INTEGRAL TRANSHUMANISM: THE HOLISTIC LEAP FORWARD

By

MICHAEL TENNISON

A Thesis Submitted to the Graduate Faculty of

WAKE FOREST UNIVERSITY

in Partial Fulfillment of the Requirements

for the Degree of

MASTER OF ARTS

in the Bioethics Program

August 2010

Winston-Salem, North Carolina

Approved By:

Nancy M. P. King, J.D., Advisor

Mark Hall, J.D., Chairman

Michael Hyde, Ph.D.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Page

Figure

ABSTRACT

Michael Tennison

INTEGRAL TRANSHUMANISM: THE HOLISTIC LEAP FORWARD

Thesis under the direction of Nancy King, J.D., Professor in the Bioethics Program, Department of Social Sciences and Health Policy Faculty Member.

Transhumanism champions the emerging use of biotechnological enhancement to perfect our biologically-based human limitations. This study evaluates both the contemporary bioethical discourse on enhancement, and the transhumanist movement itself, in light of Ken Wilber's Integral Theory of development. Wilber's paradigm synthesizes descriptive and normative theories from a vast array of disciplines, generating a holistic approach to developmental theory that emphasizes a particular need for balance in any evolving system. The application of Integral Theory to enhancement reveals that transhumanism overemphasizes both autonomy at the expense of justice, and rationality at the expense of spirituality, in its idea of progress.

By looking to indigenous traditions of shamanism, we find models of cognitive and spiritual enhancement that are experientially and structurally grounded in the maintenance of the common good. As a guiding metaphor, and as a practical application, shamanic insight can both shape transhumanism into an inherently ethical worldview and social institution, and harness its growing momentum to help transform individuals and society as a whole into more just, holistic, and integral manifestations of the human pursuit of perfection.

CHAPTER I

INTRODUCTION AND PHILOSOPHICAL BASIS

Introduction

The transhumanist movement to take conscious control of human evolution advocates for the extension of biotechnological intervention in our lives from solely therapeutic purposes to those of enhancement. Transhumanists envision a world in which physical constraints taken for granted, like disease and aging, will be things of the past. Even mental capacities for memory and cognitive speed may soon be augmented beyond recognition. Glimpses of this ever-approaching future reveal the startling exigence of initiating responsible dialogue about the ethics of enhancement. If we are really about to finally fulfill the age-old alchemical quest for immortality and myriad other equally profound challenges to our contemporary understanding of reality, then the field of bioethics must generate more than critiques of "playing God" and overstepping humanity's inherent boundaries; rather, ethical issues must be examined in light of what exactly the scientific world is researching in this domain, and policy must be produced which responds to, and can properly guide, the research already underway.

To examine the complex movement of transhumanism, I will first establish a philosophical paradigm with which to describe and analyze the phenomenon. As a taxonomical scaffold underlying my argument, I will utilize the philosopher Ken Wilber's explanation of consciousness, as synthesized from models of development from many fields. Wilber posits that consciousness expansion and evolution entails passing through relatively discrete stages of growth, although this progression does not necessarily occur

in a strictly linear fashion. States, stages, streams, waves, spirals, and peak experiences interweave to form the dynamic equilibrium of consciousness evolution, involving a progression from consciousness of matter to that of the body, mind, soul, and finally, the spirit.

The stages along this progression manifest in, and may be viewed from, interior and exterior perspectives at both the individual and collective levels, and are denoted the four quadrants: "I" (interior/individual – self and consciousness), "it" (exterior/individual – brain and organism), "we" (interior/collective – culture and worldview), and "its" (exterior/collective – social system and environment). Each stage manifests in each quadrant, and we can easily see the parallels among the development of individual consciousness, the brain, cultural worldviews, and social institutions. This perspective provides a holistic basis for discussing the transhuman evolution of the individual and its implications for society at large.

Theorists in fields scientific, theological, philosophical, and medical have defined transhumanism in different ways to account for its various manifestations and goals. Throughout human history, ideals of perfection have influenced and shaped both individual and collective expressions of human nature, from Plato's realm of the Forms to Nietzsche's *Übermensch*, from ancient alchemy to modern science. Transhumanism can be seen as a modern extension of this primordial drive to enhance humanity toward perfection, embodied now in biotechnology. The multivalent notion of perfection, however, varies according to universal, culturally relative, and subjective interpretations and implications; thus, transhumanism's aim to perfect humanity will manifest in myriad ways.

Research into the pharmacological, genetic, and nanotechnological manipulation of the human form has already begun, and opponents are mounting more and more prescient arguments against the use of enhancement technologies. The best arguments hinge on concerns of social justice, and state, for example, that if we are to allocate resources for transhumanist endeavors which could otherwise be used to fund tasks like sweepingly inclusive health care initiatives, then individually motivated enhancements must also address social issues of ethical exigence. Thus, I posit that transhumanism should adopt a framework that accounts for collective, as well as individual, enhancement. Considering the intended and actual beneficiaries of individual enhancement will begin to implement this idea – does an enhancement seek the perfection of the individual or the collective? How will individual enhancements change the collective?

Responsible, ethical enhancement will seek to address large-scale concerns that threaten humanity and the environment. We can see that the accumulation of data about problems like rampant deforestation, although articulated with logical coherence, simply fails to compel enough ethically responsible action to remedy the issue. This is no fault of the arguments per se, but rather a condition of our culture's epistemological and volitional paradigms. By relegating the essence of knowledge to raw data, we have removed the component of felt experience that more effectively compels responsive action. This suggests the value of research into the neurological restructuring of the relationship between knowledge and action. Transhumanism should support this work at least as much as, for example, the enhancement of the superficial aesthetics of the human form.

Such an endeavor is not without precedent. By looking to ethnographic models of

indigenous shamanism, we can see how consciousness is pharmacologically regulated by entheogenic rituals whereby the participants have a greater ability to *feel* knowledge in a way that entails its holistic integration, compelling action geared toward the maintenance of equilibrium with social and natural environments. Anthropological models of shamanism can account for the existence, causes, and effects of heightened senses of spirituality, empathy, and the transpersonal expansion of the sense of self to encompass the "other." Illustrating extant examples of activities which expand consciousness, shamanic wisdom potentiates new options for integrating and volitionally expressing one's authentic response to the acquisition of knowledge. Such models provide an ethical guide for the transhumanists' agenda for redesigning the human form, because they represent the maturation of consciousness into holistic, integrative stages, which engender a particular relation of self to other that facilitates the types of ethical problem-solving that many of our contemporary issues demand.

Restructuring consciousness in one culture based on anthropological models of alternative cultures begs questions about appropriation and authenticity. To what extent can a single element of a culture be adopted into another and still retain the properties that make it worthy of incorporation in the first place? To what extent does the appropriation of particular social institutions affect those practices' original cultures? How can another culture's practices manifest in an accessible way to the inhabitants of the receiving culture?

Aldous Huxley, in his work *The Perennial Philosophy*, elaborates on the particular philosophical paradigms that emerge again and again across boundaries of culture, space, and time. Their particular manifestations exhibit context dependence, or

cultural relativity of form, but the underlying substance remains essentially the same. The perennially revealed *gnosis* of the ages becomes *phronesis* in shamanism, the practical application of revealed knowledge. The ethical assertion and completion of transhuman goals must be anchored in the Archimedean Point of perennial philosophy, such that the reengineering of the human form will comprise the emergence of age-old wisdom in our culture, not the pursuit of individual glory. Additionally, an understanding of perennial philosophy elucidates the possibility of authentically incorporating the substance of alternative models without depending on the appropriation of their particular context-dependent forms. Looking to shamanism as one particular technique for encountering and handling perennial wisdom provides invaluable insight for the task of binding Wilberian ethics to transhumanism.

In exploring the viability of an ethical pursuit of transhuman goals guided by the aforementioned models, I must address the relationship between this movement as a way to empower individual self-expression and as a way to promote the public good. Current enhancement research and implementation is heavily biased in favor of promoting boundary maintenance: autonomy, individualism, rationalism, and positional advantages over others are currently overemphasized at the expense of the transpersonal experience of the greater good. Marrying shamanism to transhumanism tips this balance toward the ethically appropriate intersection between personal interest and the public good, and new social institutions, regulatory mechanisms, worldviews, and stages of consciousness can emerge to maintain this equilibrium.

Ken Wilber's Paradigm

The Buddhist philosopher and author Ken Wilber has written extensively on his Integral Theory, which he teaches at the Integral Institute in Colorado. Espousing a post-postmodernist approach to theory that allows for evidence-based generalizations about patterns of development and evolution, Wilber's work attempts to create a descriptive and normative perspective of reality that functions not just as an objective map, but also integrates the subjective development of the mapmaker him- or herself.

He begins in departure from contemporary pluralistic relativism, found in various movements, theories, and institutions, such as "deep ecology, postmodernism, Netherlands idealism, Rogerian counseling, [and] Canadian health care," to name but a few.[1] At its extreme, relativism claims that "what is true for you is not necessarily true for me; what is right is simply what individuals or cultures happen to agree on at any given moment; there are no universal claims for knowledge or truth; each person is free to find his or her own values, which are not binding on anybody else."[2] In its "noble intent" to be all-inclusive, however, this perspective can become impracticable and contradictory: if all truth claims have the same relative validity, no course of action can be singled out as the most appropriate; further, in the rejection of universalizability and hierarchy, this perspective universally asserts that pluralism hierarchically trumps modernist generalizing and universalizing.[3] Wilber extends the truth of postmodernism, that "all systems are context-bound," applying it to pluralities and relativities themselves,

---

[1] Ken Wilber, *The Collected Works of Ken Wilber*, vol. 7, *Introduction to Volume Seven* (Boston: Shambhala Publications, Inc., 2000), 11.
[2] Ibid., 15.
[3] Ibid., 15-16.

which "have wider and deeper contexts that bind them together into even larger systems."[4] This facilitates the movement from "pluralistic relativism to universal integralism," allowing the relaxation of "our morbid fear of all hierarchies, stages of development, levels of reality, critical judgments, qualitative distinctions, degrees, excellence, grades, and rankings. Not all of them are bad, and we use them anyway, never so much as when we deny them; so let us use them in a healthy, conscious, fair, and judicious fashion."[5]

With this in mind, Wilber elaborates an empirical and phenomenological paradigm that both maps reality and critiques the map-making process. This work is extremely valuable to the philosophical enhancement debate and serves as a novel tool for guiding its ethical unfolding.

> The typical, well-meaning liberal approach to solving social tensions is to treat every value as equal, and then try to force a leveling or redistribution of resources (money, rights, goods, land) while leaving the values untouched. The typical conservative approach is take its particular values and try to foist them on everybody else. The developmental approach is to realize that there are many different values and worldviews; that some are more complex than others; that many of the problems at one stage of development can only be defused by evolving to a higher level; and that only by recognizing and facilitating this evolution can social justice be finally served.[6]

Because transhumanism is itself engaged in the task of evolving humanity, the Wilberian model, which specifically focuses on healthy, holistic evolution, can minimize the risk that transhuman development will exacerbate our current individual and social ills by extending them into infinity along with the capacities transhumanists intend to enhance.

Distilling a set of "orienting generalizations" of the stages of development and evolution that perennially appear in various fields of theory, Wilber unifies a model to

---

[4] Ibid., 23.
[5] Ibid., 23-24.
[6] Ibid., 7.

describe every phenomenon or process.

> If we look at the various fields of human knowledge – from physics to biology to psychology, sociology, theology, and religion – certain broad, general themes emerge, about which there is actually very little disagreement … They show us, with a great deal of agreement, where the important forests are located, even if we can't agree on how many trees they contain.[7]

These general themes form the basis of his synthesized philosophy that builds, from the ground up, a new way of mapping and finding oneself in reality.

With a nod to the ancient Greeks, Wilber denotes the totality of reality the *Kosmos*, which is not reducible to the materialist notion of the cosmos. The Kosmos includes the cosmos (matter), but also the bios (life), the psyche/nous (mind), and the theos (spirit). None of these elements can be perceived with the descriptive capacities of another without severely distorting their intrinsic properties.[8] Thus, Wilber sees the primary building blocks of the Kosmos not as physical atoms, but *holons*. "Arthur Koestler coined the term 'holon' to refer to an entity that is itself a *whole* and simultaneously a *part* of some other whole."[9] For example, atoms are both wholes in themselves and parts of molecules; emotions are wholes but also parts of the experience of consciousness; humans are whole individuals but also parts of societies.

In addition to holons, Wilber posits one more necessary ingredient of the Kosmos, which he alternatively defines as spirit, emptiness, and creativity – the factor underlying the generation of holons. As nonbeing gives way to manifestation, holons emerge from this spirit/creativity/emptiness into a holarchy, or natural hierarchy, "an order of increasing wholeness, such as: particles to atoms to cells to organisms, or letters to words

---

[7] Ken Wilber, *The Collected Works of Ken Wilber*, vol. 7, *A Brief History of Everything* (Boston: Shambhala Publications, Inc., 2000), 67-68.
[8] Ibid., 68.
[9] Ibid., 69.

to sentences to paragraphs." [10]   Many theorists and critics bemoan Wilber's use of holarchies, but he maintains that they mistake his holarchy for a dominator hierarchy.

> When any holon in a natural holarchy usurps its position and attempts to dominate the whole, then you get a pathological or dominator hierarchy – a cancerous cell dominates the body, or a fascist dictator dominates the social system, or a repressive ego dominates the organism, and so on.
> But the cure for these pathological holarchies is not getting rid of holarchy per se – which isn't possible anyway – but rather in arresting the arrogant holon and integrating it back into the natural holarchy, or putting it in its rightful place, so to speak. [11]

Thus, holarchies in themselves imply no value judgment about any one holon's being better than another – although molecules transcend atoms, they are not *better*; similarly, paragraphs are not *better* than sentences. Evolution does not entail moving to a higher holon because it is better in any a priori sense, but because the emergent holon more adequately unifies a healthy, integral relationship to its surroundings.

Holons exhibit four particular drives, two horizontal, and two vertical. The former are drives to maintain both wholeness, or *agency*, and partness, or *communion*, and these drives deal with a holon's *span*. The vertical drives, on the other hand, deal with *depth*: holons evolve via self-transcendence and dissociate via self-dissolution. [12] These four drives must all be in balance for a holon to be healthy. The depth and span of a given holon operate like a seesaw – as one increases, the other decreases. For example, a molecule has a greater depth than an atom, but because molecules necessarily *include* – are made of – atoms, more atoms than molecules must exist.

> Consciousness and depth are synonymous. All holons have some degree of depth, however minor, because there is no bottom. And with evolution, depth becomes greater and greater – consciousness becomes greater and greater. However much depth atoms have, molecules have more. And cells have more depth than

---

[10] Ibid., 76.
[11] Ibid., 77.
[12] Ibid., 71.

molecules. And plants have more than cells. And primates more than plants.

There is a spectrum of depth, a spectrum of consciousness. And evolution unfolds that spectrum. Consciousness unfolds more and more, realizes itself more and more, comes into manifestation more and more. Spirit, consciousness, depth – so many words for the same thing ….

Consciousness is simply what depth looks like from the inside, from within.[13]

Development occurs in what Wilber calls the four quadrants, the four irreducible facets of any holon, distilled from theories "conventional and new age, Eastern and Western, premodern and modern and postmodern – everything from systems theory to the Great Chain of Being, from the Buddhist vijnanas to Piaget, Marx, Kohlberg, the Vedantic koshas, Loevinger, Maslow, Lenski, Kabbalah, and so on."[14]   All were generalized to four parallel holarchies, dealing with holons both individually and collectively, from both internal and external perspectives. The holarchies are parallel in that particular stages within each quadrant correspond to each other, because properties that emerge in the evolution of holons generally manifest concurrently in each quadrant; in other words, all holons exist in all four quadrants simultaneously (see figure 1).

---

[13] Ibid., 89.
[14] Ibid., 118.
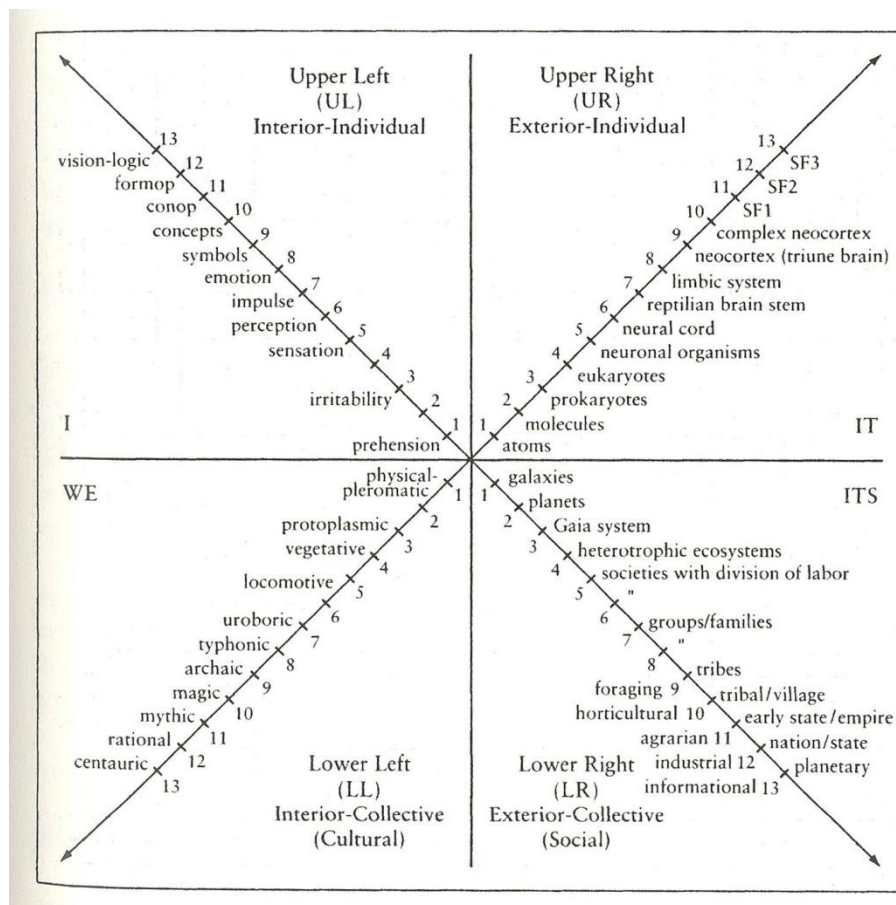
Figure 1[15]

In the "it," or "exterior-individual" holarchy, we see objective, empirical descriptions of increasing complexity from atoms to molecules to cells, simple organisms, organisms with complex organ systems, and so on. This quadrant also includes the empirical, external perspective of the behaviors holons exhibit at these stages. The "I," or "interior-individual," quadrant details the subjective, felt component of each stage of development as experienced from within, including simple states of consciousness like irritability, sensation, perception, and the more complex ones like emotions and concepts. Again, each stage transcends and includes its predecessors, so correlating the capacity for

---

[15] Ibid., 119.

emotions with the limbic system at level eight, for example, means that an entity at this stage also contains all prior subjective capacities as well as objective physical components (unless it has encountered developmental difficulties). This simply means that at level eight, the *emergent* properties of emotional capacity and the presence of a limbic system will generally correlate chronologically.

Because holons also necessarily exist at the community level, the next two quadrants describe holons in a collective. The "we" quadrant, or "interior-collective," denotes the collectively experienced cultural worldview of a community, including shared meaning, identity, and value; some examples of this holarchy are vegetative, locomotive, archaic, and rational. The community's material and institutional social forms, including rules, technology, economy, architecture, and so on, comprise the "its" quadrant of "exterior-collective" development. This includes stages from galaxies to planets and ecosystems, to human stages like tribal/foraging to nation-state/industrial.

Although we do not generally speak of the cultural phenomena of atoms or galaxies, Wilber's idea of a worldview entails a shared space of what a holon can acknowledge and respond to – no holon can render intelligible anything beyond its current level of development, and this happens in all quadrants. Thus, all quadrants account for the development of holons at all levels, and accordingly, humanity fits within this paradigm without requiring a separate descriptive strategy.[16] Because Wilber's "we" quadrant models the intersubjective, collective space, it accounts for the conception of the

---

[16] Wilber, *Introduction to Volume Seven*, 6-13. Wilber utilizes Clare Graves's spiral dynamics, as modified somewhat by Beck and Cowan. Wilber adopts Graves's color-coded schema outlining the general developmental "memes," or waves, stages, or levels, of existence, that make up an integral, four-quadrant perspective of individual and collective evolution: 1) "beige: archaic-instinctual," 2) "purple: magical-animistic," 3) "red: power gods," 4) "blue: mythic order," 5) "orange: scientific achievement," 6) "green: the sensitive self," 7) "yellow: integrative," and 8) "turquoise: holistic."

good, both describing healthy, collective human holons at any level and prescribing the attitudes and behaviors that maintain them.

This prescriptive, or normative, aspect of Wilber's paradigm hinges on his concept of three kinds of value. All holons, as "perfect manifestations of Emptiness or Spirit," contain the same amount of *absolute* "ground value."[17] This differs from a holon's intrinsic value, which is *relative* to its holarchic depth. Greater transcendent depth means that a holon includes more prior levels, and therefore has more intrinsic value. Extrinsic value, on the other hand, is a holon's instrumental value as a part of higher-order holons, so the less depth a holon has, the more it is a necessary ingredient to more complex holons, and the higher its extrinsic value. Thus, wholeness, or agency, has relative intrinsic value, while partness, or communion, has relative extrinsic value, and everything has absolute ground value.[18]

As wholes with agency, holons have autonomy-protecting *rights* – "description[s] of the conditions that are necessary to sustain [their] wholeness, … conditions for the intrinsic value of a holon to exist," without which a holon breaks down into its subholons.[19] As parts in communion, holons also have *responsibilities* - "the conditions that any holon must meet in order to be a part of the whole … Responsibilities express the conditions for the extrinsic value of a holon to exist."[20] If a holon does not meet these conditions, it is either ejected from the whole, or the whole itself becomes damaged or destroyed. As holarchic depth increases, so do the rights and responsibilities present at any level. As an example, Wilber points out that humans have more rights than amoebas,

---

[17] Wilber, *A Brief History of Everything*, 353.
[18] Ibid., 353-354.
[19] Ibid., 354.
[20] Ibid., 355.

because more conditions must be met for human wholeness to be sustained; we also have more responsibilities, because we must maintain relationships both to human society and to all subholon communities (physiosphere, biosphere, and noosphere).[21]

Thus, as we ideally develop in a Wilberian fashion toward greater wholeness, we will have more rights and opportunities for self-expression, but we will also have more responsibilities to maintain the communities of holons underlying our existence. The final two levels of Wilberian consciousness development, the integrative and the holistic,[22] represent "second-tier consciousness," which qualitatively differ from the first tier (including stages one through six), and provide the basis for a truly just human civilization built on higher-order consciousness, the neurological underpinnings to support it, the collective worldviews it generates, and the social institutions that manifest them.[23] Thus, the evolution of humanity beyond its current stage will manifest in these four quadrants – "higher or deeper stages of consciousness development disclose deeper and wider patterns in self, in individual behavior, in culture, and in society" – and transhumanism holds the radical power to significantly affect, if not fully determine, humanity's trajectory on this spectrum of possibilities.[24]

<p style="text-align:center">Perfection</p>

The age old idea of perfection has spawned many a journey through the Wilberian levels of development in all quadrants, whether it is the philosophical pursuit of truth, the religious aspiration for mystical enlightenment, or the alchemical quest for immortality.

---

[21] Ibid.
[22] See footnote 16.
[23] Wilber, *Introduction to Volume Seven*, 13-14.
[24] Wilber, *A Brief History of Everything*, 127.

The idea of perfection has taken many forms and has drawn individuals and collectives through great lengths to aspire to its heights: wholeness, rightness, goodness, authenticity, divinity, completion, fulfillment, beauty, precision, maximization, order, flawlessness, enlightenment, *ad infinitum*. These experiences and manifestations of perfection can be conceived primarily in two ways. One is to imagine an achievable *end-state* of perfection, typically characterized by the perfect maximization of ideals as determined by one's current level of consciousness. The second is to see perfection as the *pursuit* of the transcendent, the never-ending journey through increasing depth and wholeness, the evolution toward the ineffably sublime.

For millennia, various fields academic, spiritual, medical, and so on, have envisioned particular notions of perfection and accordingly determined the proper routes to its manifestation. Philosophers of from Plato and Aristotle to Leibniz and Nietzsche have grappled with perfection and transcendence and their place in the material world. Similarly, religions world-wide posit categories of moral development, grace, and spiritual enlightenment as teleologically worthy categories of perfection, which are often expressed through prayer and music-making. Mathematics is also cited in reference to perfection because of its elegant universality, its apparently objective hold on transcendent truths. We further see this in the realm of science, with its effort to unify a complete map of reality (or at least its two right-hand quadrants), but it also serves more quotidian interests of perfecting appliances and inventing cures for medicalized illnesses. Health care involves the perfection of the body, but the nebulous nature of perfection leads many to seek fulfillment in maximization and acquisition, via, for example, plastic surgery and steroid use. Further, claiming the right to define and implement perfection

has led to Nazism, negative eugenics, religious persecution, and terrorism.

Rhetorician and author Michael Hyde describes these latter phenomena as examples of individuals and groups who are "rotten with perfection," wherein they imagine an end-state of perfection toward which they are imperatively moved. Because the end-state is conceived to be achievable, its pursuit is compelled to the detriment of social justice and anything, or anyone, deemed imperfect.[25] Defining the "perfect" must take into account its multivalence, its subjectivity, its objectivity, and its gradations, as well as its assumptions and its capacity to compel action. Because of this, and because labeling something "perfection" often entails the assumption of the authority to achieve it, we must be very careful in defining the perfect. A second notion of perfection, perfection-in-the-making, which can never be arrived at, circumvents the problems of being rotten with perfection, and will be detailed later in the chapter.

Transhumanism and Enhancement

The philosophical, cultural, and political movement to consciously evolve humanity beyond its current limitations is known as transhumanism, which will be outlined here, and more fully detailed in chapter two. Transhumanists envision a future in which biotechnologically enhanced genetics, memory, cognition, healing, and an infinite array of other augmentations, including computer-brain interfaces, life extension technologies, and nanotechnological and cybernetic integration, so thoroughly redefine humanity that the next phase of the human will emerge: the posthuman. The posthuman

---

[25] Michael Hyde, *Perfection: Coming to Terms with Being Human* (Waco: Baylor University Press, 2010) 3, 6-7.

is thought to represent the perfection of humanity's biologically based flaws, but critics see this transhuman ideal as anything but perfect.

One outspoken critic, Francis Fukuyama, author of *Our Posthuman Future* and former member of President Bush's Council on Bioethics, cites transumanism as "the world's most dangerous idea."[26] "The first victim of transhumanism might be equality ... the most serious political fights in the history of the United States have been over who qualifies as fully human."[27] He indicates that this civil rights issue hinges on a standard notion of human essence and that its modification would undermine our political landscape. He rightly points out that biotechnological inequalities may be mapped onto socio-economic inequalities, as transhuman enhancements will probably initially be expensive.

Further, he reasons that humanity's positive characteristics depend on the presence of faults – that, for example, "if we weren't violent and aggressive, we wouldn't be able to defend ourselves."[28] Yet if transhumanism could remove violence and aggression from future humanity's existence, would the ability to defend oneself be necessary? Perhaps one may need to defend against animals or unmodified humans who still feel violent impulses, but with super-intelligence one could simply outwit an attacker. On the other hand, as Wilber points out, transcendence needn't entail the abrogation of prior states of behavior; rather, development proceeds by differentiation and integration. Thus, although a modified human may feel particularly averse to the use of violence, the capacity may still remain. Fukuyama further elaborates that the positive trait of loyalty depends on the vice of exclusivity, and that love requires jealousy. Again, the modification of an

---

[26] Francis Fukuyama, "Transhumanism. (Cover story)." *Foreign Policy* 144 (2004): 42-43.
[27] Ibid., 42.
[28] Ibid., 43.

individual to emphasize one trait or another does not preclude choosing to act on deemphasized capacities. Fukuyama does, however, correctly indicate the often unexpected pleiotropic effects of genetic and neurological modification.

Closing with the cautionary tale of Prometheus, Fukuyama advises that we must generate a newfound respect for human nature if we are to avoid the transhuman catastrophes lurking in the near future. Invoking the Promethean legend fails to convince, however, because although meddling with the affairs of the gods may deter the religious, we can look to history to see that in fact fire was successfully domesticated, to the great benefit of the entirety of human civilization. Additionally, claiming that transhumanism will inherently denigrate human nature begs the question of what exactly his concept of human nature entails. Our nature could easily be construed to include the use of tools to modify one's environment. Because the body could be seen as one's immediate biological environment, and because neuroscientific evidence shows that modification of the environment also modifies the self, [29] transhumanism can mesh perfectly with theories of human nature.

Thus, although Fukuyama's specific examples of the interconnectedness of traits, his Promethean rhetoric, and his invocation of human nature all offer little challenge to astute champions of transhumanism, his point about social justice rings true. In order to proceed ethically, transhumanists must account for the disparities that will certainly emerge when some choose to embark on the quest of enhancement while others will either be excluded from participation or choose to refrain. The true pursuit of perfection requires integrating both the individual and collective quadrants of evolution.

---

[29] Robin L. Zebrowski, "Altering the Body: Nanotechnology and Human Nature." *International Journal of Applied Philosophy* 20.2 (2006): 241-242.

Specific instances of enhancement will occur on the level of the individual, because all transhuman enhancements focus on biologically-based bodily and cognitive limitations, and individuals will probably have to choose to participate in modification, at least initially. [30] However, individual enhancements which also promote collective evolution should be embraced by the transhumanist community. These types of enhancement will not focus solely on extending physical or cognitive capacities toward an imagined end state of individual perfection – like immortality or perpetual happiness – but will rather facilitate the expansion of consciousness itself. For those who would choose to participate, this would act in all four quadrants to modify neurochemistry (upper-right), expand consciousness (upper-left), spark the generation of more integrative worldviews (lower-left), and beget and mutually reinforce – and be reinforced by – social institutions 1) that support this type of enhancement and 2) that utilize this expanded consciousness to address social ills (lower-right). Thus, this type of enhancement, even if only embodied by *haves*, can actually foster their compassion for *have-nots*, and reduce, rather than exacerbate, socio-economic tensions.

Transhumanism and Enhancement Viewed through the Wilberian Lens

Wilber's paradigm for consciousness evolution elaborates the upper left quadrant, and can be seen reformulated in figure 2.

---

[30] The future children of those undergoing germ-line genetic enhancements will not voluntarily participate in their own enhancement.
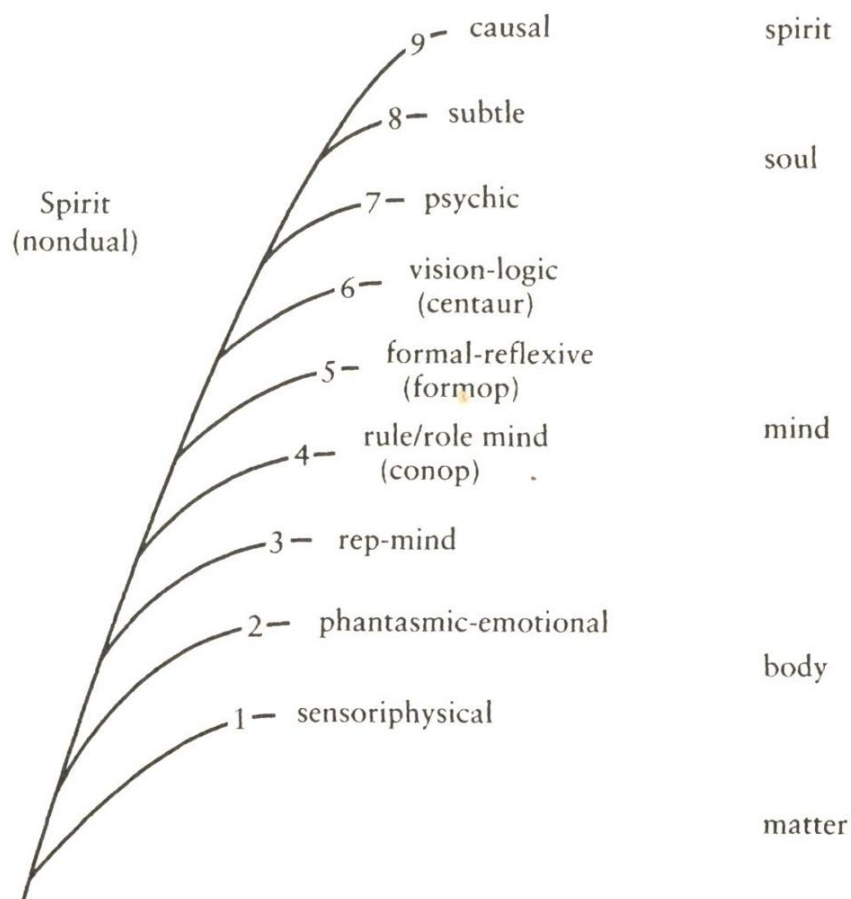
Figure 2[31]

This image depicts the levels of consciousness evolution through which one may pass from awareness of matter to body, mind, soul, and spirit. Each of the levels in the ascent, rather than existing as static rungs of a ladder to be climbed, exist more as fulcrums, on which one dynamically transcends and includes previous levels of consciousness. This process occurs in three parts: one first identifies and fuses with a particular level, subsequently differentiates from and transcends it, and finally integrates and includes it

---

[31] Wilber, *A Brief History of Everything*, 179.

while identifying with the next level.[32] As one moves deeper through the expanding levels of consciousness, one's worldview changes to reflect new types of self-identity, self-need, and moral outlook.[33] This does not mean, however, that one fully inhabits any particular level at once, as "the self at any given point in its development will tend to give around 50 percent of its responses from one level, 25 percent from the level above that, and 25 percent from the level below it. No self is ever simply 'at' a stage."[34] Further, this framework does not entail a linear progression from one level to the next, because altered states, or peak experiences, allow anyone at any stage of development to momentarily experience any other level. However, the permanent movement of the center of gravity of one's consciousness to higher levels must proceed single stage by stage. A major developmental problem occurs when a piece of the self breaks off and is either left behind or allowed to evolve independent of the self's larger center of gravity. For example, one may be generally highly developed but have a dissociated impulsivity that inhabits the lower levels. Or, one may cultivate or otherwise enhance cognition to high levels but leave aspects of the self, like moral development, behind. Thus, "if the self represses or dissociates aspects of itself, it will have less potential left for further evolution and development. And sooner or later, this will drag development to a halt."[35]

One's level of consciousness is bound to a "cultural center of gravity" such that maintaining an ascent or descent in the upper left quadrant, against the grain of one's existence in the other quadrants, incurs great stress.

> This cultural center of gravity acts like a magnet on individual development. If you are below the average level, it tends to pull you up. If you

---

[32] Ibid., 183-184.
[33] Ibid., 184.
[34] Ibid., 187.
[35] Ibid., 192.

try to go above it, it tends to pull you down. The cultural center of gravity acts as a pacer of development – a magnet – pulling you up to the average expectable level of consciousness development. Beyond that, you're on your own, and lots of luck, because now the magnet will try to drag you down – in both cases, you're 'outlawed.'[36]

However, one can live as an independent example in higher modes of consciousness, and others will be drawn to this if they resonate with it; this effect can ripple and society can catch up.

I suggest that conceiving and working toward creating enhancement and perfection as Wilberian evolution, not merely the maximization of the experience of levels which should ultimately be transcended, should guide the transhumanist movement. This will allow it to participate in the necessary reorientation of the relationship between knowledge and action, toward the holistic, the integrative, and the just. Thus, transhuman enhancement can do more than enable self-expression and the creation of "perfect" designer babies. It can help evolve society into a new paradigm – perhaps, yes, a new body, but also a new worldview, a new consciousness, and a new set of social institutions – that can more adequately address our current crises.

One of the many problems caused by our current modern, rational, scientific, industrial paradigm is environmental destruction.

The primary cause of an ecological devastation is, as we were saying, simple ignorance. It is only with scientific knowledge of the biosphere, of the precise ways in which all holons in the biosphere are interrelated, including the biological holons of the human being – it is only with that knowledge that men and women can actually attune their actions with the biosphere.[37]

Yet the accumulation of *knowledge*, if it does not compel *action*, may be necessary but is still insufficient. "We have to separate those two issues – the ignorance and the means of

---

[36] Ibid., 179.
[37] Ibid., 102.

inflicting that ignorance – because with modernity and science we have, for the first time in history, a way to overcome our ignorance, at precisely the same time that we have created the means to make this ignorance absolutely genocidal on a global scale."[38]

In our collective evolution from the modern to the postmodern, many individuals have begun to redefine the idea of knowledge in a way that incorporates the self, the agent. The modernist take on knowledge is that it is like mapmaking, in which we create representational paradigms of phenomena in the world, wherein "knowledge consists solely in mirroring or reflecting or mapping this one true world."[39] But the representational paradigm of knowledge leaves out the mapmaker, the self. This is a problem because the particular developmental history of the individual will determine how he or she sees the world to be mapped – the attempt to map the exact same world at different stages of individual development will yield many different pictures of reality. Neither the world, nor the self, is pregiven – they are rooted in context, history, development, in the relationship between epistemology and volition.

Incorporating the truths of postmodernism, Wilber's perspective includes not just a holistic map of reality and its processes, but also a method for understanding how that map changes as the individual develops. He rejects, however, extreme social constructivism, which claims that all aspects of reality are social constructs, for failing to account for givens like gravity.[40] A more moderate position sees worldviews as constructions, yes, but rooted in historical processes of development, not simply arbitrary demarcations of boundaries. In this sense, the pursuit of truth, of knowledge, can engender action that responsibly incorporates this narrative context. Wilber notes Hegel's

---

[38] Ibid., 102-103.
[39] Ibid., 106.
[40] Ibid., 108.

critique that merely creating more holistic and more accurate maps of reality is necessary, but insufficient, if it still divorces the map from the mapmaker.[41] The solution is to "realize that thoughts are not merely a reflection on reality, but are also a movement of that very reality itself …. It's not that there is a map on the one hand and the territory on the other – that's the nasty Cartesian dualism – but rather that the map is itself a performance of the territory it is trying to map."[42] Thus, the narrative changes as one's consciousness changes: new options for appropriate, responsive actions emerge as one's knowledge of a particular circumstance becomes rooted in a deeper context. "At each stage of development the world looks different because it *is* different."[43]

As we know, holons transcend and include their predecessors in the vertical development toward greater wholeness. It's not that subsequent worldviews and levels of consciousness are right and their predecessors are wrong; the new ones are simply evolutionarily selected because they better address the present historical context of exigent issues.

> And we are at the point where the mental, rational, industrial worldview is running into the grave problems inherent in its own organization. We have run up against our own limitations....
> The phase-specific, phase-appropriate modern worldview, having served its purposes, is now living in its own fumes. We are breathing our own exhaust. And how we handle this, how we collectively handle this, will determine whether a new and more adequate worldview emerges to defuse these problems, or whether we are buried in our own wastes.[44]

Therefore, transcending and including our current era will entail that we "1) be open to modes of consciousness that move beyond mere rationality, and 2) embed them in modes

---

[41] Ibid., 111.
[42] Ibid.
[43] Ibid., 110.
[44] Ibid., 113-114.

of techno-economic structures that move beyond industrialization."[45] This will involve a four-quadrant shift in collective worldviews and social systems, as well as individual consciousness, behavior, and neurochemistry. This does not, however, merely require embracing the postmodern "green" meme, which itself generates many new problems that cannot be resolved within the parameters of its own paradigm, but instead requires accepting that no meme, no wave of existence, will fully manifest human perfection or solve all of our problems.

There are no end-states of perfection on the continuum of human evolution. The pursuit of perfection is the process of increasing wholeness, of unfolding into the unknown, enfolding the known, and deepening and expanding into the ever-present *now*.[46] Perfection is the realization of the infinite within the singular, and the oneness of, and with, infinity. It is not necessarily to be found in the ownership of the fastest car, the surgical construction of the most beautiful body, or the germ-line genetic enhancement of one's future offspring's athletic capabilities. These activities are not necessarily antithetical to perfection, but in causally relating acquisition with perfection they manifest being "rotten with perfection" – the relentless pursuit of an end-state that adheres to a predetermined notion of perfection. However, perfection is the sublime, the unexpected, the transcendent ineffable which defies linguistic categorization.

Of course, selecting Wilber's model of reality could be seen as performative contradiction. Doesn't this comprise yet another attempt to actualize a predetermined notion of perfection? To cite his process of synthesizing hundreds of valuable, respected theories generated over millennia to create his ideas could fall into the historical version

---

[45] Ibid., 116.
[46] This is the second type of perfection I referred to earlier.

of the naturalistic fallacy. The fact that these theories do exist, and were and are respected, says nothing about whether they – or Wilber's ideas – should be utilized here. Rather, I submit pragmatism as the link: contemporary exigencies like public health, socio-economic, ecological, and geopolitical crises demand new forms of consciousness and problem-solving, and the normative aspect of Wilber's developmental paradigm prescribes the appropriate behavioral remedies. As Einstein said, "You cannot solve a problem from the same consciousness that created it. You must learn to see the world anew."[47]

> Every stage of evolution eventually runs into its own inherent limitations, and these may act as triggers for the self-transcending drive. The inherent limitations create a type of turmoil, even chaos, and the system either breaks down (self-dissolution) or escapes this chaos by evolving to a higher degree of order (self-transcendence) – so called order out of chaos. This new and higher order escapes the limitations of its predecessor, but then introduces its own limitations and problems that cannot be solved on its own level.[48]

To truly travel the Wilberian path to perfection, one must recognize its paradoxical nature: the temporal status of reality inherently prevents any such teleological end-state from existing, but the pursuit of perfection entails the manifestation of significant milestones on the way – levels of consciousness expansion – that engender greater and greater capacities for the intersection of individual fulfillment and collective equilibrium and social justice. These effects do emerge in the temporal, material realm, and although they cannot be argued to constitute final perfection, they certainly can transcend and correct deficiencies of lower holonic levels. I posit that by adopting this Wilberian notion of perfection as developmental improvement, transhuman enhancements can comprise an effort to evolve humanity beyond the pursuit of

---

[47] Thinkexist, "Albert Einstein quotes," http://thinkexist.com/quotation/you-cannot-solve-a-problem-from-the-same/1003327.html (accessed July 8, 2010).
[48] Wilber, *A Brief History of Everything*, 97.

maximizing end-state notions of perfection bound to particular stages of consciousness, worldviews, bodily and behavioral configurations, and societal institutions. In this vision, transhumanist endeavors can biotechnologically increase the momentum of individual and collective spiritual evolution, the movement up the Wilberian ladder toward that ephemeral telos, the pragmatic manifestation of perfection-in-the-making.

CHAPTER II

BIOETHICS AND TRANSHUMANISM

Our emergence into what may become a biotechnological golden age recapitulates the perennial pursuit of perfection, now in the form of the extension and enhancement of human biological, cognitive, emotional, and sensory capacities. No longer relegated to the domain of science fiction, this imminent reality provides hope for the end of human suffering and the perfection of the species, but it also challenges our very humanness, threatening to destroy what we know of meaning, identity, human nature, and dignity. Transhumanist theory, championed by groups like the World Transhumanist Association, accounts for these risks but optimistically finds them quite manageable; "bioconservative" theory, however, like that espoused by Bush's President's Council on Bioethics (Council), spans a spectrum from the precautionary principle to advocacy for an outright ban of transhuman enhancement. In this chapter, I will draw from these two contrasting sources of arguments, framing them in a Wilberian approach to bioethical holism, and adding nuanced critiques from various key analysts along the way.

Because of the incredible complexity of transhumanism, a narrative of its existence, goals, and controversy must be properly framed, and a crucial conceptual distinction to this end divides *therapy* from *enhancement*. The arguments separating these notions in *Beyond Therapy: Biotechnology and the Pursuit of Happiness*, by the Council, hinge on a construct of human "normalcy" – maintained by therapy, transcended by enhancement.[1] The *normal* can be thought of as a distribution curve of physical and

---

[1] The President's Council on Bioethics, *Beyond Therapy: Biotechnology and the Pursuit of Happiness*,

mental capacities collectively sanctioned to be practical, healthy, and productive. Therapy aims to return those who have deviated from the curve, for example via illness, to within its boundaries; enhancement, on the other hand, moves people both to higher places on the curve and beyond it entirely. This distinction, however, becomes quite fuzzy in particular areas, and it will be further elaborated later in the chapter.

Transhumanists view enhancement as a biotechnological manifestation of the humanist tradition's view of progress as the cultivation and extension of human reason into the world. As an extension of humanism, transhumanism values individuals and the expression of reason, freedom, tolerance, democracy, and compassion, as means to promote the *good* – the manifestation of these characteristics is both the good itself and the facilitation of greater good. "Transhumanism is a way of thinking about the future that is based on the premise that the human species in its current form does not represent the end of our development but rather a comparatively early phase," involving 1) the application of reason and technology to address and overcome constraints on human life like aging and disease, to and enhance capacities intellectual, physical, and psychological, and 2) the study of biotechnology itself and the ethics of its application.[2] Adding technological techniques to the humanist tradition of enhancing humanity through "education and cultural development," transhumanism promotes the merging of humanity with artificial intelligence, the control of our individual biological and neurological processes with nanotechnology, neuropharmacology, and brain-computer interfaces, as well as the management of consciousness – intelligence, emotional well being and

---

(Washington, D.C., 2003),
http://bioethics.georgetown.edu/pcbe/reports/beyondtherapy/beyond_therapy_final_webcorrected.pdf (accessed July 4. 2010), 13.
[2] Nick Bostrom, *The Transhumanist FAQ: A General Introduction*, ver. 2.1 (World Transhumanist Association, 2003), http://www.transhumanism.org/resources/FAQv21.pdf (accessed July 11, 2010), 4.

stability, and sense perception.[3] The transhumanist philosophy envisions enhancement as a means to move individuals beyond our present distribution curve entirely.

We can already see certain biomedical technologies traditionally designated for therapy being used in the realm of enhancement, defined as moving individuals to states of higher capacity within the normal distribution curve. This manifests quite noticeably in the use of prescription drugs: people regulate consciousness legally, and illegally, with pharmacological means. "In a 2005 survey of more than ten thousand college students it was reported that between 4 and 7 percent of them had tried attention-deficit-disorder drugs for either all-night cramming sessions or to do better on their exams. On some campuses more than 25 percent of students had used the pills."[4] In another study, "some 14 percent of students at a midwestern liberal arts college reported borrowing or buying ADHD medications from one another, and 44 percent reported they knew of someone who did. The students say they use these tools to feel better – less depressed, less stressed out, more focused, better rested. In other words, to gain control of their mind."[5]

> Moreover, just as today's drugs are being used by healthy individuals to satisfy a whole host of desires, tomorrow's more sophisticated tools will enable individuals to ever more precisely influence their own neurochemistry. This newfound ability will lead to something very big – a fundamental shift in each individual's perception of daily events, ultimately transforming personal relationships, political opinions, and cultural beliefs all around the world. Revamping our minds, being freed from old constraints, we will literally and figuratively see the world in a brand-new way."[6]

The Council also notes this trend: "Although not originally developed for such uses, the available and possible techniques we have considered – techniques for screening

---

[3] Ibid.
[4] Zack Lynch and Byron Laursen, *The Neuro Revolution: How Brain Science is Changing Our World* (New York: St. Martin's Press, 2009), 184.
[5] Ibid., 188.
[6] Ibid., 189.

genes and testing embryos, choosing sex of children, modifying the behavior of children, slowing senescence, blunting painful memories, and brightening mood – do indeed promise us new powers that can serve age-old human desires."[7] Although these disparate techniques achieve different ends, they all represent "the dawning age of biotechnology and the greatly augmented power it is providing us, not only for gaining better health but also for improving our natural capacities and pursuing our own happiness," which will seek to fulfill our "desires for better children, superior performance, younger and more beautiful bodies, abler minds, happier souls" – in short, end-state perfection.[8]

Transhumanists encapsulate this perfectionist teleology in the notion of the "posthuman." Like the philosopher's stone, the elixir of life, and the Holy Grail, the posthuman symbolizes the final step, the-end state it seeks to manifest. "Posthumans could be completely synthetic artificial intelligences, or they could be enhanced uploads [human consciousness uploaded into synthetic circuitry], or they could be the result of making many smaller but cumulatively profound augmentations to a biological human," like "genetic engineering, psychopharmacology, anti-aging therapies, neural interfaces, advanced information management tools, memory enhancing drugs, wearable computers, and cognitive techniques."[9] The present developments they believe are leading us down this path are myriad, including genetic therapy and enhancement (both somatic and germ-line), stem cell technology, and nanotechnological "assemblers" capable of creating any material object, living or inert, from the atoms up.[10]

"On the optimistic view, the emerging picture is one of unmitigated progress and

---

[7] Council, 276.
[8] Ibid., 276-277.
[9] Bostrom, 5-6.
[10] Ibid., 11.

improvement, yielding a society in which more and more people are able to realize the American dream of liberty, prosperity, and justice for all," but an individualistic focus could lead to problems on individual and collective levels:

> an increasingly stratified and inegalitarian society, now with purchased biological enhancements, with enlarged gaps between the over-privileged few and the under-privileged many; a society of narcissists focused on personal satisfaction and self-regard, with little concern for the next generation or the common good; a society of social conformists but with shallow attachments, given over to cosmetic fashions and trivial pursuits, or a society of fiercely competitive individuals, caught up in an ever-spiraling struggle to get ahead, using the latest biotechnical assistance both to perform better and to deal with the added psychic stress.[11]

Of course progress and development toward the *good* appeals to all ethical sensibilities, but in planning proper courses of action in scientific research, its medical and autonomously chosen adaptations, and the public policy to oversee it all, potential benefits must be balanced with the philosophical and social risks. The Council identified the problems associated with transhumanism in three domains – motivation, action, and consequence. Do transhuman desires for enhancement and perfection reek of excess? Will this unleashing of the human imagination into the material realm be safe? Will unexpected results attend this process? Ethical issues of safety, equality, freedom top their list of concerns.

Two related philosophical objections to transhumanism posit that enhancement falls outside the ethical purview of human action: it is necessarily unnatural and in disruption of the natural order, and it entails "playing God."[12] Both of these objections circumscribe the rightful place of humanity as acquiescent to a higher order, and claim that tampering with or violating this boundary is both inherently and consequentially

---

[11] Council, 302.
[12] Ibid., 287, 290.

wrong.

Although these arguments provide some descriptive ethical insight into the opinions of many opponents of enhancement, serious flaws undermine their ability to have normative force. First, the "natural" may be defined in so many ways that its use generally obscures, rather than clarifies, debate. For example, "nature" can be used to denote anything along a continuum from anything devoid of human involvement to anything in existence. On one hand, it can be argued that tool use is natural to human activity, and as biological entities, humans are natural; thus, using tools is natural. Hence, the use of biotechnological tools to enhance humanity comprises a *natural* extension of the *natural* activity of tool use. Some contend that enhancement deviates from, for example, the use of a hammer, in a significant way: it involves the use of tools not just to modify our environment, but to modify the self. This parallels the internal/external debate – the hammer exists as a tool outside the self, while enhancement technologies involve merging with our tools.

These arguments falter, however, in light of current neuroscientific research on neuronal plasticity, which reveals that the modification of the environment *is* the modification of the self – "it has been shown that our brains actually allot neural space to those tools which we take up consistently."[13] The brain is the material cross section of the present moment, of the simultaneous interactions between self and environment, of the operant transactions between input (perception, sensation) and output (behavior), and the intellectual differentiation of self from other actually contrasts with the liminal

---

[13] Zebrowski, 242.

vagueness of our neural ontology.[14] The neuroscientific perspective suggests that both the body and tools are instrumental objects of the brain/mind, and that thus, the technological extension of the self into the environment must have the same value of naturalness we ascribe to our bodily existence: "Each of us is bound, bodily, to the tools that we use in a deeply neurological way."[15]

On the other hand, we can argue that the use of tools constitutes an unnatural turn in biological development, and that each epoch of technological advancement represents a further incursion into unnaturalness, from the use of simple tools to the domestication of fire, from agriculture to the invention of machines. Or, we could say that enhancement technology represents a different type of tool use in *kind*, not just *degree*, and that we are not just incrementally developing our technological abilities, but that the transhuman ideal of merging with our tools represents a rupture of continuity, a sudden descent into the unnatural. However, as we saw in the previous paragraph, tool use has arguably always been about merging body and tool, at least on the neural level. Even assuming the unnatural status of enhancement argument to be true, no matter what logical route we take to arrive at the conclusion that enhancement is unnatural, whether it is or not has little bearing on the debate about ethics. Without sufficient justification, jumping from descriptive statements about how things *are*, or how they *were*, to how they *should* be, is widely held to be a logical fallacy – the so-called naturalistic fallacy.

This, however, does not dissuade transhumanists from responding to the "naturalness" argument. Asked if transhumanism involves "tampering with nature," Bostrom replies, "Absolutely, and it is nothing to be ashamed of …. Changing nature for

---

[14] John Brockman, *Afterwords: Explorations of the Mystical Limits of Contemporary Reality*, (Garden City, New York: Anchor Press/Doubleday, 1973).
[15] Zebrowski, 242.

the better is a noble and glorious thing for humans to do."[16] Everything we agree to constitute progress and movement toward the *good*, like medicine, satellites, and eye glasses, could be construed as unnatural. But whether something is natural has little to do with whether it is good – in fact, some natural things are quite bad, like "starvation, polio, and being eaten alive by intestinal parasites."[17] There is nothing inherently good or bad about something's being natural. Former Council member Fukuyama claims that "bodily change [enhancement] alters not only how you appear or feel or act, but who you are as a person; … your human nature is replaced with something new."[18] Even if we agree with Fukuyama's conclusion (and it is unclear whether Fukuyama himself does – he claims that human nature transcends the body[19]), it would not follow that this is a bad thing. If transhumanism does change nature or human nature, depending what the change is, it very well may be as "glorious" as Bostrom posits.

Perhaps in their vague and fallacious appeals to the natural, bioconservatives struggle to articulate the *feeling* that something essentially human may be left behind in the transhuman quest for transcendence, as "we are in an area where initial revulsions are hard to translate into sound moral arguments."[20] Similarly, the "playing God" argument offers few supporting premises other than the idea that certain activities are simply off limits. Some support comes from positing that the presence of unforeseen consequences, uncertain goals, and a lack of extant standards for pushing an agenda forward should place it under moratorium. However, following this logic, little progress would have ever been made in the history of humanity. Certainly, unexpected consequences and emergent

---

[16] Bostrom, 35.
[17] Ibid.
[18] Zebrowski, 237.
[19] Ibid.
[20] Council, 286.

properties may attend technological development, but moving forward despite this has produced agriculture, industry, housing, pharmacology, the space program, transportation, and the internet, *ad infinitum*, as progress necessarily requires deviating from the known, the present standard. Further, the use of inarticulable *feelings* as normative guiding forces, as championed by Council member Leon Kass in "The Wisdom of Repugnance," is dubious at best, and propagates the vilest, lowest elements of mankind at worst.[21] The fact that someone may feel repelled by an interracial couple has absolutely no necessary connection to whether that couple *should* be together; a conservative Christian's revulsion to a Muslim ritual has no bearing on whether that ritual *should* take place. These feelings are generally culturally relative, inculcated over a lifetime of living in a particular context, such that one may mistakenly take them to represent the universal. Simply stating that weak arguments should suffice because it is "hard" to logically argue them fails to convince.

Another appeal to the "natural" in opposition to tranhumanism deals with the natural relationship between effort and achievement. Some opponents liken enhancement to "cheating," in that it may disrupt the continuity between deeds and feelings of accomplishment.[22] Again, this argument is quite problematic. Would we say that it is cheating to drive a car to a destination instead of enduring the character-building hardship of walking? Is it cheating to overcome illness with medicine instead of toughing it out? The Council would say no, because these enhancements do not undermine the source of excellence or achievement, which they claim to be the intelligibility of the means to an end: "There is an experiential and intelligible connection between means and ends; we

---

[21] See Kass, Leon R., "THE WISDOM OF REPUGNANCE. (Cover story)." *New Republic* 216.22 (June 2, 1997): 17-26.
[22] Council, 292.

can see how confronting fearful things might eventually enable us to cope with our fears. Human education ordinarily proceeds by speech or symbolic deeds, whose meanings are at least in principle directly accessible to those upon whom they work." [23] Biotechnological enhancement, they claim, provides the end without the understanding and meaning that typically accompanies the means. What is so good about that understanding? According to the Council, it is the intrinsic continuity between deed and feeling. [24] However, all technology disrupts this process: again, driving instead of walking and taking medicine in lieu of healing "naturally" certainly change the affective component of the physical process, but they do not eliminate meaning in the process of facilitating practicality. Further, one can enjoy listening to a CD, directly connecting with the activity of listening and the consequential feelings arising from it, without spending years learning to play music or understand music theory. One can enjoy cooking and eating a meal without rubbing sticks together to get the fire going to heat the food. One can meaningfully enjoy living in a house and raising a family there without having built it, or even understanding how it was built. Yes, the phenomenological account of meaning evolves in tandem with our technological advancement, but this change is not intrinsically bad; it does not necessarily "[deform] the nature of human agency and the dignity of the naturally human way of activity."[25]

This poorly reasoned argument, however, does indicate an area of which to be mindful: assuming that biotechnological enhancement will provide an end-state of perfection can lead to a certain laziness and loss of meaning. Using enhancement to merely more easily reach already attainable goals, people *could* become passive

---

[23] Ibid.
[24] Ibid.
[25] Ibid.

recipients of engineered end-states rather than active agents of self-transformation. We see this in particular types of drug abuse, where the senses of satisfaction and pleasure can be totally divorced from productivity. This effect, however, is not a necessary result of enhancement. For many, enhancement will be a means to greater levels of meaning, greater connection to activity, and greater forms of expression. For example, in the case of steroid use, the drug merely facilitates expanded athleticism, but users still have to choose to exert effort and exercise. Enhancements will not necessarily change one's behavior if one is already a hard worker, determined to push boundaries and excel; they simply will allow one's determination and hard work to yield greater results. Thus, yes, there is a danger of technology abuse, the use of enhancement to become "rotten with perfection,"[26] but it is unreasonable to assume this would be standard.

Another bioconservative argument along these lines posits an under-appreciation and misapprehension of the "giftedness" of reality.

> One revealing way to formulate the problem of hubris is what one of our Council Members has called the temptation to 'hyper-agency,' a Promethean aspiration to remake nature, including human nature, to serve our purposes and to satisfy our desires. This attitude is to be faulted not only because it can lead to bad, unintended consequences; more fundamentally, it also represents a false understanding of, and an improper disposition toward, the naturally given world. The root of the difficulty seems to be both cognitive and moral: the failure properly to appreciate and respect the 'giftedness' of the world. Acknowledging the giftedness of life means recognizing that our talents and powers are not wholly our own doing, nor even fully ours, despite the efforts we expend to develop and to exercise them. It also means recognizing that not everything in the world is open to any use we may desire or devise. Such an appreciation of the giftedness of life would constrain the Promethean project and conduce to a much-needed humility.[27]

It would be foolish to argue that humility should not attend the project of transhuman

---

[26] Hyde, 3.
[27] Council, 288.

enhancement, but assuming that an humble appreciation of the world precludes the development and use of enhancement does not follow. We can acknowledge the presence of certain givens like gravity, and even assume that individual (pre)dispositions and capacities are given, but this does not prescribe any particular cognitive or moral relationship to the given. Some believe that honoring the reception of a gift, and the "giver" itself (if one exists), requires a conservative, acquiescent approach to the given, while others believe that the liberal use of a gift most humbly demonstrates appreciation. The Council implies that a proper appreciation and understanding of the given leads to the acceptance of *their* intellectual and ethical positions. Thus, granting the assumption that nature and humanity are in fact *given*, the conclusions the Council posit do not necessarily follow. Rather, the Council seems to be advocating a position that many critics, perhaps accurately, refer to as "neo-Luddite."

Framing the enhancement debate in terms of the *natural*, of "*playing God*," and of *giftedness* does clumsily indicate some valid issues to keep in mind, but overall, fails to add substantial insight to the debate. All technological progress throughout human history can be argued to have breached the bounds of the natural, the divine, and the gifted. Bioconservatives seem to assume that our current era still represents the natural, and that transhumanism would represent a sudden flight into the unnatural, even though their own logic suggests otherwise. Our current relationships between deed and accomplishment, our current perceptions of the natural, our current accounts of the given, are all based on tens of thousands of years of the "unnatural" – human-induced change – so how could anyone today claim to have the original, authentic, unchanged, and proper orientation to these concepts? Thus, whether or not human history at large, or the

inevitable inclusion of enhancement in our lives, represents the appropriate or inappropriate relationship to nature, to divinity, and to giftedness, the framing of these arguments offers little valuable substance to the bioethical debate. What the Council does point out seems obvious – that change can be unsettling. However, struggling to locate what exactly unsettles us about change will prove invaluable. *Beyond Therapy*'s attempt at this process may not be logically invincible, but it does effectively model the type of thinking that should precede major technological leaps.

Underlying much of the therapy vs. enhancement debate, and somewhat related to the notion of the *natural*, is the idea of the *normal*. "'Therapy,' on this view as in common understanding, is the use of biotechnical power to treat individuals with known diseases, disabilities, or impairments, in an attempt to restore them to a normal state of health and fitness."[28] Individual and collective states of normalcy are thought to represent and promote the *good*. "'Enhancement,' by contrast, is the directed use of biotechnical power to alter, by direct intervention, not disease processes but the 'normal' workings of the human body and psyche, to augment or improve their native capacities and performances."[29] "More fundamentally, the idea of enhancement understood as seeking something 'better than well' points to the perfectionist, not to say utopian, aspiration of those who would set out to improve upon human nature in general or their own particular share of it."[30] Circumscribed in this manner, however, these categories are vague and overlapping, as noted by the Council. "When referring to a human function, does enhancing mean making more of it, or making it better? Does it refer to bringing

---

[28] Council, 13.
[29] Ibid.
[30] Ibid., 14.

something out more fully, or to altering qualitatively?"[31] Further, what do we mean by "normal?" Is there really a standard, normal, or natural human form we can appeal to in defining therapy and enhancement?

Adding slight clarification, Fritz Allhoff et al, in *Ethics of Human Enhancement: 25 Questions and Answers*, outline the distinction as follows: "Strictly speaking, 'human enhancement' includes any activity by which we improve our bodies, minds, or abilities – things we do to enhance our well-being," but in the context of this discussion, enhancement refers to "boosting our capabilities beyond the species-typical level or statistically-normal range of functioning for an individual;" this contrasts with therapy, which returns people from illness, or otherwise substandard mental and physical performance, to this normal range.[32] For Allhoff, "normalcy" denotes a socially constructed distribution curve of species-wide, typical capacities.[33] Yet this curve represents an evolving set of parameters which complicates sharp distinctions between therapy and enhancement, because to transhumanists' big picture, no static, normal, standard, natural human exists. Rather, humanity's present state is merely one cross section of a vast, dynamic enterprise of evolution, and to point to our present moment in that continuum as "normal" would only serve to undermine the very definitional and intellectual stability we are trying to create.

However, we can speak of functional normalcy, although its definitional edges are diffuse; people know when they feel unwell and need to go to the doctor, and the whole practice of medicine depends on knowing when people have deviated from normalcy via

---

[31] Ibid., 15.

[32] Fritz Allhoff et al, *Ethics of Human Enhancement: 25 Questions & Answers*, ver. 1.0.1 (US National Science Foundation, 31 Aug 2009), http://www.humanenhance.com/NSF_report.pdf (accessed July 11, 2010), 8.

[33] Ibid.

sickness. If we didn't have some idea of the standard mind or body, no diagnosis of illness would be possible. Thus, we can speak of socially constructed ideas of standard humans to include those who, as individuals, synchronize with the collective in all four Wilberian quadrants. For example, the normal, healthy individual in an archaic, foraging, tribal collective 75,000 years ago would have a functioning neocortex in addition to all previous physiological systems, and would be mentally capable of understanding and using symbolism. In practice, the application of Wilber's system is complex because our current center of gravity is moving from the stage of modernism, rationalism, and industrialism to postmodernism, relativistic pluralism, and "green" thinking (and beyond for some to the integrative and holistic levels) in some ways, but not others. Even so, we can simply circumscribe both the "orange" and "green" memes of Spiral Dynamics Theory to denote individual, healthy normalcy as the optimal physical and mental participation in reality at the same level as the collective. In this framework, therapy can be seen as the maintenance of this normalcy, while enhancement seeks to push humanity up the physiological and cognitive ladders beyond the societal status quo.

Wilberian Development

Wilber locates true progress in the continual development of our bodies, consciousnesses, worldviews, and societal institutions as manifestations of transpersonal self-expansion.

> In fact, the overall direction of development in humans – the telos of human development – is toward less and less egocentric states.… The evolutionary drive to produce greater depth is synonymous with the drive to overcome egocentrism, to find wider and deeper wholes, to unfold greater and greater unions. A molecule

overcomes the egocentrism of an atom. A cell overcomes the egocentrism of a molecule. And nowhere is this trend more obvious than in human development itself.[34]

Individual consciousness and collective worldviews evolve to encompass larger bases for grounding their perspectives on reality, from the self, to the group, to the world. Progress is marked by the expansion of perspectives to account for and embrace the *other* at ever-deepening levels of appreciation. This manifests in the biotechnological enhancement debate as a strategy for attributing weight to, and balancing, the bioethical principles of respect for individual autonomy and social justice.

Transhumanism seems very new and novel, but it is essentially just a new extension of the familiar – the same motivations, needs, drives, and desires, just a new way to fulfill and manifest them. As the WTA asserts, transhumanism does not necessarily entail a reformation of consciousness or worldviews: "In fact, it is perfectly possible to be a transhuman – or, for that matter, a transhumanist – and still embrace most traditional values and principles of personal conduct."[35] However, this might be the greatest problem – this ensures the pathological favoring of the Wilberian holonic drive for individual agency over that for communion. The vertical extension of our individualistic drives for enhancement and perfection toward the infinite possibilities of posthumanity must involve a horizontal revolution of consciousness and values toward the integrative and holistic in order to mitigate the myriad social issues and potential disaster scenarios that may accompany the unfolding of transhumanism. Yes, individuals are "wholes" and have rights to self-determination, but they are also "parts," and the evolution of consciousness can holistically move us toward an integrative posthuman

---

[34] Wilber, *A Brief History of Everything*, 216.
[35] Bostrom, 7.

future in which both agency and communion are enhanced. It's not that agency- and autonomy-favoring transhumanism will not also affect the other quadrants – but it will do so in pleiotropic and unexpected ways if concerns of justice and communion are not planned from the beginning.

For transhuman evolution to constitute true Wilberian progress, it must account for two aspects of fairness: the inequality of access to enhancement technology and the possible consequential widening of the gaps between social classes. The Council wisely notes that many enhancements are valuable only as positional goods: they are specifically intended to give people (who can afford them) an advantage over their competition.[36] We can imagine the near future to contain scenarios like this:

> A job candidate with a neural implant that enables better data retention and faster information processing would consistently beat our unenhanced candidates; a person with super-human hearing or sight could circumvent existing privacy protections and expectations by easily and undetectably eavesdropping or spying on others; more students (and professors) using Ritalin may grab admission or tenure at all the best universities, reducing those opportunities for others; and so on.[37]

This could be seen as a disruption of social order, but it could also comprise an impetus for social institutions and worldviews to catch up with the capabilities of enhanced individuals; "social disruption by itself does not seem enough to count as a strong reason against regulating enhancement technologies."[38] Transhumanists tend to assume that the aggregation of selfishly motivated, individual, positional enhancements consequentially feeds back into the overall good of society. However, this contrasts with Wilber's notion of progress, which emphasizes the intrinsically diminishing presence of selfishness. Positional enhancements, whose value lies in increased capacities relative to others, do

---

[36] Council, 280-281.
[37] Allhoff et al, 24.
[38] Ibid., 25.

threaten to exacerbate social tensions.

Many opponents of enhancement have speculated that the transhumanist drive for agency, if unchecked by the drive for communion, could ultimately cause "war, slavery, and genocide as humans face off against their genetic superiors."[39] As Council member Fukuyama has pointed out, liberal democracy is based on a principle of fairness in which people, although 'gifted' with different strengths, understand the mutual benefit of acknowledging each other as citizens with rights.[40] At this point, we have no way of knowing whether posthumans would see humans as members of a mutually beneficial social arrangement. In fact, some radical critics maintain this disparity to be the very intent of transhumanism: "The founders of transhumanism were highly educated and wealthy individuals of primarily British and European descent. These individuals were what we would call people of the elite, ruling class of society, and their views were absolutely elitist, if not outright totalitarian and fascist in nature."[41] This critique claims that transhumanism can be, and is intended to be, used as a mechanism to control populations, wherein people can be engineered to love their acquiescence or even slavery to whatever system the "elites" put into place, as in *Brave New World*. This use of enhancement would circumvent the need to use terrorism, as in *1984*, to keep people in line with the repressive social structure.

Although this is a possibility (as almost anything anyone can imagine is a possibility within the open ended potential of transhumanism), little credible evidence supports the ties of transhumanism to fascism, Nazism, Luciferianism, and cult-like

---

[39] Nicholas Agar, "Whereto Transhumanism? The Literature Reaches a Critical Mass," *Hastings Center Report* 37.3 (2007): 14.

[40] Ibid., 15.

[41] LVB, "Transhumanism, PsyWar, and B.E.P.'s 'Imma Be,'" Vigilant Citizen http://vigilantcitizen.com/?p=3563 (accessed July 11, 2010).

formations that some critics posit.[42]   However, transhuman enhancement could certainly be exploited to subjugate those without access. This possibility must be taken into account when considering the desirability of regulating transhuman endeavors.

The WTA counters that basic market tendencies foster holistic Wilberian progress. "The typical pattern with new technologies is that they become cheaper as time goes by. In the medical field, for example, experimental procedures are usually available only to research subjects and the very rich. As these procedures become routine, costs fall and more people can afford them."[43] Thus, worries about inequality should be an *impetus* for transhumanism, not a reason to restrict or ban it – the faster it comes, the sooner prices for enhancement will fall and it will become more and more accessible. The reality of this claim, however, depends on an evolution of consciousness toward communion so that individuals do not use their exponential head start on enhancement to maintain positional disparities. Even if the enhanced do wish to pursue Wilberian evolution, would this require foisting their perspective on everyone? If not, will people feel pressured to participate in enhancement in order to keep up with the enhanced?

The specter of coercion has led some critics to tie transhumanism to eugenics.[44] The WTA argues that transhumanism is about individual choice, not coercion, although if enhancements are safe and effective, "one can argue that parents have a moral responsibility to make use of these methods …. This defense of procreative liberty is compatible with the view that states and charities can subsidize public health, prenatal care, genetic counseling, contraception, abortion, and genetic therapies so that parents can make free and informed reproductive decisions that result in fewer disabilities in the

---

[42] Ibid.
[43] Bostrom, 20.
[44] Council, 5.

next generation."[45]

Critics claim that the possible standardization of germ-line genetic therapy could lead to undesirable societal homogenization.[46] Genetic homogenization could render the species vulnerable to extinction via cataclysm, whereas genetic diversity would enable some to survive. Homogenization of appearance and physical and mental capacities could cause stagnation on a collective level, as the interplay of our diversity generates new ideas. Homogenization would also constitute an affront to human dignity as manifest through individuality. It may be true that as our biotechnological prowess raises the bar for basic standards of health, we may homogenize a new baseline for both the normal distribution curve of human functioning and the collective norms of health care. However, this need not give rise to the further homogenization of individual aspirations. Rather, transhumanism promises to enable individuals to evolve in whatever direction they individually desire, regardless of societal conceptions of normalcy. Of course, some subjective desires are instilled from the larger collective worldview, but, as is the case today, people will interpret and act on them in their own individual, idiosyncratic ways.

Wilberian progress does not entail valuing communion *over* agency, it simply requires that the former not be trampled by the latter in our individualistic society and our autonomy-oriented bioethics. The Bill of Rights guarantees certain basic freedoms of expression and the pursuit of individual notions of happiness and fulfillment, but this does not mean we should have the unmitigated right to enhance in any way we choose. Paradoxically, the restriction of certain freedoms can increase our freedom overall. Freedom of speech is appropriately restricted, for example, in the prohibition of yelling

---

[45] Bostrom, 21-22.
[46] Council, 284-285.

"fire" in a public place where no fire exists; the freedom to own property can be usurped by eminent domain, a power intended to benefit all; traffic laws restrict free driving behavior to protect others' safety. These restrictions on individual freedom are implicitly acknowledged to increase that of the collective. Thus, some method must be established to facilitate a balance between individual enhancements and collective needs.[47]

> An outright ban of enhancements would be counterproductive for many reasons:
>
> They have enormous potential benefits that we would not want to forgo; … the poorest people may have a higher tolerance for risk in developments that could improve their condition; and … a ban may actually increase the dangers rather than reduce them, both by delaying the development of protective applications of these technologies, and by weakening the position of those who choose to comply with the ban relative to less scrupulous groups who defy it.[48]

In lieu of moratorium, the WTA advocates "differential technological development," the sequencing of the development of technologies in a manageable way.[49] For example, we should develop nanotech immune systems before developing nanoweapons, so that unexpected consequences or malicious use of the latter can be contained.

This forms an excellent starting point to begin discussing the policy implications for transhumanism, which will be detailed further in chapter four. Differential development could prevent individuals from enhancing particular capacities so much that they could completely dominate society. The research, development, and implementation of particular types of enhancement could be postponed until the lower quadrants, the cultural worldviews and social institutions, catch up and are able to adequately incorporate and deal with the enhancements already out there. According to Wilber, this would constitute the holistic spiritual evolution of humanity – the conscious development

---

[47] Wilber has a philosophy outlining this, which will be detailed in Chapter 4.
[48] Bostrom, 25.
[49] Ibid.

of all quadrants simultaneously. In order to facilitate this process as well as its oversight, transhumanist enhancement could be turned back on itself – that is to say, we could enhance our own capabilities to perceive the holistic integration of humanity in all four quadrants. This would not be mere cognitive enhancement, which as typically presented focuses on individual intelligence for one's own sake. It would not even be the emergence of superintelligence, which many transhumanists believe will constitute our arrival in a truly new age. Rather, I posit that transhumanism should look to enhance spiritual intelligence, not only as an individual manifestation of enhancement, but also as a guiding metaphor for transhumanism in general.[50]

"In the years to come, it will probably be commonplace for people who haven't yet devoted years of their life to meditation and prayer to achieve mystical states with the aid of a device. The point would be not the mystical experiences themselves, but the significant and possibly lasting aftereffects: release from depression, better immune functions, a more positive overall outlook on life."[51] These experiences will also affect the lower Wilberian quadrants. "At the global level, the repeated neurotheological exploration of spiritual, religious, mystical experiences across the world's religions will reveal we all share common moral instincts and intuitions, such as fairness and empathy."[52]

One primary characteristic of the spiritual or mystical experience is its transpersonal nature – the expansion of one's subjective perception of the self to encompass the other, the dissolution of the boundaries that allow one to care more for the

---

[50] This contrasts with superintelligence, which is the maximization and perfection of rational, analytical thinking. Spiritual intelligence, as I use it, denotes an experiential, holistic, four-quadrant understanding of reality and one's place in it.
[51] Lynch and Laursen, 147-148.
[52] Ibid., 151.

self than the other, the very essence of Wilberian progress. If transhumanism adopted this spiritual directive, enhancement technology could be developed and integrated into society at a sustainable pace. Further, if only the wealthy can afford such enhancements, at least initially, enhanced spirituality will not cause an increased divide between classes, but it could facilitate the desire of the better off to lift up the less well off among us.

> If enough of us realize what is coming , and if we can infuse this emerging wave with practical and benevolent intelligence, continuously keeping our aspirations aimed high, it will let us create a future of greatly enhanced, better-balanced, and more satisfying individual lives within a vastly transformed society that will build through an unimaginably powerful capability we've never had before: increasingly precise control over the most complex entity in the universe, the single most important determinant of the quality of the lives we lead – our human minds.[53]

This focus on the mind, rather than just the brain, underlies Wilber's notion of the *good*, which can be facilitated by not relegating transhuman enhancement to the body, brain, cognitive, and sensory capacities, but by incorporating the idea of enhancing our very consciousness and our collective worldviews. For example, research into drugs like psilocybin, although rooted in therapeutic objectives, could become a basis for the enhancement of spirituality.[54] The mystical experience can guide people along the Wilberian spectrum of consciousness and manifest their individual evolution in all four quadrants, bridging personal and collective enhancement.

> How do we reach the common good? What is right and appropriate for us, such that we can all inhabit the same cultural space with some sort of dignity and fairness? How do we arrange our subjective spaces so that they mesh in the common intersubjective space, the common worldspace, the common culture, upon which we have all depended for our own subjective being?
> This is not a matter of arranging *objects* in the space of simple location! It is a matter of arranging *subjects* in the collective interior space of culture. This is not simply truthfulness, and not simply the true, but the good.[55]

---

[53] Ibid., 8.
[54] This will be further elaborated in chapter 3.
[55] Wilber, *A Brief History of Everything*, 156.

CHAPTER III

SHAMANISM AND SPIRITUAL ENHANCEMENT

To potentiate Wilberian progress, transhumanism must view individual enhancement as a means to consciously promote both individual perfection *and* the common good. If transhumanism merely seeks to perfect humanity within the limited parameters of our contemporary understanding of perfection, we are doomed to stagnation or collective pathology and injustice. If instead we see the process of evolving and expanding consciousness, the very foundation for concepts like *perfection*, as a type of perfection itself, we can address both the ethics of enhancement and the possibility that transhumanism could become a vehicle for the permeation of society at large with a proper evolutionary intent.

> Ken Wilber points out that the maturation of one 'developmental line' or capacity, such as intellectual ability, can readily outstrip others, such as moral or emotional development. The result is uneven or lopsided development that is fraught with potential problems for the individual and sometimes for his or her society. For example, intellectual development seems to be necessary, but by no means sufficient, for moral development. Therefore, highly intelligent but morally immature people – such as Hitler and the Nazis – can act in extremely unethical ways and thereby inflict horrendous suffering on societies or even the planet. The fate of our species and our planet may depend on our ability to match our intellectual and technological mastery with our emotional and moral maturity. Wise people have long recognized this kind of need, and authentic spiritual disciplines therefore offer a full complement of practices that foster maturation of many facets of personality.[56]

Transhumanism risks promoting enhancement as an individual's divergence from community and environment, but for insight we can look to other types of "enhancement" not prominent in transhumanist theory, like spiritual practices, that support the common

---

[56] Roger Walsh, *The World of Shamanism: New Views of an Ancient Tradition* (Woodbury, MN: Llewellyn Publications, 2007), 27.

good. The cultural institution of shamanism can helpfully inform this dialogue because it fundamentally involves the expansion of consciousness to address collective concerns. The Toltec shaman Ken Eagle Feather addresses this:

> When you are out of balance with yourself, you are not connected to the world. When you are not connected to the world, you're just connected to yourself, and the perceptions that you *do* have are going to occur as a state of projection ….
> It is the inherent nature of humans to have this thing called self-reflection. Reality itself is just a mass amount of self-reflection. When we define our world, we are really just reflecting and then producing from that reflection.
> [The] Toltec teachings aren't to get a person to become a Toltec, per se – although for some people that might be the case – they are about minimizing self-reflection. They are about becoming a person of knowledge, which means that you are merged so much with the world that you are no longer reflecting on yourself; instead you are purely a complete part of the world.[57]

The danger of transhuman enhancements hinge on this notion of self-reflection: if you point two mirrors at each other, yes, the perspective is infinite in a sense, but within very narrow boundaries. If enhancement just becomes a reflection of what we already believe to be perfection, we may achieve it, but it will not facilitate the human drive for *true* perfection – the never-ending exploration of the human potential. Because shamanism models the Wilberian notion of progress as the transpersonal expansion of the self into deeper levels of individual and collective existence, it maps the ethical terrain that transhumanism will ideally traverse.

Shamanism as a model for development could infuse both the transhumanist biotechnological ascent and our culture at large with the humility and power to draw forth the next phase of humanity in a just, good-maximizing way. It could prevent transhumanism from extending the current psycho-spiritual malaise afflicting much of

---

[57] Hillary S. Webb, *Traveling Between the Worlds: Conversations with Contemporary Shamans* (Charlottesville, VA: Hampton Roads Publishing Company, Inc., 2004), 112.

Western society, characterized by rational, analytical-oriented capacities outstripping ethics. Focusing on shamanism does not signify a retreat to the romanticized eras of archaic, animistic, or mythic culture, but rather the inclusion of these paradigms in our developmental trajectory as we transcend to higher stages. We have pathologically wedded ourselves to rationalism, eschewing what came before and resisting the next phase of Wilberian evolution. One role of the modern shaman is to ease the societal transitions along the Wilberian continuum of progress. Speaking to this function, author, environmentalist, and modern shaman John Perkins states that "the role of the industrial shaman is the same role as it always has been. It's shape-shifting. It's leading the people into the next shape. It's helping the culture as a whole to visualize the next dream and to apply the energy that is necessary to have that dream manifest."[58] Shamanism can infuse an intrinsically ethical normative perspective on human evolution into transhumanism, guiding enhancement regulations to promote ethics and justice, and enhancing our shamanic capacities to more quickly evolve society at large toward the holistic and balanced, rejuvenating our systems of epistemology, ethics, ontology, and metaphysics.

Although a broad range of contextually nuanced vocations has fallen under the umbrella term *shaman*, and much of the academic literature involves debating the legitimacy and authenticity of the semantics, for the purposes of this paper I will adopt Roger Walsh's definition: "Shamanism can be defined as a family of traditions whose practitioners focus on voluntarily entering altered states of consciousness in which they experience themselves or their spirit(s) interacting with other entities, often by traveling

---

[58] Webb, 14.

to other realms, in order to serve their community."[59] The particular roles of the shaman

are culturally specific, but typically involve some or all of the following: healing physical

and mental ailments, mediating social disputes, divining the location of game animals,

maintaining the cultural mythology, leading religious rites, harmonizing social

institutions with cycles of time, leading souls to the afterlife as a psychopomp, and

intervening in natural phenomena, for example, to create favorable weather conditions.

Anthropologists, philosophers, religion scholars, mystics, psychologists, and

linguists have investigated shamanism and generated many different analyses of the

institution. Anthropologists have attempted both *emic* and *etic* studies of indigenous

shamanism: the former denotes an external or culturally "neutral" perspective; the latter,

an internal, participatory perspective. Although fully emic ethnographic approaches are

impossible to achieve from alternate cultural backgrounds, [60] anthropologists began

practicing the shamanism they observed early on to get a deeper understanding of its

many social roles and functions. Philosophers and mystics often laud the metaphysical

insights attending shamanism, while psychological analysis yields mixed results:

Freudian psychoanalysis interprets shamanic behavior as psychotic regressions, while

those of a Jungian bent may consider shamans heroic sages of the unconscious mind.

Defining shamanism etymologically also faces some ambiguity, as the original Siberian

Tungus *saman* was simply one with powers to use spirits at will, but the Tungus notion of

spirits may not necessarily correlate with our understanding. "Whatever the derivation,

the term *shaman* has been widely adopted by anthropologists to refer to specific groups

---

[59] Walsh, 15-16.

[60] For a fuller discussion of anthropological theory, see Elias Bongmba, "African Witchcraft: From Ethnography to Critique," in *Witchcraft Dialogues*, ed. George Clement Bond and Diane M. Ciekawy (Athens, Ohio: Ohio University Press, 2001), 39-79.

of healers in diverse cultures who have sometimes been called medicine men, witch doctors, sorcerers, wizards, magicians, or seers."[61]

Western scientific and empirical methods of ascertaining the nature of reality depend on sense perception and its replication and extension through technology. Yet the positivistic paradigm is based on the "cognicentric" stance that ordinary states of consciousness (OSC) determine the baseline parameters of this task of understanding. Shamanic states of consciousness (SSC), however, reveal an entirely new set of ontological and metaphysical rules and assumptions comprising reality.[62] The outliers beyond the boundaries of OSC are often quarantined to the realm of myth or insanity as perceived from the OSC; from the SSC, the realm of ordinary phenomena appears improbably constrained.[63] This distinction between modalities of consciousness has been defined in many ways: famed anthropologist Michael Harner differentiates the OSC from the SSC, legendary anthropologist Mircea Eliade calls the SSC a particular type of "ecstasy," contrasted with normal consciousness, and philosopher Ken Wilber describes these altered states as peak experiences[64] of more expansive stages of consciousness evolution. These altered states cannot be reduced to states of mere intoxication (as we often think of altered consciousness in our culture), which temporarily lower one's position on the Wilberian ladder of consciousness development. Moreover, although peak experiences of ecstasy or SSC bear little resemblance to OSC, shamans enter them strictly for purposes grounded in ordinary, social reality.

Shamans employ various methods for entering the SSC, including the ingestion of

---

[61] Walsh, 13.

[62] Michael Harner, *The Way of the Shaman*, 3d ed. (New York: HarperCollins Publishers, 1980, 1990), xix. The acronyms *OSC* and *SSC* are Harner's.

[63] Ibid., xix-xx.

[64] Wilber, *A Brief History of Everything*, 189.

visionary plants, drumming, chanting, singing, dancing, fasting, praying, and undergoing vision quests, ordeals, and combinations of the above. Entering an SSC first requires that an individual destabilize one's ordinary consciousness. "Destabilizers can be sensory, social, physiological, or chemical. Examples include sensory input such as intense music and drumming, physiological disturbances such as hunger and sleep deprivation, or chemicals such as psychedelics. Specific mental exercises that can function as destabilizers include contemplative disciplines such as intense concentration or mantra recitation."[65] These disruptions of the OSC loosen what Aldous Huxley calls the "reducing valve" of consciousness, which, he posits, evolutionarily adapted to restrict the influx of sensory perception and information from the "Mind at Large" to that which was necessary for survival in past biological and social environments.[66]

Huxley's idea hinges on the notion that types of consciousness, rather than being strict epiphenomena of the brain, are more like frequencies that the brain attunes to like a radio receiver. Subsequent to destabilization, consciousness reforms according to the "patterning forces" involved, like "beliefs, physiology, drugs, or the environmental setting. These patterning forces impose a specific organization on brain-mind function and thereby induce a corresponding state of consciousness."[67] "Patterning forces" correspond to what Harvard psychologist Tim Leary referred to as "set and setting," one's emotional, cognitive, and spiritual expectations of the experience as well as one's current emotional, cognitive, spiritual, and physical status and location. Repetition of the patterning process over time forges a reliable technique for entering a particular SSC

---

[65] Walsh, 186.

[66] Aldous Huxley, *The Doors of Perception* and *Heaven and Hell*, (New York: Harper & Row, 1954, 1955, 1956), 26.

[67] Walsh, 186.

relevant to a shamanic task at hand. Shamans have the ability to reenter OSC at will, as the ancient practice of consciousness transformation has been perfected over "at least twenty or thirty thousand years."[68]

Thus, the shaman expands his or her consciousness to encompass more domains of experience than are ordinarily available (upper-left quadrant); this is probably accompanied by corollary neurological changes, although research in this field has been largely stifled for decades[69] (upper-right). The social institution of shamanism (lower-right) supports these experiences, giving them form and function.   The cultural worldview (lower-left) in shamanic societies has grown to accommodate SSC, weaving its social form and functional substance into a mutually understandable collective narrative of health, justice, and balance. Accordingly, even the non-shamans in these cultures benefit from SSC by enjoying their subjective experiences of reality as situated in shamanically-oriented worldviews.

How Can We Learn from Shamanism? How is it Unique?

> Clearly we have much to learn from much that shamans do – the myths they live by, the training they undergo, the techniques they use, the crises they confront, the capacities they develop, the states of consciousness they enter, the understandings they gain, the visions they see, and the cosmic travels they take.
> The more we explore shamanism, the more it points to unrecognized potentials of the human body, mind, and spirit.[70]

We can agree that maximizing our human potential could possibly be a good thing, and that the exploration of SSC has proven integral to promoting individual and common

---

[68] Harner, 40.
[69] Relevant neuroscientific studies now fall under the heading "neurotheology," but so far this has dealt with meditation and mysticism, not shamanism.
[70] Walsh, 271.

good in some societies, but why shamanism? Is this mere romanticizing of outmoded

modalities of existence? Don't we have enough ideas to choose from in the vast array of

New Age movements? Doesn't monotheism suffice for spiritual development?

In our modern, rational, industrial society we have transcended the archaic, magic,

and mythic epochs, but we have failed to include them in our current worldviews and

social institutions.

> Wherever there is the possibility of *transcendence*, there is, by the very same
> token, the possibility of *repression*. The higher might not just transcend and
> include, it might transcend and repress, exclude, alienate, dissociate.… The
> Mayans had already moved from foraging to horticulture, and that meant *not only*
> that they could begin to bind various contentious tribes into a larger and solidified
> social structure – and *not only* that they could, via farming, free a class of priests
> to begin developing mathematics and astronomy and a sophisticated calendar –
> *but also* that they, in a way foragers never could, begin to deplete the rain forests.
> They transcended mere foraging, only to go too far and dissociate themselves in
> certain crucial ways from the biosphere, which was altogether suicidal. They
> didn't differentiate and integrate, they dissociated and alienated.[71]

Similarly, in our technological fervor, we have repressed the earlier integral components

of the holons vertically establishing our present age. Incorporating shamanism into our

culture will help fill out our alienated evolutionary past, help complete our acceptance of

the green pluralistic meme, and propel us toward the 2nd tier holistic and integrative

stages of brain/mind and social/cultural development. This does not entail doing away

with the ego, rationalism, industry, or any other aspect of our current epoch, but it entails

reframing and revaluing our individual and collective goals and aspirations, allowing

space for human evolution to proceed via natural holarchy rather than dominator

hierarchy.

The incorporation of shamanism into our culture would empower the experiential

---

[71] Wilber, *A Brief History of Everything*, 113.

component of knowledge engendered by SSC. The Mayan shaman Erick Gonzalez comments on this:

> We go into altered states of consciousness, into higher dimensions, where we can interact with Spirit. In these visions, your mind becomes a radio to listen to the frequencies of the universe. It becomes the telescope to see the macrocosm, and the microscope to see the microcosm. And it's not just in a visual way, like we do now in the third-fourth dimension. You experience the collective consciousness of those elements [of nature] and of those higher levels of being. You can become, let's say, a molecule of water. Suddenly you know what it is feeling , what it is thinking when it is the morning dew. You become that molecule – you start seeing and hearing and feeling and knowing the collective aspect of the water in all its moments of being, such as when it is falling down from the sky .… Knowing or feeling nature or the elements or different aspects of life is to become one with it.[72]

This transpersonal expansion of the *self* to encompass, merge with, or even momentarily totally become the *other* manifests the reality of the golden rule, engendering Buberian "I-Thou" relationships with what would rationally be construed as mere objects.[73] These Wilberian peak experiences offer glimpses of higher, transpersonal stages of consciousness and can gradually destabilize one's individual center of gravity and move it to greater heights.

> As the self unfolds … on up the spiral, the self's center of gravity will tend to organize itself around a predominant higher basic level. It will tend to *identify* its center of gravity with this level; this will be its 'home base' – its major fulcrum – around which it will organize most of its perceptions, its moral responses, its motivations, its drives, and so on. Thus, its center of gravity tends to shift through these higher basic spheres of consciousness with an averagely identifiable sequence:" the transpersonal stages of "the *psychic*, the *subtle*, the *causal*, and the *nondual*.[74]

The express aim of shamanism is to have these transpersonal experiences on behalf of others, the community, and the environment. Other practices, like meditation, prayer, or

---

[72] Webb, 133.

[73] See Buber, Martin, *I and Thou* (London: Continuum, 2004). Buber speaks of experiencing the elements of reality as subjects, not just as objects in relation to the observer, but as they are in themselves. This changes one's fundamental relationship to reality from "I-it" to "I-Thou."

[74] Wilber, *A Brief History of Everything*, 234-235.

yoga, can certainly create altered states of consciousness and personal empowerment and enhancement, but are often not explicitly geared toward manifesting the greater good. They might foster the individual movement into deeper levels of consciousness, but they do not intentionally act in all four quadrants the way shamanism does. They also tend to take longer to manifest practical spirituality. "The speed of some shamanic techniques helps. Disciplines such as meditation or yoga may be powerful but can require weeks or months of practice to induce palpable effects. Not so for shamanism. Some people with no prior training can walk into a workshop and, within minutes of listening to shamanic drumming, experience meaningful visions and insights."[75]

Religion, on the other hand, is primarily concerned with establishing *communitas*[76] at any given collective level of development, whether magical, mythic, rational, psychic, subtle, causal, or nondual.[77] Thus, religion acts primarily in the lower Wilberian quadrants (whatever the Wilberian level), organizing individuals around a unified collective worldview, but it doesn't necessarily promote evolution beyond that center of gravity on individual or collective levels. Further, spirituality is often a matter of *faith* in religion, not *experience* − faith in scripture, faith in priests − faith in second-hand knowledge. In this sense, integrating with our largely empirical, positivistic worldview, shamanism integrates the spiritual dimensions with empiricism, but with the additional force provided by not merely observing a phenomenon externally, objectively, but observing one's own experience of SSC.

---

[75] Walsh, 6.

[76] Victor Turner, "Liminality and Communitas," *The Ritual Process: Structure and Anti-Structure* (Chicago: Aldine Publishing, 1969), 94-113, 125-130. *Communitas* is the intersubjective, shared sense of concern (lower-left quadrant) breathing meaning into social structure (lower-right).

[77] Ken Wilber, *The Collected Works of Ken Wilber*, vol. 7, *The Eye of Spirit* (Boston: Shambhala Publications, Inc., 2000), 614.

As with religion, shamanism promotes the maintenance of harmony in its indigenous settings rather than perpetual development into higher and higher stages of evolution, as individuals in these societies are already familiar with SSC and needn't develop beyond their current center of gravity to benefit from shamanism. Integrated into our culture, however, it could fill in some dissociative individual and collective gaps, fostering our further development of consciousness, worldviews, and the regulation of social institutions. This would occur through the empowerment of the felt experience of knowledge as transpersonal *gnosis* and then *phronesis* – its practical application – and shamanism can provide instant access to these domains of knowledge. Shamanism allows for the immediate *experience* of what may be called the spirit world, and for our culture, it would first reawaken our awareness that SSC even exist. Then, direct revelation and the rational application of this wisdom as an individual endeavor can find support in new forms of religious organization, integrative medicine, philosophy, mysticism, and biotechnological research and regulation.

Can Shamanism be Authentically and Ethically Incorporated into our Culture?

> In our global village, with cultures sloshing into one another, there is widespread interest in non-Western healing and spiritual practices such as yoga and meditation. This love affair with spiritual practices now encompasses traditions from all parts of our shrinking globe. Jewish Kaballah, Christian contemplation, Sufi zikr, and Hindu and Taoist yoga all have their Western devotees. It was surely only a matter of time before this newfound fascination would encompass shamanism ….
> Another powerful and controversial factor in the opening of the Western mind was psychedelics. Their widespread use in the sixties unleashed experiences of such intensity and impact that they shook the very foundations of society. Suddenly millions of people found themselves blasted into types of experiences and states of consciousness that were, quite literally, beyond their

wildest dreams ….

Some of these states were obviously painful and pathological, and they filled blaring newspaper headlines. Yet others were clearly transcendent states that demonstrated to an unsuspecting world the remarkable plasticity of consciousness and the extraordinary range of alternate states available to us. What to make of these states and the drugs that induce them is still an unresolved puzzle for the Western world. However, it was surely inevitable that they would fuel fascination with tribal practitioners who use them in systematic, sacred ways for spirituality and healing.[78]

Although the mingling of cultures may well be inevitable, appropriating or adopting alternative cultural traditions risks sacrificing the very meaning one seeks to integrate. "The crucial point is that the *subjective* world is *situated* in an *intersubjective* space, or cultural space, and it is this intersubjective space that *allows* the subjective space to arise in the first place. Without this cultural background, my own individual thoughts would have no meaning at all. I wouldn't even have the tools to interpret my own thoughts to myself." [79] Shamanic revelation and action in higher states of consciousness, without adequate grounding in the larger collective narrative, will remain free-floating peak experiences that will not become permanent traits capable of moving individuals and society in the directions I posit are beneficial. Authenticity accompanies an experience not when it exactly replicates its original form, but when its substance is contextually meaningful. Sandra Ingerman, a former student of Michael Harner, and shaman in her own right, believes that reconstructing the essential substance of shamanism in a new form relevant to our own culture can facilitate the retention of authenticity:

I definitely meet some people who say you lose a lot by taking shamanism out of its cultural context. But the goal of Core shamanism is to give people a spiritual practice that they can easily adapt into their life. It's true that those things that

---

[78] Walsh, 4.

[79] Wilber, *A Brief History of Everything*, 154.

come from being involved in a tradition that has been passed down for many years is something we can't bring through in this system. But by adapting the different healing methods to address the issues of our culture and our time, we can bridge these ancient techniques into a modern-day culture.[80]

Core shamanism, isolated by anthropologist Michael Harner, contains the distillation of what he finds to be the core substance of shamanism that can exist independent of its original cultural form. In *The Perennial Philosophy*, Aldous Huxley speaks to this "highest common factor" found to some extent in all cultural contexts, the "direct spiritual knowledge" arriving from the "Mind at Large" to the mystics, saints, shamans, and sages of all cultures in all ages.[81]

> When the mind is subjected to certain rather drastic treatments, the divine element, of which it is in part at least composed, becomes manifest, not only to the mind itself, but also, by its reflection in external behavior, to other minds …. When poets or metaphysicians talk about the subject matter of the Perennial Philosophy, it is generally at second hand. But in every age there have been some men and women who chose to fulfil [sic] the conditions upon which alone, as a matter of brute empirical fact, such immediate knowledge can be had.[82]

This immediate knowledge comprises "the metaphysic that recognizes a divine Reality substantial to the world of things and lives and minds; the psychology that finds in the soul something similar to, or even identical with, divine Reality; the ethic that places man's final end in the knowledge of the immanent and transcendent Ground of all being – the thing is immemorial and universal."[83]

This universal substance of spiritual knowledge exists independent of the form or context enabling its acquisition, but although experiencing Perennial Philosophy is a necessary element of SSC, it is not sufficient – it must be acted on. Shamans encounter this knowledge, but also use their access to revelatory states for practical purposes. The

---

[80] Webb, 222.
[81] Aldous Huxley, *The Perennial Philosophy* (New York: HarperCollins Publishers, 1944,1945), ix.
[82] Ibid.
[83] Ibid., vii.

authentic acquisition of shamanism in our culture will in some form enable direct access to Perennial Philosophy, which will be used for problem-solving and four-quadrant evolution, and transhumanism can mobilize this process.

Even if the authentic adoption of shamanism is possible, whether it is ethical remains to be discussed. One factor facilitating the ethical emergence of authentic Western shamanism is the desire of many indigenous shamans to share their knowledge cross-culturally and ensure that it can be accessed first-hand by Westerners. Gonzalez claims that the diffusion of shamanic teachings into the Western world can be done, not only ethically, but as a matter of moral imperative. Responding to why this is so, he states the following:

> Several reasons. One is because of the condition in which we find our world today – a state of ecological, environmental, spiritual, and social collapse …. We can reconnect to that which we have lost, and the way we want to do this is through education, through sharing, through continuing doing our ceremonies and showing an example of what communities or society should be like in relation to and in harmony with nature ….
> The other reason is that humanity has entered our purification time, the completion of the thirteenth *baktun* that is spoken of in our prophecies …. Instructions were given so that this knowledge would be hidden until the time when that [shamanic] knowledge would need to be revealed once again to the world.[84]

Masters of the knowledge of the fractal, cyclic nature of time and the ingression of evolution into human history, shamans understand the evolutionary succession of Wilberian epochs. "For a hundred years before [the end of the *baktun* cycle], and from then on, the vibration of the Earth will be changing. Already we can see that the vibration, the frequency of the Earth has changed, as well as the adaptation of many plants, animals, the climate, and so forth. All are undergoing great change. We humans

---

[84] Webb, 128-129.

are also changing.   Metabolically, physiologically, spiritually, and psychically we are changing really fast. It is a great step in our spiritual evolution."[85]

Shamanism and Transhumanism

This rapid pace of change is readily compatible with the transhumanist view that we are on the cusp of radical transformation.   As Wilber points out, a proper intersubjective space must accommodate subjective experiences to ground them in meaning, and therefore, authenticity. Transhumanism already posits the enhancement of normal or latent capacities as a means to perfect the human enterprise of living out our potential. Shamanism also works to maximize our potential, but it focuses on social sustainability more than autonomy and individualism. While transhumanism envisions the goal of enhancement to be the perfection of humanity according to our current value system and conceptualization of cognitive and physical perfection, shamanism can mitigate the dangers of this type of enhancement by enhancing our capacity to evolve our concepts of perfection to include spirituality and the common good. Direct access to the Perennial Philosophy reorients one's perception of the good, and shamanism provides the tools to manifest it.

One way certain elements central to indigenous shamanism are being researched as enhancements lies in the entheogenic movement.[86] A pioneer in LSD research, while it was still legal, and altered states of consciousness, Stan Grof, states:

> The observations from psychedelic therapy and other forms of deep

---

[85] Ibid., 130-131.
[86] "Entheogen" refers to psychedelics and hallucinogens, but without the connotation of recreational use, as the term refers to "becoming divine within."

experiential work … suggest an even more radical reformulation of the relationship between the human personality and spirituality. According to the new data, spirituality is an intrinsic property of the psyche that emerges quite spontaneously when the process of self-exploration reaches sufficient depth …. The individual who connects with these levels of his or her psyche automatically develops a new worldview, within which spirituality represents a natural, essential, and absolutely vital element of existence. In my experience, a transformation of this kind has occurred without exception in a wide range of individuals, including stubborn atheists, skeptics, cynics, Marxist philosophers, and positivistically oriented scientists.[87]

After a decades-long hiatus on this research, it resumed with the work of Dr. Rick Strassman in 1990. At the medical school of the University of New Mexico in Albuquerque, Strassman researched the biology of the entheogenic compound DMT and its phenomenological effecs. This followed his interest in the facts that the pineal gland endogenously produces the molecule in the human brain, and that the pineal has been highly regarded by many metaphysical traditions – Descartes called it the "seat of the soul," it is correlated with the "third eye," and esoteric and mystical traditions East and West have located it as the center of spirituality for ages.[88] Although his work was cut short in 1995 by "problems inside and outside of the research environment," Strassman gathered enough data to draw dramatic conclusions and offer speculation about the more radical experiences.[89] He found that "spiritual states can be accessed, and mystical information gained, through drugs …. DMT affects the brain's ability to *receive* information, rather than only generating those perceptions."[90] Some of the more radical transformations of consciousness engendered by DMT can at this point only be described with language some would call poetic, as Strassman proposes that "DMT can allow our

---

[87] Walsh, 191, quoting Stan Grof.
[88] Rick Strassman, M.D., *DMT: The Spirit Molecule: A Doctor's Revolutionary Research into the Biology of Near-Death and Mystical Experiences* (Rochester, VT: Park Street Press, 2001), xv.
[89] Ibid., xvi.
[90] Ibid., xvii. This parallels Huxley's "reducing valve" philosophy.

brains to perceive dark matter or parallel universes, realms of existence inhabited by concsious entities."[91]

More recently, in 2006, Johns Hopkins researcher Dr. Roland Griffiths studied psilocybin, the primary psychoactive component of hallucinogenic mushrooms used by many shamanic Central American cultures for ritual purposes.

> Professor Roland Griffiths of Johns Hopkins University reported a study in 2006 in which sixty volunteers who were interested in religion and/or spirituality were given either psilocybin – the psychoactive ingredient found in some mushrooms – or Ritalin – a drug used to focus brain activity in people with attention deficit/hyperactivity disorder. The volunteers went to two sessions, eight hours each time, with a sixty-day interval in between. They weren't told which drug they were receiving, but were asked to describe thoroughly any immediate or long-lasting effects. Ten of those who were given psilocybin said their experience was the most significant spiritual experience of their lives. Twenty of them placed it among their five most meaningful life experiences. More than half called their psilocybin episode "a full mystical experience." What they described matched almost perfectly descriptions given by people who attained their mystical experiences without drugs. The subjects who took Ritalin did not report any mystical experiences.[92]

> In conclusion, the present study showed that, when administered to volunteers under supportive conditions, psilocybin occasioned experiences similar to spontaneously occurring mystical experiences and which were evaluated by volunteers as having substantial and sustained personal meaning and spiritual significance. The ability to prospectively occasion mystical experiences should permit rigorous scientific investigations about their causes and consequences, providing insights into underlying pharmacological and brain mechanisms, nonmedical use and abuse of psilocybin and similar compounds, as well as the short-term and persisting effects of such experiences.[93]

Thus, it appears that the authentic substance of spiritual wisdom can attend entheogenic experiences, even without the original form of shamanic ritual.

Another study tested whether indigenous Amazonian shamanic rituals, involving

---

[91] Ibid.
[92] Lynch and Laursen, 149.
[93] Roland Griffiths et. al., "Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance," *Psychopharmacology* 187 (2006): 282.

the entheogen *ayahuasca*,[94] could engender enhanced spirituality in novice participants. The results showed that the experience was not only spiritually meaningful during the experience, but that it also generated lasting, transpersonal effects.

> The current study shows that those who drink ayahuasca on just one occasion tend to have positive spiritual experiences during ceremonies and afterwards, and then take these positive experiences and integrate them into their daily lives. These ayahuasca ceremony participants tend to, after their experience, be more empathic and feel more connected to others, nature, and their sense of god or the divine.[95]

Explicitly transhumanist-oriented researchers are also pursuing types of enhancement parallel to the shamanic in areas other than pharmacology. David Pearce, for example, advocates for the "Hedonistic Imperative," which posits the necessity of genetically and nanotechnologically predisposing individuals in the future to experience a baseline consciousness of happiness.[96] This is referred to as "paradise engineering," and although it holds some promise, it is primarily devoted to engineering states of perpetual pleasure, not practical problem solving. Similarly, the engineering of "always-on" SSC, the way, for example, access to the internet is imagined to take place once integrated with the brain, may loom on the horizon.

Pearce's work, although he claims no relation to shamanism, does not model an appropriate template for transhuman shamanism. This is because shamanic entheogens do not directly transform one's attitudes and moral stance; instead, they simply provide a deeper, more holistic perspective in which one's actions and life as an individual appear more integrated with the collective context. For most people, this transpersonal

---

[94] *Ayahuasca* is a traditional Amazonian shamanic entheogen containing DMT.
[95] Stephen Trichter, et. al., "Changes in Spirituality Among Ayahuasca Ceremony Novice Participants," *Journal of Psychoactive Drugs* 41.2 (June 2009): 133.
[96] David Pearce, "The Hedonistic Imperative," HI Abstract, http://www.hedweb.com/hedab.htm (accessed July 11, 2010).

experience prompts an interior illumination about the relationship between knowledge and action – an aspect of the Perennial Philosophy. However, directly engineering a state of happiness or "enlightenment" does not necessarily have anything to do with gaining a greater understanding of one's interconnectedness with reality, the realization facilitating Wilberian evolution. Rather, Pearce imagines isolated, individualistic end-states of perpetual happiness to comprise perfection.

This end-state perfectionism also infects transhumanism as some interpretations of the singularity, the moment of evolutionary concrescence when the curve of the ingression of novelty[97] into reality becomes asymptotic, and change apparently occurs at an infinite rate. Inventor Ray Kurzweil champions this notion as a technological process:

> From my perspective, the Singularity has many faces. It represents the nearly vertical phase of exponential growth that occurs when the rate is so extreme that technology appears to be expanding at infinite speed. Of course, from a mathematical perspective, there is no discontinuity, no rupture, and the growth rates remain finite, although extraordinarily large. But from our *currently* limited framework, this imminent event appears to be an acute and abrupt break in the continuity of progress. I emphasize the word "currently" because one of the salient implications of the Singularity will be a change in the nature of our ability to understand. We will become vastly smarter as we merge with our technology.[98]

Thus, the perspective of something as a singularity is bound to the process of the general meme-holon of one age's giving way to the next. It is a singularity only from the perspective of being chronologically prior to the moment of its emergence; afterward, the perception of time and continuity would remain, as one's perspective will have evolved to understand the phase shift. The singularity is the telos, the end, the perfect manifestation, the posthuman, the philosopher's stone – it is the goal transhumanism seeks. But this

---

[97] For more on novelty, see Whitehead, Alfred North, *Process and Reality*, ed. David Ray Griffin and Donald W. Sherburne, corrected ed. (New York: The Free Press, 1978.)

[98] Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Penguin Group, 2005), 24.

definition overly romanticizes the emergence of the technological New Age, as though only a single step separates humanity from its end-state of total perfection.

Over millennia of astronomy, time-keeping, and time-mapping, shamans have a particular knowledge of the nature of time and the succession of ages, and their wisdom could infuse a more integrative understanding of the singularity into transhumanism. Shamans are equipped with the histories, mythologies, and techniques for facilitating a harmonic emergence into a new phase of humanity, which they see as more of a holistic, multidimensional event than a merely technological singularity. Psychologist, microbiologist, anthropologist, and shaman Oscar Miro-Quesada notes this impending transformation: "There is an imbalance, and that imbalance is reaching a critical point. A turning is going to have to happen, and that turning is going to create a major cataclysm. Not so much a geophysical cataclysm, but an inner cataclysm."[99] This inner cataclysm can be navigated as a birthing process with the shamanic techniques for the transpersonal identification with the *other* – the collective, the environment, the unconscious mind, the Perennial Philosophy.

---

[99] Webb, 10.

CHAPTER IV

IMPLEMENTATION AND IMPLICATIONS

We have seen that transhumanism intends to radically evolve humanity beyond its current state via biotechnology, seeking the perfection of the species. The kind of perfection on which transhumanism focuses is primarily envisioned as individual-oriented, and benefiting the world is relegated to secondary status, postponed to be figured out once we have capacities like superintelligence to aid us. However, we need to start determining the relationship between individual enhancement and collective betterment now. We need to ground this effort in a worldview supporting the Wilberian holarchic paradigm and a concept of justice that maintains our developmental stability, so we can foresee and accommodate the extra responsibilities that attend our evolution. This will enable our social institutions, for example our regulatory mechanisms, to appropriately keep track of the development and implementation of transhumanist research.

By looking to shamanism, we find extant techniques for expanding our consciousness in order to facilitate practical problem solving and achieve social balance. Integrating these techniques into our culture can give us, as individuals, greater perspective on how we would like to see the transhumanist agenda unfold. The social position of a "biotech shaman" could even emerge to oversee and regulate our voyage to the technological singularity. Further, the re-inclusion of shamanism in the evolutionary heritage underlying our present age could help deemphasize our boundedness to the orange meme and facilitate a healthy, holistic, and just transhuman future fully inhabiting

the green meme and beyond to 2nd tier existence.

"When the self's center of gravity identifies with vision-logic, when the person lives from that level, then we tend to get a very highly integrated personality, a self that can actually inhabit a global perspective, and not merely talk about it."[1] This relationship between word and deed, knowledge and action, requires an integral concept of values, morality, and justice.

Wilber's Kosmic framework of holons, introduced in chapter 1, addresses this relationship by emphasizing responsibilities along with capacities and rights. Shamanic insights, and the transhuman enhancements they influence, can help guide human holons toward recognition of the greater responsibilities attendant upon human progress: "Again, it's not that it would be nice if we met these responsibilities; it is a condition of existence. It is mandatory, or our communions will dissolve, and us with them. But, of course, we often seem to want to claim the rights without owning the responsibilities. We want to be a *whole* without being a *part* of anything!"[2] Here, Wilber clearly posits the *obligation* to identify and act on responsibilities to the collective, and justice manifests as the appropriate balance of holarchic rights and responsibilities. This obligation to social justice emerges as "The Basic Moral Intuition" to "protect and promote the greatest depth for the greatest span."[3]

> In other words, when we intuit Spirit, we are actually intuiting Spirit as it appears in all four quadrants (because Spirit manifests as all four quadrants – or, in short, as I and we and it [sometimes Wilber merges 'it' and 'its']). Thus, when I am intuiting Spirit clearly, I intuit its preciousness not only in myself, but in all other beings as well, for they share Spirit with me (as their own depth). And thus I wish to protect and promote that Spirit, not just in me, but in all beings as such,

---

[1] Wilber, *A Brief History of Everything*, 226.
[2] Ibid., 355.
[3] Ibid., 358.

and I am moved, if I intuit Spirit clearly, to implement this Spiritual unfolding in as many beings as possible: I intuit Spirit not only as I, and not only as We, but also as a drive to *implement* that realization as an Objective State of Affairs (It) in the world.[4]

Thus, according to Wilber, it is spiritual development that engenders the felt experience of an impulse, a responsibility, to actualize justice, which underlies the balance, maintenance, and evolution of holons to higher orders of existence. Although this responsibility parallels that found in social contract theory, a full analysis of that relationship is beyond the scope of this paper.[5]

Determining how to manifest this type of justice first requires addressing the right problems:

> Gaia's main problems are not industrialization, ozone depletion, overpopulation, or resource depletion. Gaia's main problem is *the lack of mutual understanding and mutual agreement in the noosphere* about how to proceed with those problems. We cannot rein in industry if we cannot reach mutual understanding and mutual agreement based on a worldcentric moral perspective concerning the global commons. And we reach that *worldcentric* moral perspective through a difficult and laborious process of interior growth and transcendence. In short, global problems demand global consciousness, and global consciousness is the product of five or six major interior stages of development. Simply possessing a global map will not do it. A systems map will not do it. An ecological map will not do it. Interior growth and transcendence, on the other hand, *will* do it.[6]

In concrete terms, research like that of Strassman, Griffiths, and Trichter on the immediate availability of the mystical, spiritual experience is a good start on integrating this interior growth with the transhumanist worldview. "As spirituality becomes

---

[4] Ibid.

[5] Wilber's idea of rights and responsibilities parallels notions of the social contract, although Wilber does not discuss whether, or how, it should be enforced. He does, however, appeal to self-interest in a sense, in that the interconnectedness of self and other within a holon means that the collective good *is* the personal good. For more information on the social contract and justice, see John Rawls, *A Theory of Justice* (Harvard University Press, 2005), Thomas Hobbes, *Leviathan* (Forgotten Books, 1950), John Locke, *The Second Treatise of Government* (Barnes and Noble Publishing, 2004), and Jean-Jacques Rousseau and Maurice Cranston, *Du contrat social* (Penguin Classics, 1968).

[6] Wilber, *A Brief History of Everything*, 337.

increasingly recognized as a valuable aspect of people's lives, changes may occur both in the clinical and political atmospheres that permit and encourage greater opportunities for personal spiritual growth. If this is the case, these opportunities will take many forms, with the use of entheogens likely being one of them."[7] If entheogens are shown to be safe and effective, law reform could ensue that enables their responsible use to gain insight into one's four-quadrant existence. Or, as this research merges with transhumanism, technological equivalents might be able to supplant the original, and illegal, substances used for mystical insight. This initial research begins the differential development necessary to keep transhumanism ethical. By focusing on spiritual evolution first, transhumanism's potentially injustice-exacerbating aspects can be addressed with a spiritually enhanced perspective before proceeding further.

However, even with reliable catalysts, without proper grounding in all quadrants, individual spiritual evolution will not translate into the handling of practical issues:

> The idea seems to be that if I can just contact my Higher Self, then everything else will take care of itself. But this fails to see that Spirit manifests always and simultaneously as *all four quadrants of the Kosmos*. Spirit, at any level, manifests as a self in a community with social and cultural foundations and objective correlates, and thus any *Higher* Self will inextricably involve a *wider* community existing in a *deeper* objective state of affairs. Contacting the Higher Self is not the end of all problems but the beginning of the immense and difficult new work to be done in all quadrants.[8]

Thus, although we can look to shamanism to see how certain cultures structurally ground enhanced perceptive capacities (SSC), to make practical use of shamanic wisdom in our culture, we must ground these experiences in intersubjectively meaningful ways as individuals and as members of the social and political collectives.

---

[7] Trichter et. al., 133.
[8] Wilber, *A Brief History of Everything*, 340.

Wilber practices and promotes Integral Life practice, a system based on his written work that integrates his theories into everyday life. Providing a framework for integrating the entheogenic experience, whether transhuman or old fashioned, ILP may be an authentic and practical way to root the experience, instead of directly appropriating shamanic ritual, because it is adapted specifically to *our* individual and collective needs.

> Integral Life Practice (ILP) is no-nonsense, practical application of the Integral model that helps you to authentically exercise all aspects or dimensions of your own being-in-the-world. ILP teaches 4 core modules – body, mind, spirit and shadow – as well as 5 or so auxiliary modules – ethics, yoga of relationships, karma yoga, transforming emotions, and sexual yoga – and dozens of potential electives. Grounded in hundreds of transformative practices, East and West, ILP allows you to take anything you're already doing and place it within a comprehensive framework that finally makes sense of it."[9]

This system is simply one of many ways to actualize a Wilberian orientation to reality. It addresses the individual in all four quadrants, and at all levels in the spectrum of consciousness, by providing tools to develop one's relationships to both one's own body, mind, emotions, and spirit, as well as these aspects of others. Thus, it could be used as a template for the individual practice of integrating spiritual enhancement into all aspects of one's life, and subsequently as a basis for maintaining this rooting while participating in other types of transhuman enhancement. For example, transhumanists imagine superintelligence to be a vast expansion of our rational capacities for computation and analytical thinking. Without an integral perspective, such enhancements in the hands of the few could certainly enable the dominance of society in whatever ways they see fit. However, if those receiving "superintelligence upgrades" first enhanced their spirituality, their holistic perception and experience of humanity and its development, they would be

---

[9] Clint, "Integral Life Practice," My ILP, http://www.kenwilber.com/personal/ILP/MyILP.html (accessed July 11, 2010).

more likely to use their newfound rational prowess for the greater good.

Similarly, the power over others afforded by positions of social authority, not just by transhuman enhancement, should be grounded in spiritual enhancement. The extent to which one's actions are intended to influence and affect the collective, his or her worldview and actions should accord with, and manifest, Wilberian progress. The "shamans" of our culture will be those who can help us imagine, and actualize, the next phase of human existence, which will ideally be integrative, holistic, and just. These will be the policy-makers, not just in the domain of enhancement, but in all types of decision-making that directly affects the public. They will be the activists encouraging politicians to maintain a vision of holistic progress, and the artists and musicians expressing higher states of consciousness as manifestations of beauty. The new shamans will also be those with the standard enhancements that transhumanists believe will arrive in the near future, like immortality, superintelligence, or digital existence as uploads, but who also have been spiritually enhanced to use trans- and posthuman capacities for the greater good.

As transhumanism embraces spirituality, its newfound, intrinsic orientation to the ethical and just may be enough to entice the like-minded, but to provide a broader appeal, we must first look at how the cognitive and affective domains of consciousness come together to underlie the decision-making process. One option for introducing the idea of spiritual enhancement into the public consciousness is the "nudge." Less invasive than bans or coercion, but more active than leaving it up to market forces, "nudging" this idea into the lives of individuals, the collective social and political landscapes, and the transhumanist community itself, may be accomplishable through astute "choice architecture."

"A choice architect has the responsibility for organizing the context in which people make decisions;" we see this in designing voting ballots, doctors explaining treatment options to patients, and parents detailing educational possibilities to their children.[10] The importance of this idea hinges on the fact that even without explicitly advocating any particular option, the presentation of alternative courses of action itself actually affects the choices people make. For example, people will be more conscious of supermarket items displayed at eye-level than those near the floor, so placing an item at this level at least theoretically increases its probability of being purchases.[11] Intentionally utilizing this concept to "nudge" people to make choices intersubjectively deemed healthy and functional constitutes an action of "libertarian paternalism," a "liberty-preserving" means "to try to influence people's behavior in order to make their lives longer, healthier, and better."[12] Liberty is preserved, for example, when healthy food is placed at eye level in a grocery store, because people are still free to purchase whatever they choose. It's just more likely that the healthy food will play a strong role in their decision making process when it is prominently displayed.

Why should anyone have the right to subtly influence the choices of others in this manner, especially when said nudges are not transparent? Thaler and Sunstein claim that this issue is not so much about rights as inevitability: whether one intentionally nudges or not, the presentation itself of alternatives *will* affect the decision-making process.[13] This, however, does not necessarily prove that people have the right to intentionally take advantage of this fact, or that doing so does not affect the nudged people's liberty. But,

---

[10] Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness*, 2d. ed., enl. (New York: Penguin Books, 2009), 3.
[11] Ibid., 1-2, 6.
[12] Ibid., 4-5.
[13] Ibid., 10.

although randomizing supermarket layouts may appear to maximize liberty, this will result in consumers at some stores having healthier diets than those at other stores,[14] and we can agree that certain aspects of human existence, like having good health, maximize both individual expressions of liberty and participation in the collective good. If we can also agree, as I have argued, that Wilber's descriptive and normative paradigm provides a proper understanding of, and relationship to, individual and collective human evolution, then it may be reasonable to nudge people to accept and act on this framework.

"Nudges" include setting default choices to settings favoring this type of progress,[15] drawing from marketing studies to use methods like advertising, slogans, and polling to highlight particular options,[16] and financially incentivizing particular options.[17] One can imagine, as transhumanism and enhancement become more pervasive, health (or enhancement) insurance forms for particular jobs of power might nudge people toward spiritual enhancement by requiring them to opt out if they are not interested. People could also be required to opt out of spiritual enhancement when they attempt to obtain power in other ways, such as through the acquisition of transhuman superintelligence.

Advertisements and public service announcements could "emphasize the stakes"[18] by highlighting the negative effects of enhancing particular areas of humanity or pursuing particular notions of perfection without basing them on a holistic framework of progress, citing historical examples like the Chinese "Great Leap Forward" and Nazism, or providing hypotheticals like those in *Beyond Therapy*, suggesting the loss of dignity and

---

[14] Ibid., 2.
[15] Ibid., 8. For example, in many places people must opt out of organ donation rather than opt in. The default has been changed to utilize the inertia of default settings.
[16] Ibid., 53-73.
[17] Ibid., 99.
[18] Ibid., 71.

meaning. However, it may not be a good thing to mingle a noble cause like spiritual enhancement with crass marketing strategies.

Alternatively, polls could be issued asking the public *when* they, or cultural leaders, will and/or should spiritually enhance, not just *if* they should.[19] Finally, pricing could encourage people to undergo spiritual enhancement before other types of enhancement that increase power over others. For example, "superintelligence upgrades" could be made rather expensive unless someone has already undergone spiritual enhancement (although admittedly this would not work on the wealthy). This is by no means an exhaustive list, nor a position beyond critique, but it serves as a starting point for a discussion about nudging transhumanism toward ethics, and nudging people toward ethical transhumanism.

> A new center of gravity is slowly emerging – the vision-logic information society, with an existential or aperspectival worldview (Lower Left), set in a techno-economic base of digital information transfer (Lower Right), and a centauric self (Upper Left) that must integrate its matter and body and mind – integrate the physiosphere and biosphere and noosphere – if its behavior (Upper Right) is to functionally fit in the new worldspace.
>
> And this is a very tall order. Because the really crucial point is that a new transformation places a new and horrible *burden* on the world. It is hardly cause for undiluted celebration! Every new emergent and transformative development brings a new demand and a new responsibility: the higher must be integrated with the lower. Transcend and include. *And the greater the degree of development, the greater the burden of inclusion*.[20]

As Wilber's concept of justice indicates, development does not just increase freedom and rights, it also increases responsibility. By addressing this now, we can ensure that transhumanism aids our development into the future as a justice-preserving, rather than just autonomy-catering, enterprise of holism, fairness, and true perfection.

---

[19] Ibid. "The nudge provided by asking people what they intend to do can be accentuated by asking them when and how they plan to do it."

[20] Wilber, *A Brief History of Everything*, 349.

WORKS CITED

Agar, Nicholas. "Whereto Transhumanism? The Literature Reaches a Critical Mass." *Hastings Center Report* 37, no. 3 (May 2007): 12-17.

Allhoff, Fritz, Patrick Lin, James Moor, and John Weckert. *Ethics of Human Enhancement: 25 Questions & Answers*, ver. 1.0.1. US National Science Foundation, Aug 31, 2009. http://www.humanenhance.com/NSF_report.pdf (accessed July 11, 2010).

Bongmba, Elias. "African Witchcraft: From Ethnography to Critique." In *Witchcraft Dialogues*, edited by George Clement Bond and Diane M. Ciekawy, 39-79. Athens, Ohio: Ohio University Press, 2001.

Bostrom, Nick. *The Transhumanist FAQ: A General Introduction*, ver. 2.1. World Transhumanist Association, 2003. http://www.transhumanism.org/resources/FAQv21.pdf (accessed July 11, 2010).

Brockman, John. *Afterwords: Explorations of the Mystical Limits of Contemporary Reality*. Garden City, New York: Anchor Press/Doubleday, 1973.

Buber, Martin. *I and Thou.* London: Continuum, 2004.

Clint. "Integral Life Practice." My ILP. http://www.kenwilber.com/personal/ILP/MyILP.html (accessed July 11, 2010).

Fukuyama, Francis. "Transhumanism. (Cover story)." *Foreign Policy* 144 (September 2004): 42-43.

Griffiths, R., W. Richards, U. McCann, and R. Jesse. "Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance." *Psychopharmacology* 187, no. 3 (2006): 268-283.

Harner, Michael. *The Way of the Shaman*, 3d ed. New York: HarperCollins Publishers, 1980, 1990.

Hobbes, Thomas. *Leviathan*. Forgotten Books, 1950.

Huxley, Aldous. *The Doors of Perception* and *Heaven and Hell*. New York: Harper & Row, 1954, 1955, 1956.

Huxley, Aldous. *The Perennial Philosophy*. New York: HarperCollins Publishers, 1944,1945.

Hyde, Michael. *Perfection:Coming to Terms with Being Human*. Waco: Baylor University Press, 2010.

Kass, Leon R. "THE WISDOM OF REPUGNANCE. (Cover story)." *New Republic* 216, no. 22 (June 2, 1997): 17-26.

Kurzweil, Ray. *The Singularity is Near: When Humans Transcend Biology.* New York: Penguin Group, 2005.

Locke, John. *Second treatise of government*. Barnes & Noble Publishing, 2004.

LVB. "Transhumanism, PsyWar, and B.E.P.'s 'Imma Be.'" Vigilant Citizen. http://vigilantcitizen.com/?p=3563 (accessed July 11, 2010).

Lynch, Zach, and Byron Laursen. *The Neuro Revolution: How Brain Science is Changing Our World.* New York: St. Martin's Press, 2009.

Pearce, David. "The Hedonistic Imperative." HI Abstract. http://www.hedweb.com/hedab.htm (accessed July 11, 2010).

Rawls, John. *A Theory of Justice*. Harvard University Press, 2005.

Rousseau, Jean-Jacques, and Maurice Cranston. *Du contrat social*. Penguin Classics, 1968.

Strassman, Rick, M.D. *DMT: The Spirit Molecule: A Doctor's Revolutionary Research into the Biology of Near-Death and Mystical Experiences.* Rochester, VT: Park Street Press, 2001.

Thaler, Richard H., and Cass R. Sunstein. *Nudge: Improving Decisions About Health, Wealth, and Happiness*, 2d. ed., enl. New York: Penguin Books, 2009.

The President's Council on Bioethics, *Beyond Therapy: Biotechnology and the Pursuit of Happiness*. Washington, D.C., 2003. http://bioethics.georgetown.edu/pcbe/reports/beyondtherapy/beyond_therapy_final_webc orrected.pdf (accessed July 4. 2010).

Thinkexist. "Albert Einstein quotes." http://thinkexist.com/quotation/you-cannot-solve-a-problem-from-the-same/1003327.html (accessed July 8, 2010).

Trichter, Stephen, Jon Klimo, and Stanley Krippner. "Changes in spirituality among aya-huasca ceremony novice participants." *Journal of Psychoactive Drugs* 41, no. 2 (June 2009): 121-134.

Turner, Victor. "Liminality and Communitas," *The Ritual Process: Structure and Anti-Structure.* Chicago: Aldine Publishing, 1969.

Walsh, Roger. *The World of Shamanism: New Views of an Ancient Tradition.* Woodbury,

MN: Llewellyn Publications, 2007.

Webb, Hillary S. *Traveling Between the Worlds: Conversations with Contemporary Shamans.* Charlottesville, VA: Hampton Roads Publishing Company, Inc., 2004.

Whitehead, Alfred North. *Process and Reality*. Edited by David Ray Griffin and Donald W. Sherburne. New York: The Free Press, 1978.

Wilber, Ken. *The Collected Works of Ken Wilber*, vol. 7. Boston: Shambhala Publications, Inc., 2000.

Wittgenstein, Ludwig. *Philosophical Investigations: The German Text, with a Revised English Translation.* 3d. ed. Malden, MA: Blackwell Publishing, Ltd., 2001.

Zebrowski, Robin L. "Altering the Body: Nanotechnology and Human Nature." *International Journal of Applied Philosophy* 20, no. 2 (Fall 2006): 229-246.

WORKS CONSULTED

Anissimov, Michael. "Stephen Hawking: 'Humans Have Entered a New Stage of Evolution.'" *h+*. Infoswell Media (Sept 16, 2009). http://hplusmagazine.com/articles/science/stephen-hawking-%E2%80%9Chumans-have-entered-new-stage-evolution%E2%80%9D (accessed March 9, 2010).

Bailey, Ronald. *Liberation Biology*. Amherst, NY: Prometheus, 2005.

Begley, Sharon. *Train Your Mind, Change Your Brain*. New York: Ballantine Books, 2008.

Bostrom, Nick. "IN DEFENSE OF POSTHUMAN DIGNITY." *Bioethics* 19, no. 3 (June 2005): 202-214.

Buchanan, Allen E. "Enhancement and the Ethics of Development." *Kennedy Institute of Ethics Journal* 18, no. 1 (2008): 1-34.

D'aquili, Eugene, and Andrew Newberg. *Why God Won't Go Away*. New York: Ballantine Books, 2001.

Dresser, Rebecca. "Designing Babies: Human Research Issues." *IRB: Ethics & Human Research* 26.5 (September 2004): 1-8.

Fukuyama, Francis. *Our Posthuman Future*. New York: Macmillan, 2003.

Garfield, Michael. "The Psychedelic Transhumanists." *h+*. Infoswell Media (Sept. 29, 2009). http://hplusmagazine.com/articles/enhanced/psychedelic-transhumanists (accessed March 9, 2010).

Groesbeck, C J. "C. G. Jung and the shaman's vision." *The Journal of Analytical Psychology* 34, no. 3 (1989): 255-275.

Hockenhull, Oliver. "Soul Medicine: Ecstacy (MDMA) as Therapy." *h+*. Infoswell Media (Dec. 23, 2009). http://hplusmagazine.com/articles/enhanced/soul-medicine-ecstasy-mdma-therapy (accessed March 9, 2010).

Juengst, Eric T., Robert H. Binstock, Maxwell Mehlman, Stephen G. Post, and Peter Whitehouse. "Biogerontology, 'Anti-aging Medicine,' and the Challenges of Human Enhancement." *Hastings Center Report* 33, no. 4 (July 2003): 21-30.

Kaebnick, Gregory E. "On the Sanctity of Nature." *Hastings Center Report* 30, no. 5 (September 2000): 16.

Kent, James. "The Genomic Boddhisattva." *h+*. Infoswell Media (Sept. 16, 2009). http://hplusmagazine.com/articles/bio/genomic-bodhisattva (accessed March 9, 2010).

Kotler, Steve. "The Neurology of Spiritual Experience: A Conversation with Andrew Newberg." *h+*. Infoswell Media (Sept. 16, 2009). http://hplusmagazine.com/articles/neuro/neurology-spiritual-experience (accessed March 9, 2010).

Latorra, Michael. "Cyborg Buddha: Science and Spirit." *h+*. Infoswell Media (Sept. 16, 2009). http://hplusmagazine.com/articles/enhanced/cyborg-buddha-science-and-spirit (accessed March 9, 2010).

McKenna, Terence. *The Archaic Revival*. San Francisco: HarperCollins, 1991.

Metzinger, Thomas. *The Ego Tunnel: The Science of the Mind and the Myth of the Self*. Advance Uncorrected Proof. New York: Basic Books, 2009.

Sandel, Michael J. "THE CASE AGAINST PERFECTION. (Cover story)." *Atlantic Monthly (10727825)* 293, no. 3 (April 2004): 50-62.

Stock, Gregory. *Redesigning Humans*. New York: Houghton Mifflin, 2002.

VITA

Michael Tennison completed his undergraduate work at Guilford College in Greensboro, North Carolina, and received a Bachelor of Arts in Philosophy in 2005. After pursuing independent studies in philosophy, religious studies, anthropology, and music, he moved to Winston Salem, North Carolina, and completed a Master of Arts degree in Bioethics at Wake Forest University in 2010. He received the "Best Thesis Award" for his studies in this program, and will continue his work as a Bioethics Fellow at Wake Forest University beginning in the fall of 2010.