

Zen and Artificial
Intelligence, and Other
Philosophical Musings
by a Student of Zen
Buddhism

Zen and Artificial Intelligence, and Other Philosophical Musings by a Student of Zen Buddhism

By

Paul Andrew Powell

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To Veronica's memory...

...and the live Walker, Brady, Hannah, and Eleanor

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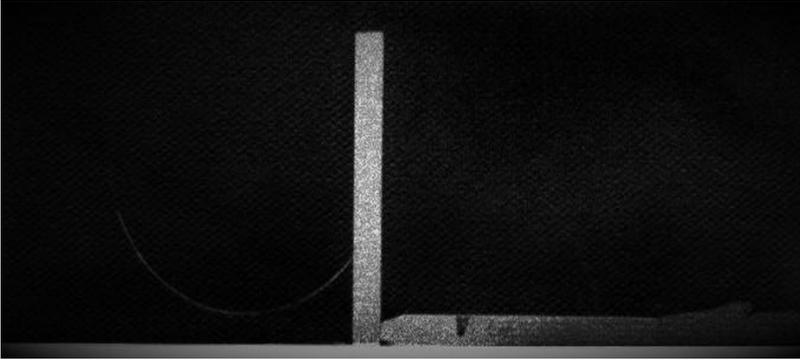
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PROLOGUE

INSUBSTANTIAL EMANATIONSⁱ



[Fig. 1. *Colorado Nocturne* (1995)]

For my part I know nothing with any certainty,
but the sight of the stars makes me dream.
—Van Gogh

1972: a hitchhiker’s guide to non-self

A high-school friend of mine, Adam C., and I set out to hitch-hike across the United States starting from our hometown of Rochester, New York, destination Los Angeles, California, where an uncle of his lived and where my sister lived. He was 19. I was 18. The idea was adventure, of course, inspired by (as were many then) the *On the Road* escapades and attitudes of the time. A few memorable events made for decent party stories—a job offer to pick peaches from, plausibly, serial killer Juan Corona near Yuba City, California; police throwing cherry bombs at us from a highway off-ramp in Buffalo, New York; a pile of rocks in the high desert outside of Reno, Nevada, that turned out to be the dead body of an elderly black man; a maniac drunk driver screaming “TURKEY BUZZARDS!!” over and over,

ⁱ Minor edits and revisions have been made to this edition.

who wouldn't let us out of his car; and a few other tales of similar nature. And some history happened, too: an assassination attempt on, then Alabama Governor, then presidential candidate, George Wallace, if I remember right; and a nasty riot took place at the state prison in Attica, New York. Of course, Neil Young's *Heart of Gold* and *Old Man* still stir in me considerable nostalgia; yes, but, overall, the trip to LA and eventually back to Rochester was mostly uneventful. Let's just say that neither Adam nor I discovered the Holy Grail of self-knowledge, which, though unspoken between us, was probably the wandering Romantic's hope, if only vaguely.

However, one experience in our journey did affect me, and in a profound way, but it wasn't self-knowledge I discovered so much as *non-self*-knowledge. And that experience is one reason why I wrote these essays.

It's strange to me, in hindsight, that during the entirety of the experience I will soon describe, which lasted maybe an hour—an experience that took place out on the Colorado-Utah border, proverbial middle-of-nowhere, high desert, scrub, desolate and lonely (see Fig. 1)—and even for years thereafter, that I never told Adam about it, with whom you can imagine, after a few hot and dusty, cold and wet, and wind-blown and otherwise weather-beaten vagabond weeks together along the shoulders of a couple thousand miles of unfamiliar highways and backroads of America, I had forged a close, if not necessary, bond; a bond acknowledged as much through knowing gestures, nods, sighs and grins, as by any talk, though we had plenty of time for that, too.ⁱⁱ But the truth was, nothing I could say could communicate what I had experienced. I realized from the minute it subsided that any attempt to describe what had happened, even to a trusted and open-minded buddy, much less a stranger, would come across as eye-rolling, mystical nonsense. It was better to defer any inquiries to Rumi.

And yet—here I write.

Back to the Colorado-Utah border, high desert, 1972.

Late one afternoon, a couple weeks or so into our trip, hitch-hiking somewhere in the Rocky Mountains west of Denver along the shoulders of Rt. 40, a pale blue, dinged and dented, late '50s, International pickup truck pulled over and offered Adam and me a ride. Two blond-haired, blued-eyed young men in identical denim jeans and jackets sat in the cab. The one in the passenger seat gestured with a thumb for us to hop in the truck bed. The

ⁱⁱ Yes, we all offer Zen-like transmissions daily, though we seldom consider them such.

driver leaned forward with a friendly smile, nodded, and said something in a foreign accent. It turned out that these two brothers hailed from Germany and like us they were on a summer road trip across the USA. Adam and I threw our gear in the truck bed and hopped in.

At dusk, a couple of hundred miles later up the road, the sun leaving an angry red streak across the horizon, and it getting damn chilly between the falling temperature (though it was the middle of summer), and constant wind blowing on us from our exposure in the open bed, the truck suddenly slowed and pulled over on the shoulder of the road and proceeded up a pair of barely discernible tire ruts in the dirt and scrub, up and over a bumpy hill, and then down and out of sight from the road. From my view looking backwards out of the truck bed, I watched a spooky-looking shack recede across the highway: what was once a roadside café, long-abandoned and dilapidated. A rotting sign hung ajar out front. The faded letters read: The Blue Moon Café.

We were now on rough but relatively flat ground—though the Rockies (I'm guessing the La Salles; maybe around Ouray, Utah?), loomed majestic in the distance, white-capped and massive and still. But this was uneven, hard ground, barren, mostly dirt, tufted here and there with sage in the rapidly dwindling light.

It soon grew pitch black. Exhausted, I unrolled my sleeping bag and tossed it to the ground. I wasted no time crawling into it. All I remember of significance before descending into the netherworld of sleep are the following three things: 1) One of the Germans said to me: "Be sure to zip it tight to your chin. The rattlesnakes like to climb in with you to get warm". I couldn't see if he was smiling or not. I wasn't sure if I should be, either; 2) I was so tired I didn't spend time considering the lay of the land, and after I crawled in, I realized my feet were elevated above my head. It was a little uncomfortable, but I was too exhausted to even bother to switch around. I have often wondered since if my elevated feet over nine solid hours of comatose sleep flat on my back had supplied my brain with extra blood and that this somehow triggered my soon to be described transcendence; 3) Eerily dark, immensely still, you can imagine, space-fans, out there in the high desert desolation, before light pollution, not a sound or a soul within miles (maybe a few rattlesnakes), how bright the stars shown above. I gazed straight up in silent awe and wonder at the sheer immensity of the universe, the vast net of glittering stars cast across the zenith: The Milky Way, that

brave ore-hanging firmament, that majestic roof, fretted with golden fire,ⁱⁱⁱ thinking about all the transitory pain in the world, and all the transitory tenderness, too. A heavy sigh, a sudden leap into hyperspace, and I fell into the deepest, most satisfying sleep of my life.

*

I didn't notice it at first, rolling up my sleeping bag the next morning, a cool, sunny morning—but then I *did* notice it: an inexplicable, super-pristine, clarity of mind like nothing I'd ever experienced before in my life. I looked around at the others, heard a few remarks about breakfast, a place to eat. But I had somehow awakened into a profoundly altered state of consciousness: I was no longer Paul Powell, a *thing*, an *object* in the world, I was now an empty vessel, invisible, devoid of thought and emotion, and incredibly *at peace*; an *insubstantial emanation of sensations* that seemed to hover ephemeral in the cool desert air. Voices floated, far off it seemed. I had no words. I scanned my surroundings, the sere desert scrub, the distant mountain peaks, my animated companions, the beat up old International pickup truck, at all the *insubstantial emanations of the world*. My mind was absolutely *blank*. But at the same time, something deep inside me sensed that the slightest utterance, *or passing thought even*, would violate this fragile and unaccustomed tranquility; this undisturbed equilibrium in the mind that somehow felt both infinite and eternal. Suddenly, and unexpectedly, I was completely at home in the universe: just an eddy in the stream, actions without an actor. And unlike other mornings, the usual cacophony of mentation did not rush in to colonize my consciousness.

How? Why?

Once you really commence to see things you really commence to feel things
—Edward Steichen

I sensed activity. I was part of it—and not part of it—the packing, the loading, the small talk—I nodded and smiled, full of silent and wonderful joy. Frankly (I'll go ahead and say it), it was *bliss*. Adam and I hopped back into the truck bed and we bumped and bounced along the rutted tracks, back onto Rt. 40, and again headed west. I watched Adam as he leaned back against the side of the truck bed, arms folded across his chest, taking in the scenery. He looked over at me, satisfied with the world, confirmed it with a nod. I could only grin back, a happy fool, high on my bliss. Everything was

ⁱⁱⁱ My apologies to Shakespeare.

perfect as it was. In fact, *it could not be otherwise*. I had nothing to say. Certainly, no words would add, and would only detract, from the ongoing perfection of each moment, the desert landscape sliding by at 50 mph, the pristine Colorado sky arching above, the incessant drone of the tires, the highway rushing away behind us; yes, and the fact of my own existence suddenly struck me as so inexplicable and preposterous that I spontaneously burst out laughing in sheer awe and wonder at it. Adam laughed, too, for no other reason than I laughed (another Zen transmission), shaded his eyes with one hand, squinted up at the sky, and got out his sunglasses.

A few miles down the road we came upon a roadside, log cabin-style restaurant and we pulled onto its gravel parking lot and hopped out of the pickup and went inside and gathered together, with a couple of somber truckers, around a massive community table constructed from hewn logs. I ate in happy quietude, witnessing the morning discourse from some remote aspect of myself. Shunyu Suzuki Roshi says: “Leave your front door and your back door open. Allow your thoughts to come and go. Just don’t serve them tea”.^{iv} Yes, my front door and back door were wide open. I did not serve tea to any thought. Thoughts passed through my mind like a summer breeze through a gateless gate.

We ate, paid up, and left the restaurant. Walking across the parking lot to the truck, I had a strange hallucination: I began to visualize a wall being built around me, a wall made of glass blocks; they were stacking themselves up, across and on top of one another, an invisible mason at work: my mind, stacking my thoughts, one-by-one, enclosing me, separating me from the seamless flow of existence.^v “*No. No*”, I pleaded in my mind, and with each “*No*”, another transparent brick materialized and set itself into place. But I understood what was happening, and I resigned myself to my great loss.

^{iv} A brief aside: Obviously, one problem we humans suffer from is that we habitually serve tea to our thoughts, distracting the natural flow of our perceptions with a gang of noisy guests. One might wonder if a kind of a neurotic split results if the tea party assumes its own, relative, self-sustaining existence. And if many of our mental health issues (if not many of our societal issues), might be proportionate in dysfunction to the distance between the open *doors of our perceptions* and the obliviousness of our crowded tea party. “*What is real?*” one of the more philosophical party guests exclaims in panic. A fight breaks out over tea, tea cups smashed, tables turned over. Does this sound familiar? Dukkha.

^v I can guess what you’re probably thinking. The answer is adamantly, “No. No mind-altering substances involved”.

“I am an insubstantial, transitory *process*”, I thought, “empty, in a way”. A semiotic murmuration of signs within a lexical field of consciousness. In Self Organized Systems Theory the organizing principle for this semiotic murmuration could be called an *attractor*, in Zen, *anatta: non-self*.

For the listener, who listens in the snow, / And, nothing himself, beholds /
Nothing that is not there and the nothing that is.

—Wallace Stevens

INTRODUCTION

ON METHODS, THE AESTHETICS OF NOVEL IDEAS, AND THE VALUE OF A TEXT



[Fig 2. *Playful Engagements* (2017)]

Play is the highest form of research.
—Albert Einstein

Before Zen, ideas were ideas.
During Zen, ideas were no longer ideas.
After Zen, ideas were again ideas.
—the author

Playful engagements

I have controversial ideas about the afterlife, the nature of consciousness, and much else, including both Buddhist and Christian metaphysics, consciousness and artificial intelligence, Hobbits as Buddhists, infinite games, free will and the authentic moral self, all concocted from a range of disciplines.

Can a Near Death Experience attain eternity in subjective brain-time?

Is consciousness a function of global, neurophysiological information funneled into linearity by self-referencing language?

Are Buddhist and Christian metaphysics fundamentally opposed?

Can a machine attain consciousness and even enlightenment?

Is J.R.R. Tolkien's most famous bad-guy, Sauron, a trope for the human ego?

Would not the current postmodern condition more accurately be termed The Age of Novelty?

How can there be a moral self in a determined world?

These are the questions I explore, along with many others they inspire, in the following essays.

Zen and Artificial Intelligence explores the possibility of machine consciousness, but further, should a machine become conscious, could it then become enlightened? Taking a moment to think about the creation of artificial enlightenment, the paradox becomes clear. In order to manufacture enlightenment, we must as well manufacture samsara, since, for a Buddhist, enlightenment is the *event* of deconstructing the problematic nature of *self* within its mutually arising samsaric environment. We first look at the nuts-and-bolts problem of creating a *self* from metaphor and then move on to

speculate on the “hard problem” of creating a machine that not only responds to our voice, but actually hears it. My Zen practice offers a not so sanguine view of the prospects.

Hobbits as Buddhists and an Eye for an “I” asks the question: Is there any Zen Buddhism in *The Lord of the Rings*? One observation a Buddhist might make here is that Sauron’s solitary eye could be interpreted as a trope for the pronoun *I*, that is, the highly problematic human ego. And that Tolkien’s story, as with Zen, suggests that a world liberated from this *I* would be a healthier and more enlightened world. My reading is that the highly influential god of the Old Testament is a morbid deification of the human ego and that Sauron, in turn, is a stand-in for this abstract god of rules and rage, who Tolkien deconstructs within the narrative of an ambitious new mythology. Instructively, and like the Fellowship, Buddhists as well understand that human suffering possesses an underlying and vulnerable source which can be overcome in human terms, and this vulnerable source of suffering is the human *I*.

Infinite Games in the Age of Novelty, although a bit dry setting up the issue, the essay relaxes into broad exploration of the academe’s role and responsibilities in “situating” (or as we will suggest, in “de-situating”) the student into the academy; uses Zen Buddhism as a frame, and grounds, for de-situating; introduces philosopher James P. Carse’s notion of the “infinite game” as grounds for de-situating; suggests that within academia, the Humanities and the Arts offer environments for de-situating; and, finally, an assertion that our current era be called *The Age of Novelty*, as this era manifests the growing novelty emerging from our present, global de-situated condition.

What Dreams May Come: Eternal Near Death Experience in Subjective Time and its Implications for Christian and Buddhist Metaphysics. The central assertion here is that a dying brain creates a fully sentient, lucid hallucination experienced for eternity in subjective brain-time. This assertion is based on the following research and speculations: 1) A stress response in the dying brain floods the brain with near infinite nonlinear information (i.e., spreading depolarization). 2) Within a Near-Death Experience, a self-aware, rational, and creative agent’s capacity for processing information linearly is limited at 40 +/- bits/s[ec]. 3). When the spreading depolarization is radically conflated by the self-aware agent’s linear processing capacity, it undergoes an informational phase-transition expressed in subjective consciousness as extreme time dilation in a fully

sentient hallucination. 4) Based on the above, the essay goes on to suggest implications for Buddhist and Monotheist metaphysics.

Zen, Free will, and the Authentic Moral (Non)Self tackles the tricky issue of free will and morality. At one time (and still in many cultures today) the natural world was perceived as being filled with spirits. A violent thunderstorm moves in and *the mind projects agency* onto the storm: Storm god is angry and demands a sacrifice! Perhaps someday, ages hence, sophisticated people will look back, bemused, at how we primitive types attributed agency to ourselves, and to each other! (In a seemingly unshakable, though not usually “wide-eyed”, suspension of disbelief.) We project agency on human behavior which is also nothing more than staggeringly complex biological and mental processes. Moral chaos? These are the concerns of the ego stuck in *samsara*. There is *one* act of free will—but only one. It represents the only *authentic* act of free will we have: the choice to be *awake*, or to be asleep in discursive, conditioned ignorance.

An Attractive God: Eastern religions assert various descriptions of the *Veil of Maya: the cosmic illusion that the phenomenal world is real*. That is radical philosophical Idealism. As a Buddhist, myself, and based on my own practice, I accept this Idealism, and therefore, in keeping with the general idea behind these essays—that is, trying to make sense of Eastern Idealisms from various aspects of Western Materialism, and vice versa—my curious, rational side, the side that wonders not *Why?* but *How?* has developed a theory on the so-called “Hard Problem” of consciousness: Just as ice, water, and steam are all of same molecules in phase transition; the Logos, sentience, and time are all of the same neurophysiological *information* in phase transition, where the Logos, as an *attractor* (as described in Self Organized Systems Theory, and as non-self in Zen), functions as the organizing principle.

My method of inquiry

Framing the topic. One problem for anyone tasked with teaching college students how to write interesting and original essays and papers is getting them to come up with interesting and original ideas for essays and papers. A strategy I often used to jog a little creativity into my students’ writings is as follows: First, I would ask them what happens when you combine two gasses, Oxygen (O) and Hydrogen (H)? Of course, you do not get another *gas*, you get a thoroughly unexpected and fascinating and *novel* result; you get a *liquid*: water (H₂O), a completely transformed expression of matter.

(Who'd a thunk it Buddha? as I often say.)ⁱ So, next I would have one student, for example, a nursing student who wanted to write a paper on working in a hospital emergency room, and another student, a sci-fi enthusiast who wanted to write about the International Space Station, sit together, and I would challenge them to come up with a paper. The result? A paper about working as medical staff on the space station. Or a student who wanted to write about legalizing marijuana (common topic in Colorado), and a student who grew up on a cattle ranch and wanted to write about the cattle industry. The result? A paper on the possible medical uses for cannabis in the cattle industry. Or a student who kept pet snakes (big snakes!), and a student worried about a brother, just returned from the Iraq war, with adrenaline addiction and PTSD and who was engaging in dangerous activity (high speed motorcycle riding) to satisfy his adrenaline fixation. The result? The possible use of snake handling as a harmless therapy for weaning an individual off their adrenaline addiction. Okay, I know, freshman college writing, and yet, I think you see where I'm going here.

In each of my essays, I have tried to combine Hydrogen and Oxygen, so to speak, in hopes of arriving at something novel to write about.

My Hydrogen?

- a) Technology: artificial intelligence
- b) Literature: J.R.R. Tolkien's *Lord of the Rings* Trilogy
- c) Education and Society: the role of the Humanities in education in today's post-postmodern society
- d) Philosophy: the notion of free will and morality
- e) Most ambitiously, information processing as a basis for the afterlife and the nature of consciousness.

My Oxygen?

My Oxygen has remained constant throughout each essay; that is, the knowledge and insights gained from my study and practice of Zen. Therefore, however else you might judge these essays, I hope that you will at least find them interesting and novel.

ⁱ I always seemed a little more fascinated by this than my students.

I am a *student* of Zen

I purposefully use the phrase *student* of Zen throughout the book to avoid mistaken assumptions that I am in any position to be offering spiritual advice or insights (though as you will see, I can't help myself from time-to-time. Take it or leave it, please). Yes, I meditate, and I also practice Ta'i chi, but my approach in this anthology is more philosophical and intellectual, more as a *student* of Zen, and as a *student by nature*, than as any enlightened sage teaching Zen wisdom. Any number of family, friends and acquaintances will tell you that I am no wise man! I have been and remain "human, all too human". Again, there are countless books on meditative practice, Zen wisdom, loving kindness. This is not one of them.

Also, I do not strictly identify as a Buddhist or any other religion for that matter, nearly all of which are, by degree, nondemocratic, top-down hierarchies; which, as history shows, are susceptible to dysfunctional power arrangements, belligerence toward the "other", corruption, abuses, group-think, subservience, and much else, on-and-on; and are categorically adverse to Zen's core teaching, which is unequivocally personal and gleefully deconstructive of hierarchical arrangements both societal and within the human mind. Master Yangqi (992-1049), said that, ultimately, Zen has no teachers, and that there is no need for schools—"you can go your way freely, independent and whole".¹ And Master Wuzu (1047-1104) was an outspoken critic of the Zen institutions of his era, which, he declared, "had become infested with elements of human behavior inconsistent with the true aims and practices of Zen".² Moreover, I am recently disturbed by the actions of Myanmar's radicalized Buddhist monks and their anti-Muslim messages resulting in terrorism that has left dozens of Rohingya dead. And more recently the Sinhalese Buddhists nationalists in Sri Lanka, and their sorry part in the history of violence there. It would be easy to dismiss these radical monks as no more representative of Buddhism than the Klu Klux Klan's lynching mobs and cross-burners are representative of Christianity. But I cannot be an apologist for the appalling horrors of either, as both the Buddhist terrorists and the terrorists of the Klan are a product of their particular groups' ideological groupthink: nationalist and racist identities, respectively, certainly not to the *way* of Zen, or Christ, for that matter. But these are only two examples in history of religions' potential for hate and violence in the guise of spirituality. So, when I say that I do not identify with any religion, I am saying, more specifically, that I reject power arrangements that ultimately shift attachment from the individual ego to the group ego, and/or its cult of personalities, real and imaginary. Let's just say

that I consider my *sangha* to be all of humankind. “If you see the Buddha on the road kill him!” the Zen adage insists (but spare the Dalai Lama!).

*

The essays were written over a span of fifteen years, from 2003 (*Hobbits as Buddhists and an Eye for an “I”* published in 2005), to 2018 (*What Dreams May Come...etc...; Zen, Free Will, and the Authentic Moral Self; and, An “Attractive” God*), and for different publications. A reader may notice that I freely insert significant passages from earlier essays into later essays. In seven pieces distributed over fifteen years, this not so conspicuous, in seven pieces appearing in the same volume it becomes so. For example, the long section from N.S. Momaday’s essay “The Way to Rainey Mountain”, and my commentary based on it, which appear in both “Infinite Games in the Age of Novelty” and “Zen and Artificial Intelligence”. There are other instances. You may or may not notice. So be it. Also, my views on, especially, the so-called Hard Problem of human consciousness have changed over time. A decade ago, and while writing my essay *Zen and Artificial Intelligence*, I, like many, considered consciousness to be an inexplicable and ineffable emergent property of the brain. Ironically, since I am a student of Zen, and considering the experience described in the Prologue, I’m surprised it took me so long to *see* that mind and body are one, and that body and the phenomenal world are one, and so on. There is no duality. And at the center is non-self (anatta). Also, and not surprisingly, some of the science I cite in these essays is dated, and some of the ideas stemming from the science have been challenged if not, in some minds, refuted. But what I appreciate about science is that the door is always open to new discovery and revision.

Tell all the Truth but tell it slant-
Success in Circuit lies
---Emily Dickinson

Lastly, the first three essays in this volume were peer-reviewed for their respective, original publications and are fairly straight forward academic journal-style pieces, but I feel I should comment on the essays in Section Two of this book which offer unconventional ideas on such subjects as the afterlife, free will, and the nature of consciousness. My intuition tells me that these essays represent messages from another region, one unknown even to myself. These messages can be surprising, maybe important; they can be amusing and eccentric. They are often incomplete and unsupported, clearly beyond the limits of academic philosophy and well short of

enlightened wisdom—perhaps amounting to nothing more than the jittery scribbblings of an over-caffeinated Buddhist!ⁱⁱ They may be better science fiction than science, but science really wasn't the point. To me they represent an odd species of creative writing that defies category. Their purpose is not so much to persuade as generative; like art, which, by my own definition, is that which reveals something of ourselves in the gap between doubt and wonder.

No text is a fixed entity; rather, it is a living catalyst for creative response. The *value* of this text will be determined by its ability to create open, local structures of relative, yet functional meaning. So, this text, in a sense, is a tool: the vessel that carries the seed of its own potential—its *value*: its capacity as an open system for evolving ways of knowing within ever changing environments both material and symbolic. Or, in the words of one of my favorite philosophers, James P. Carse, the meaning of the text is what happens “because it was spoken”.

References

¹ Zen Essence: The Science of Freedom, (1989) Trans., and Ed., Thomas Cleary, Shambala Publications, Boston, MA. p. 102.

² Ibid., p. 104.

ⁱⁱ Thank you The Frantic Meerkat!

SECTION ONE

PREVIOUSLY PUBLISHED ESSAYS



[Fig. 3. *Zen Doze* (1997)]

CHAPTER ONE

ZEN AND ARTIFICIAL INTELLIGENCEⁱ



[Fig. 1-1. *Hungry Ghost I* (2018)]

ⁱ This essay was originally published under the title *On the Conceivability of Artificially Created Enlightenment* in the journal *Buddhist-Christian Studies*, eds. Terry Muck and Rite M. Gross, Vol. 25, 2005, University of Hawai'i Press, pp 123-32.

Pointsman can only possess the zero and the one. He cannot, like [Roger] Mexico survive anyplace in between...he imagines the cortex of the brain as a mosaic of tiny on/off elements...each point is allowed only two states: one or zero...brain mechanics assumes the presence of these bi-stable points.

If ever an Antipointsman existed, Roger Mexico is the man...how can Mexico play so at his ease, with these symbols of randomness and fright? Innocent as a child, perhaps unaware—perhaps—that in his play he wrecks the elegant rooms of history.

—Thomas Pynchon, *Gravity's Rainbow*

A stream of consciousness

When I first read the Dalai Lama's remark that "if all the external conditions and the karmic action were there, a stream of consciousness might actually enter into a computer",ⁱⁱ I could not help wonder if a computer could then attain enlightenment, assuming that by "a stream of consciousness", the Dalai Lama also meant self-awareness and sentience. The answer, at first, seemed to me simple and obvious (though perhaps distasteful for some): if the machine were self-aware and sentient: "a stream of consciousness" with "all the external conditions" and "karmic action" in place, then why would it be unreasonable to assume that a computer could as well attain enlightenment? Not unreasonable, maybe, but this takes for granted a reasonable understanding of at least two enigmatic and difficult issues. After all, what makes for self-awareness, sentience, and consciousness to begin with; and how would we manufacture them in a machine?

If we take a moment to think about the creation of artificial enlightenment, the paradox becomes clear. In order to manufacture enlightenment, we must first manufacture samsara, because for a Buddhist, enlightenment is the *event* of deconstructing the problematic natures of *self*, sentience (suchness), and consciousness, all of which are samsaric illusions. *Self*, sentience and consciousness represent the prerequisites of samsara/shunyata (emptiness), realized or un-realized, artificial or organic. They represent the prerequisites of desire. They represent the prerequisites for the illusion of death and birth. And thus, they represent the truly salient issues that must be addressed before we can assemble our complicated hard (and soft) ware. Interestingly, computational information consists of a dualistic binary system (1s and 0s), as does samsara (*self/other*); thus, technology, in

ⁱⁱ I came across this in a term paper by Roland Blank that is published on the Internet at: <http://www.rblank.com/portfolio/acad/buddha.html>.

theory anyway, may be capable of manufacturing a facsimile of samsara, if only because computational information is, by its very nature, samsaric to begin with. Of course, all this demands that consciousness, self-awareness and sentience be a function of information processing. Personally, I believe they are, and that, in fact, the words information and samsara are synonymous with one another. Thus, it follows that information technology should be capable of manufacturing the prerequisites, at least, of enlightenment. If that blunt statement strikes you as utterly preposterous, technically impossible, or even offensive, you might want to first read any number of excellent texts describing the future of artificial intelligence. Two of the best popular books on the subject are *Robot* by Hans Moravec and *The Age of Spiritual Machines* by Ray Kurzweil. These will assuage your doubts concerning the soft problem, or, as it is sometimes called—the nuts and bolts problem.

With these considerations in mind, let's see what we can come up with.

In order to arrive at what you are not
You must go through the way in which you are not.
—T.S. Eliot, “East Coker” (The Four Quartets)

For most Buddhists, enlightenment can be defined as seeing through the illusion of the *self* and experiencing unadulterated suchness. In the words of Master Wolfgang Kopp, “The seer, the seen, and the process of seeing are one. The thinker, the thought, and the process of thinking fall together into one and multiplicity melts away. There is neither inside, nor outside in this state. There is only “suchness”, *tathata*”.¹ So, enlightenment is suchness, or, *things as they are*, revealed as all that there is. As engineers of enlightenment, it would appear then that are at least two components we need to build into our machine: 1) an illusionary *self* and 2) suchness, or thing as they are. As we shall see, the *things as they are* part is not as simple as it sounds.

Let's start with the possibility of manufacturing a *self*. Buddhists understand that our *self* is a function of semiotic processes. Mark Epstein, author of *Thoughts Without a Thinker: Psychotherapy from a Buddhist Perspective*, writes, “the goal of all forms of Buddhist meditation [is] to expose the metaphorical nature of self”.² Our goal, of course, is the opposite. Ironically, we must construct a *self* just so we can deconstruct it! And we must create this *self* from metaphor.

Now, rather than getting caught up in this century's obsession with language, Structuralism and Postmodern literary theory, let's look at one provocative, and for our purposes, workable, model of a semiotic *self*. This

model for a semiotic self was proposed thirty years ago by the late behavioral psychologist Julian Jaynes in his book *The Origin of Consciousness in the Breakdown of the Bicameral Mind*.

In Jaynes's view, our analogue "I" emerges from what he nicely referred to as *a lexical field*. This analogue "I" is, in a sense, a semiotic map of sensate experience. (Or, put another way, the analogue "I" represents a transition of Being into language.) The organism's analogue "I" reflecting on mental pictures of its self creates a mind space to introspect on, and thus the illusion of a *self*. In fact, according to Jaynes, this self-reflection *is* what makes us conscious.ⁱⁱⁱ

Considering that we're trying to program a *machine* with a *self*, let's go to the computer expert and see what he thinks. In his fascinating book *The Age of Spiritual Machines*, Ray Kurzweil writes this about the possibility of a computer-generated semiotic self. It seems to follow suit with the above.

Consciousness and free will are just illusions induced by the ambiguities of language...It is a process responding and reacting to itself. We can build that in a machine: just build a procedure that has a model of itself, and that examines and responds to its own methods. Allow the process to reflect on itself. There now you have consciousness.

Mr. Kurzweil continues, however:

[This still] does not explain the distinction between 0.000075 centimeters electromagnetic radiation and my experience of redness. I could learn how color perception works, how the human brain processes light, how it processes combinations of light, even what patterns of neural firings this all provokes, but it still fails to explain *the essence of my experience*³³ [my emphasis]

He's exactly right. Odd as it may sound, a hyper-intelligent, walking talking, even *self-aware* machine, would still not be conscious, *because it has nothing to be conscious of*—no sentience, not even the sentience of its own awareness! This is the exact opposite of an animal, which to most observers is sentient, but not self-aware! (Clearly, the advent of artificial

ⁱⁱⁱ If Jayne's ideas strike you as too bizarre, consider that, in response to the question What do you believe is true that you can not prove? (see the Edge web page, Jan. 11, 2005). philosopher Daniel C. Dennett says, "I believe, but cannot yet prove, that acquiring a human language (an oral or sign language) is a necessary precondition for consciousness—in the strong sense of there being a subject, an I, a 'something it is like something to be.'"