize the Regime by injecting or surfacing an un-controlled T.A.Z. directly into it. As a setting for energized and sustaining Dialogue, the encounter in the kitchen and at the table potentially disrupts sanctioned social protocols and becomes the site for idiosyncratic experimentation, for cross-cultural exploration, and for resonant exchange. As I always mentioned when setting up the tape recorder for "the dinner series"[127] I never start the tape until the second bottle of wine is open: it is hard to leave the genial table without an excess of inspired energy! *Takk fyrir matinn!*[128]

The Archive

A significant portion of my life-energy is expended in maintaining a substantial personal media archive. I often ask myself: Why is this a part of my practice? Currently the archive numbers more than 200,000 digital media objects[129] that are meta-tagged and ready for use in *mediated* encounters with the Other. One long-standing and ongoing practice is to use these objects as a *re-source*, data-mining it for potential novel configurations of resonant and creative wealth. The (b)log is one such expression.

In the context of all I have explored here so far, the archive stands as an example

127 This long-term exploration of table mannerisms between 1990 and 1995 precipitated 400 hours of (archived) audio material, a frequently full belly, and plenty of good humor from dinners across twenty countries and through countless menus.

128 Icelandic: "*Thanks for the meal!*" or "*Thanks for the food!*"

129 There are also plenty of pre-cursor analog objects that either cannot be or have not yet been digitally scanned. There is not available life-time to do everything!

of externally stored memory. Recalling that to project ordered information (memory) into the future requires an energy input, large quantities of life-energy are spent maintaining this archive. Between the convertible fiscal instruments, numerous quadruply-redundant hard-drives, acid-free containers, and sheer life-time, the archive is a constant energy drain. On the other hand, it is a *source* when shared: of the energy put into it, some may be retrieved. The shared protocols of memory, of shared synaptic impression from events in the long past may be revived through these fragments; and perhaps the decrepitude of my twiLight years will be brightened with the formed and hoarded Light of years long past.

As an archivist, one has to have a source to gather from. My source is, as I describe it reverentially when asked: who I am with, what I am doing, and where I am.[130] Gathering traces of energy from the resonant continuum of lived existence evolves into the habit of having a text, audio, or camera-based[131] recording tool within reach much of the time. The subtle retreat from direct experience in order to create fragments of mediated life is a dynamic that reflects on my relationship with that thread of life as it passes by. Of the precise genesis and nature of that dynamic I am unsure. It could simply be an imitative act from early family experience, a *tradition*.

The question does arise (practically every day): why archive? Why be concerned with projecting memory into the future? Why compromise viability by pouring energy into augmenting and maintaining this ordered system? Is it a reaction to the fear of death, fear of not-being? This I cannot answer, but it is clear that when any system delegates too much energy towards information/data storage, that system is compromised. That is the case when the energy saved through using this information is exceeded by that necessary to maintain the archive. In the end, this life-sourcing ends along with life, and the archive begins immediately to disintegrate to disorder unless another life-energy source comes along to maintain it. Perhaps it is best to recall *memento mori*[132] and leave it at that.

Recent (net)work

The 'site' of much of my practice during the last twenty-five-plus years is 'the network.' I have consciously constructed a widely-distributed human network that is,

130 In a 'traditional artistic' endeavor this might read: portraits, documentary, and landscapes. However, in the sense of energy flows, it is a combined stepping out of and tapping into the energized trajectory of lived life. It seems that the stepping out of the flow is requisite for creating the energized fragments that persist into the archive's uncertain future. By placing myself into the nexus of my own lived-life, I also acknowledge the *presence* of the observer: where Quantum suggests that the Observer changes that-which-is-observed. This aspect of reality makes the process of observing and archiving all the more in need of reverential care and attention.

131 The flow-altering characteristics of optical glass should not be forgotten! It can be argued that the camera is a prophylactic for the vicissitudes of chaotic life-flows. I note a similar effect when recording audio—especially when wearing headphones—but there is an even more subtle effect that I believe also relates to the presence of the Observer. Perhaps this is precisely because the recording observer has to step into a form of attenuated presence and thus is slightly removed from full attentive presence. That absence is experienced in the surrounds.

132 'Remember that you will die.' This resonated in Steve Jobs' speech to the 2005 graduates at Stanford: "Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma—which is living with the results of other people's thinking. Don't let the noise of others' opinions drown out your own inner voice. And most important, have the courage to follow your heart and intuition. They somehow already know what you truly want to become. Everything else is secondary."

recalling the equation "1+1=3," the primary source of my creative energies. Through the sustained engagement with both old and new Others in diverse Dialogues, it is a constant and inspiring source.[133]

All creative movement and 'production' takes place within the continuum-of-relation and in this case within a particular TSS: The Regime. Within that, there is the 'Art World.' While others have pushed their creative process into more explicit and self-conscious dialogue with the dominant structures of that particular sub-system, I find it important to simply focus on the textures of widely and immediately available human encounter rather than on the rigid and stifling formalities of any self-limited 'world.' The entire Fluxus movement that I continue to be peripherally involved with[134] is an elegant and anarchic paean to the continuous flow of life-as-art/art-as-life. It is one of the rare creative *movements* where the vitality of individual life simply turns away from smothering social protocols and directly engages the Other.

My most recent 'work,' as noted elsewhere in this thesis, endeavors to make no material distinction between which social situation, what particular trajectory might become the next context for the human encounter. The general creative evolution may be framed in retrospect as the transition from the configuration of materialized objects to a participatory facilitation of networked flows. Therefore, for example, hybrid situations that are outwardly located within the social framework of educational institutions become open experimental platforms for facilitating other (online, 'technological') platforms that become the site for human encounter. In other words, a focussed exploration of the dialectic range between greater and lesser mediation and its effects on collective expression. If any encounter can take on the characteristics of the T.A.Z., there is the hope of maximizing its potential for transcendence!

Unveiled at Ars Electronica's Open-X venue in 1998 "neoscenes occupation," (nso) marked a formal beginning of this active facilitation work. With the goal to "re-create and re-new learning" as a "praxis embedded in the network that is community," nso spun off numerous international projects that have occupied both local physical (community) spaces at the same time as supporting a robust and critical presence in global tele-communications networks: "the occupation is of the network, is of each other's lives, is of being, is of body, it is of it all" (Hopkins, 1998).

A recent artist residency during my PhD research took place at the Center for Land Use Interpretation (CLUI),[135] a cultural organization with a residency program in Wendover, Utah, on a former US military air base. There, among other activities, I conducted "a conceptual and physical cleansing and re-ordering of the entire physical plant" (CLUI, 2010) constituting the residency compound. I called the process of the

133 This has been the source of much angst during the preparation of this thesis—the relative withdrawal from engagement with this network and in its stead, the more isolated Dialogues with highly mediated (and often dead!) Others. Learning to rely on these more distantly experienced resonances is a personal challenge.

134 I did some performance work at Al Hansen's "Ultimate Akademie" in Köln, Germany; shared some life-time and group shows with Mary Bauermeister, a Fluxus pioneer; worked with Nam June Paik's students at DKA, and many nodes in my mail-art network are of the Fluxus ilk.

135 CLUI "is a research and education organization interested in understanding the nature and extent of human interaction with the earth's surface, and in finding new meanings in the intentional and incidental forms that we individually and collectively create." The Wendover residency unit is on a former US Army Air Force base and is next door to the hangar that housed the Enola Gay B-29 Superfortress bomber (used to deliver the first human-targeted atomic weapon). The CLUI website is located at [http://clui.org].

residency "Energy of Situation." Writing about the residency and the process on the (b)log I noted:

> *Traditional art production is (merely) the (re)configuration of certain flows in the near (and far) surround of the producer. My approach generally falls under this model but deals with the reconfiguration process from an entirely different path. Entering a 'residency' is (merely) moving from one (life)-situation into another: we are constantly doing this in life, transitioning from one semi-stable configuration to another, with periods of more-or-less instability in between. If one leaves traditional temporal and spatial metrics behind, this process may be seen simply as the modulation of the constancy of flow. The particular conditions and configurations of a situation dictate the potential range of reconfigurations possible, given the energy input of the individual and the embodied life-energy/life-time that is available. A configuration is merely a sensually arrested set of changing flows occurring within a reductive purview (and is always relative to the observer)! There is the 'locally external' factor of the accessibility of external energy sources for reconfiguring, but if one approaches the situation as a more autonomous and self-contained instance, the range of possibility is limited just as life-time and life-energy is limited.*

Of course, it is important to recall that, consequent with the energy-based model, material expressions aren't material to begin with. They carry (sometimes resonant) energy along a determinate pathway for a time. They are temporal configurations of energized matter (or merely implicate flows, period).

Changing the course of nature

Another recent action/performance series (extending back about five years) is designated "Changing the course of nature" or alternatively, "Changing the course of history." It grew out of the fundamental principle that the embodied and living Self (as organism, as an expression of Life) *by its presence* alters the existing flows of the ambient 'natural' system: the system that the Self is (merely) an energized expression within. These performances are located *instances*, usually taking place in isolated (and resonant!) settings in the western US landscape where I happen to encounter water: (sometimes) an easily-accessible phenomena that presents the idea of energy flow with a certain universal attraction and intuitive simplicity. Fluid flow immerses and fills the body in water vapors, airs, sprays, and floods, while we also consume this flow directly, finding necessary sustenance for the body-system. Although the internal system is, topologically, simply an extension of the surface area of the external skin — both skin and gut are sensitive interfaces with submerging energized flows — with liquid energy flows everywhere.

Occasionally with audio, video, or still-photographic documentation, otherwise without, the works involve existing configurations of the world that seem auspicious to alter. Using embodied energy, and applying that directly to the pre-existing flows, I change the essential flow pattern from one form to another. It is an immediate and elemental process that taps into that basic life-function of altering extant flows through presence. It is a spontaneous, site-specific, and embodied practice, not a metaphoric or conceptual product or process. It resists and dispels the intellectual distance (pre-tension!) that "performance art" often takes in its highly mediated

cultural forms. It is usually accomplished without a direct audience, although it might well be 'experienced' later by someone who happens upon it. Even if not consciously aware of it, the careful observer may notice something *different*. "Changing the course of nature" is a application of energy that reminds my embodied Self of both the subtle and gross expressions of energized presence. The performances are also deeply connected to the play of childhood on the *verge* of creeks, ponds, lakes, and oceans.

Life-time is limited, so also life-energy: one who creates has a finite time/energy framework for imposing the implicit expressed order of creative endeavor. That order, configured in/as a 'form,' is transitory and always (immediately!) tends to entropic diffusion. Experiencing (a) creative *work* is to receive some of the energy that is diffusing away from the temporarily concentrated energy of order(ed form). In a continuous universe the ordered-though-dissipating energy configuration of a work is always ultimately received by the Other: a return of the "butterfly effect," or perhaps a realization that any tree falling in the forest is heard by *everything*.

There is a constant tension between the idiosyncratic and the known in the creative: flow directed by internally or externally sourced protocols. The creative individual is receiving energy through their particular life-trajectory, how they use those energies may or may not find any concurrent resonance among participants in the surrounding social system. Non-standard energy flow is a direct threat to system viability: it is also the source of the creative in how it opens novel receptive pathways in the Other. Drawing encounter into the unknown is precisely where the creative arises —where the Self leaves the known behind in the encounter with the Other is where the embodied is activated, open to receive flows, and where change happens. This is where I seek to situate my creative practice.

A final comment on the (b)log

The tech-no-mad (b)log archive and data-space that I introduced in Chapter 1 is an accretionary and likely a life-long project. As I stated earlier, the majority of the current project content is a direct outgrowth of the wide field of my PhD research. The remainder provides a life-practice-based context for the research. In its extent, content, and duration, it is a unique media arts expression of a nomadic pilgrimage within global networked spaces. Looking at both past and present moments, it overtly and covertly suggests ways to engage in a media arts, and indeed, a life *praxis* that transcends the consumptive materialism of the times.

The (b)log includes numerous detailed forays into the lived actualities that arise in the context of the arts and pedagogic practices I initiate from this evolving energy-based point-of-view. It is also in this context that the conceptual cross-over between the (b)log and the dissertation is of greatest value for elucidating the power of the articulated world-view.

The (b)log as yet represents only a fraction of the total size of my personal image, sound, text, and video archive. I am continually adding fresh content to it from the archive and from my immediate lived experience of the cosmos and especially of energized human encounter. These traces, expressions of lived-life are not the thing itself, they are the mediated creative output, and they are only a singular sampled side of a long-term and vital Dialogue.

The (b)log may be explored using a variety of meta-tools but most readily through the keyword (tag) system. Presently there are 350 unique keywords that cluster the content under a wide variety of concepts. It is this particular constellation of terms that forms a direct link between this dissertation text and the (b)log. Addi-

tionally, given the archival content, there are the options of searching by date (month, year) as well as category. It is also possible to do 'normal' Boolean searches for any combinations of text. There is an introductory 'about' text that outlines salient issues around the creative content and navigation [http://tech-no-mad.net/blog/about]. As of the date of publication of this text, the keywords (tags) are as per following:

> *50 years on, accident, action, activism, air, aircraft, airport, alienation, amplification, amplifier, animal, anisotropy, aporee, archive, art, artist, astronomy, attention, audio, auspicious, autonomy, awareness, bed, being, bibliography, bio-systems, birds, blockage, boat, body, boots, brainstorms, breath, breathing, bureaucracy, car, CH, change, chaos, code, collaboration, communication, communications, community, complexity, concentration, confluence, connection, consciousness, consume, consumption, continuum-of-relation, control, cosmology, cosmos, courses, coyote, creative, creativity, crisis, critique, culture, curation, cycles, cycling, death, decay, development, dialogue, difference, digital, dislocation, distributed, documentation, domination, of, landscape, dreams, driving, duration, earth, economic, editing, education, email, empire, encounter, energy, engagement, engineering, en route, entropy, equilibrium, esoteric, essays, essence, everything, evolution, exchange, exhibition, expression, eye, facilitation, failure, family, fear, feedback, film, filter, fire, flow, flying, focus, fortune cookie, freedom, future, geo-politics, geology, geophysics, glass, gravity, hearing, heart, hierarchy, hiking, historical, histories, history, holistic, housing, human, human landscape, hydrocarbon, hypostasis, Iceland, I Ching, iDC, idiosyncrasy, image, images, indeterminacy, inertia, influence, information, innovation, inspiration, intelligence, intention, interior, internet, interview, IRC, knowing, knowledge, language, learning, lecture, life, life-energy, life-time, Light, listening, locative, logfile, logistics, Loki, loss, machine, mail-art, mailing-list, post, materialism, matter, meals, meaning, media, mediation, meditation, memory, meta-structure, methodology, migraine, military-industrial complex, mind, model, money, movement, music, naming, narrative, natural, natural landscape, natural system, nature, neoscenes, netart, nettime, network, networkers, networking, night, noise, nomadism, notebooks, now reading, obligations, obstacles, office, online, openness, optimization, order, organization, Other, packing, pain, participation, passion, pathway, people, perception, performance, performances, personal, phonography, photography, physics, place, poetry, point-of-view, politics, portrait, potential, power, praxis, pre-tension, presence, process, project, projection, protocol, proximity, Qi, quantum, questions, quotes, radio, reality, reason, reduction, relationship, representation, research, resonance, resources, review, road, road-trip, roads, sacrifice, science, security, seeing, Self, self-portrait, seminar, semiotic, share, shopping, sight, silence, simplicity, simulation, skin, sky, sleep, sleeping, social, society, socio-cultural, socio-political, sotto voce, soul, sound, sound art, source, space, speaking, spectacle, speed, spirit, spontaneity, stability, standards, stasis, stillness, stream, streaming, stress, structure, students, success, sustainability, swimming, syllabus, synchronicity, system, T.A.Z., teaching, techno-social, technology, tele-presence, terrain, text, thermodynamics, thesis, things, third-party, time, time-lapse, tool, trans-disciplinary, trauma, travel, travelog, vehicle, version, version history, video, violence, virtuality, vision, voice, walking, war, waste, water, weapons, weather,*

weltanschauung, wildness, window, wisdom, words, workshop, world-view, writing, yoga

Coda

This text, accompanied by the mediated expressions of the (b)log, constitute the trace of a pathway leading away from the dominant Cartesian world-view. The cumulative creative expression, ensemble, illustrates the potential inherent within a simple relinquishing of the material relationships that populate that world-view. Substituting one world-view for another, it proposes another way of interacting with reality: a shift in point-of-view that is certain to significantly alter the way life is lived and consequently the praxis that springs from that life.

The premise of answering the question of what all this might mean from the perspective of a media arts practitioner as proposed in the Introduction is perhaps, at this point, moot. I do not say this to glibly discard a question that may be of import to some, but would rather reframe the claim that meaning generation, per se, is the most crucial process in this project. On first pass, I believe there are powerful intimations suggested in the articulated world-view that have the potential to change the reader's internal energy configuration. If you have made it thus far, you have consumed a significant piece of your life-time and life-energy in the process of reading this dissertation, and perhaps, in concert, consuming some of the expressions on the (b)log. These absorbed energies then become de facto sources of change in a life trajectory. This is more profound that a mere transfer of 'meaning': rather, it is fundamentally a result of direct resonance of one's mediated energy expression on the Other.

However, as countless others have discovered in life, the process of leaving energized traces of one's passage should not be seen to be an end, but rather a means or a *potential* to strike a resonance with the Other. Meaning is a subjectively shared metric that is almost entirely dependent on the life-trajectory of the individual seeking it within an Other's traces. I would prefer that the reader, the one who is experiencing the accumulated expressed output here and in the (b)log, simply look for and, especially, note points of resonance anywhere within this fleeting and transitory trace of a life. It is within an event of individual resonance with any creative, and, by definition, mediated expression that the precursor of meaning lies: that precursor is an (intuitive) awareness of the personal import of the source of resonance. The existence of energized resonances point to significant openings or pathways between the Self and the Other along which creative energies might flow. Meaning therefore is not a locus within a knowledge-space but rather the result of an unfolding flow between resonant sources within the dialogue of creative expression.

Life-time/life-energy flows within the continuum-of-relation. Presence is experienced. I have expressed much energy in the process of researching and writing this thesis. The highly mediated and occasionally resonant encounters with temporally and spatially remote Others have to now be put aside as more proximal, less mediated living is engaged fully once again. Dialogues continue.

And so, now, one road comes to an end. The vehicle runs out of gas, the engine shudders to a halt. Or the asphalt gives way to gravel which peters out to a dead end, no further hydrocarbon-fired advance possible. You open the door, leaving behind the glass-encased virtuality of the

driver's seat. You set your foot down on the rough ground. You look around, feeling the hot wind on your face, the dust making you eyes tear up. You pick a direction. That ridge over there, to the west, the view should be good. You set out. Watching the ground, the terrain, the prickly pear, the manzanita, the saguaro, the ocotillo, the cholla, noting potential sources of danger, the mountain lion track, listening for the spine-shivering sound of the rattlesnake. Each foot is placed with exaggerated care, with full attention: the edge that is approached is near. You keep walking until exhaustion creeps into your joints and you lay down, body crushing the undisturbed cryptobiotic soil. Everything looks different from here. You have changed you point of view through the motion that the body has provided over the years. You are different. The path you have forged and the pathways that you have followed have changed you. You have evolved. And now, you come to the end of the road. You have extended you life-energy as far as it goes. You close your eyes to the over-arching sky, breathing the smell of rain-touched sage and desert sand. And gradually you fall asleep to the smooth warmth of an up-slope southern wind; the winds bring dreaming. You are a transitory nomad on the face of the planet. But this is your home. Sun down, eyes open to the stars and sky, back laid on the earth, sinking back into dreams of the stillness of constant motion and what wonders will be uncovered in the next orbital revolution. In the dream there are no defined pathways to travel on, all directions are possible, the creative exists everywhere, all the time, and there is only the present, the now.[136]

136 With everything written and unwritten here, did I make it clear that I need not have the last word? I invite any of you who have actually made it to this point to drop me an email with *your* last words. Or, better yet, return this opening idiosyncratic flow with any response whatsoever. This is, after all, part of a Dialogue. <jhopkins@tech-no-mad.net>

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