MATTERS of CONSEQUENCE

Creating a Meaningful Life and a World That Works

Copthorne Macdonald

Foreword by Paul H. Ray

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Allan Combs, author of *The Radiance of Being* and member of the Club of Budapest

"This book is brilliant yet accessible, terse yet so deeply considered that each paragraph opens worlds."
Vicki Robin, coauthor of *Your Money or Your Life*

"A tour of The Force and a tour de force!"
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"*Matters of Consequence* is a master work in applying evolutionary understanding to the critical problems of our time."
Barbara Marx Hubbard, futurist and author of *Emergence* and *Conscious Evolution*

"This is an important synthesis of some of the most important thinking being done today among those who hope to heal and repair the world."
Rabbi Michael Lerner, Editor of TIKKUN and author of *Spirit Matters*

"*Matters of Consequence* is a truly important book that should be read by everyone interested in the nature of the world, the nature of society, and human nature."
Ervin Laszlo, system-theory pioneer, author of *Macroshift*, and Club of Budapest President

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"*Matters of Consequence* is a master work in applying evolutionary understanding to the critical problems of our time and revealing a design of action to carry humanity through to the next stage of our development. I highly recommend it."

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"Copthorne Macdonald has written an utterly splendid review and analysis of what is really important in life. Its particular value is its focus on what we most need to attend to about our emerging world. He has organized his book well, with sharp, incisive comments. *Matters of Consequence* shows us our own human faces with real gems of insight. I finally found myself creating a new file called 'Cop's Gems.' Get it. You need it."

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> **Vicki Robin**, co-author of *Your Money or Your Life.*

"This is an important synthesis of some of the most important thinking being done today among those who hope to heal and repair the world."

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> **Ervin Laszlo**, system-theory pioneer, author of nearly 70 books, including *Macroshift: Navigating the Transformation to a Sustainable World* and several reports to The Club of Rome, founder and President of the Club of Budapest, advisor to the UNESCO Director General, member of the International Academy of Science and World Academy of Art and Science.

"Never has a single book brought together such a rich trove of facts, resources, and wisdom.

Here, Copthorne Macdonald blends compelling wisdom of the inner world of mind and consciousness with a keen knowledge of the realities of politics, business, and ecology, to yield up a rich serving of insight and practical suggestions for a spiritually sustainable future. It is authors such as he, and those who read them, who offer the truest future hope for humankind.

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> **Allan Combs**, author of over 50 articles, chapters, and books including *The Radiance of Being: Complexity, Chaos, and the Evolution of Consciousness* which won the 1996 best book award of the Scientific and Medical Network of the UK, Editor of *Integralis*, and member of the Club of Budapest.

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"A tour of The Force and a tour de force!"

> **Martin Rutte**, co-author of *Chicken Soup for the Soul at Work*.

"Occasionally when I read a book I get the unmistakable feeling that there is an original mind behind the writing—it is not just a rehash of what has previously been said, but contains genuinely new ideas. Humanity is in great need of a convincing worldview that strongly values both personal development and improvement of our economic and social systems. This book is major contribution to the development of such an integrated approach."

> **John Stewart**, Australian evolutionary theorist, author of the book *Evolution's Arrow* and of a number of scientific papers on evolution and its implications for humanity.

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MATTERS
of
CONSEQUENCE

Creating a Meaningful Life
and a World That Works

Copthorne Macdonald

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To Bev, in appreciation for everything.

And to Rachel, Camille, Meghan, and Katie,
whose world this book is about.

ACKNOWLEDGEMENTS

FOREWORD

by Paul H. Ray

What's really important in life? What really matters in this world? What really deserves our scarce time and attention, beyond the crush of everyday demands that are merely urgent? As a college student, I kept asking these big questions, going to whole libraries of books in search of the answers. But the scholars of the time had trouble for-mulating helpful answers. Now, finally, after four decades, here's the book I was looking for as a student. It says that surprising new answers are emerging, and that they can both excite and dismay us. Coming back to those big questions just after the turn of the millen-nium, I am aware just how much unwisdom drives modern society, and how in risky times, good books like this give a solid basis for serious action in the world. In an endorsement for this book, I wrote: "Get it. You need it." Why?

Between these two covers is a model of responsible inquiry into many of the big questions that we really **need** to encounter, whether as youths or adults, not only for our personal benefit, but for the good of our civilization. At the level of our own personal inquiry, this is a tasty, chewy, energy-bar book designed to accelerate good thinking in new ways, not one of those castor oil books that some desiccated scholar would insist we need 'for our own good.' But we also need this one the way we need a compass as we step into an unknown land. A future world has thudded onto our doorsteps after 2000, and we're not so sure we like what we see. Our 500–year old "modern civilization" shows many signs of falling apart, and it really does look like a new and wiser civilization is trying to be born, side by side with looming planetary catastrophes. When both the facts and the rules of the game are changing, we need to pay close atten-tion. As you'll read here, what needs our attention isn't just a matter of *what* we now know, but *how* we know it. Most important is what significance it has both for our individual life choices and our

collective lives. Across our rapidly globalizing world, both business and governmental elites are indeed failing to *see* our world anew, much less *think* anew, and it harms all our chances. How do you look into what's important in life without getting caught in arid academic abstractions, or the media maelstrom of the moment, or canned religious homilies? For most of the twentieth century, the average person of the Western world knew deep in her guts that the abstractions of linguistic philosophers were even farther from life than their predecessors. Good thinkers need what lies just a step this side of philosophy toward real data and real life, what is indeed being offered here:

- How to spot, and then how to ask, the most important life questions.
- How to reason about those questions, including whatever the latest new paradigms offer.
- How to turn library research into a coherent, compelling new narrative appropriate to our time of change from one kind of civilization to the next.
- Where to look, such as the resource list at the end of the book, for digging further into the big questions.
- Which shoulders we need to stand on to see farther than the giants of the past.
- Which curiosity bump is really worth scratching.

Copthorne Macdonald and I—and a whole population of independent thinkers, many of whom are named in this book—are concerned with the questions of how real wisdom might emerge in our times. In my own body of work, I argue that a Wisdom Culture is trying to be born, one that can serve as a crucial holding environment for personal wisdom and societal wisdom to be much more common than it is today.* I wrote a book with my wife, Dr. Sherry Anderson, called *The Cultural Creatives: How 50 Million People Are Changing the World*, which is the first of what is planned to be a whole series of books to document what is emerging, and what our conscious intent could create.

That first book is a kind of existence proof: The process of changing to a Wisdom Culture has already begun. If it's already here,

then even the most hardened cynics must admit it: it's real. Over the past forty years a new subculture has emerged whose values, lifestyles and worldviews are a kind of Third Way beyond left and right, and beyond the culture wars between the Moderns (who believe in a materialist world, pretty much the one of Time Magazine) and the Traditionals (cultural conservatives who want a return to small town and Bible-thumping verities of the kind espoused by Jerry Falwell). We called them Cultural creatives because everything about this population leads to creating that new culture, especially given their bias toward action as citizens who have participated more within, and learned more from, the many kinds of social movements and consciousness movements of the last forty years. We told the remarkable stories of some of those 50 million Americans, and some 80-90 million more Western Europeans, and documented some of what they are already doing to change the world toward that emerging culture.

What is remarkable is that these developments are not just about our possible future, but what has already been developing in our recent past and present. Yes, it started in the Sixties, but it's been going on continuously ever since. Yet almost none of that is "news" by the standards of the corporate media of our time, and the West scarcely knows that all those twenty kinds of movements have been continuously going on. So we are shocked when there are massive demonstrations against the WTO and the corporate takeover of globalization, occurring in cities around the globe. Where did they come from? Answer: they've been here all along. The media serve as the gatekeepers of the official culture of Modernism, and seem quite intent on keeping paradigm-busting new ideas from reaching the general population, refusing to report on all the movements. As heavy consumers of news, Cultural Creatives rarely see their own faces there, and regularly see their values scorned. Consequently, one of the odd things about is that they do not yet realize how many they are, nor do they have a collective identity—yet. That seems to be changing rapidly. We are starting to see a cultural change process that is self-aware, rather than the unconscious process of the past forty years.

Matters of Consequence is about ideas, and how they change the world. It is also about how ideas change our minds, and our world-views, to the point that we can say that what we now are coming to believe is *real* is starting to overturn the materialist worldview that the West has lived with for 500 years. But it is not just a matter of the quality of *content* of our thinking and beliefs, it is also a matter of the quality of *consciousness* we bring to the process. Merely changing our minds in a content-based sense is trivial. Macdonald carries the whole matter to a new level, following the trail that has been blazed by the consciousness movements over the last forty years, drawing upon the seminal Cultural Creatives thinkers who are scarcely visible to the larger culture, who in turn are drawing upon the Perennial Philosophy that goes back for millennia.

It is important to grasp that this is not about accepting any-body's religious belief, but rather is about developing the quality of that awareness which holds our thinking minds. Furthermore, to be effective, this takes training and hard inner work. The Modern mind scarcely acknowledges different forms of consciousness than waking, dreaming or sleeping, drunk or sober. The notion that there might be several hundred additional forms of consciousness, some of which are vastly more effective for important problems, and for developing a satisfactory life, is well beyond what our materialist civilization can encompass. It will however, be a linchpin of the emerging culture.

Fortunately, we have voluminous evidence that this works from other cultures, diverse spiritualities and sophisticated spiritual schools, who in effect are saying, "don't believe anything without proof: get the training and see for yourself." It's a form of skillfully guided empiricism that differs only slightly from both science and technology, except that it is applied to the psyche and inner experi-ence. This yields larger and more encompassing forms of conscious-ness, deeper forms of consciousness that are closer to objective reality, and more acute thinking that is dehypnotized from neuroses and cultural prejudices. In other words, it takes the question of what is most important really seriously, and changes our minds in truly fundamental ways.

Most importantly for this book, we can see that it points us toward bringing a better quality of awareness to redesigning our world so that it works for all of us. At the end of the day, the most important matter of consequence is our pressing need to make history ourselves. It means changing our civilization ourselves rather than taking it as given. First, we must envision a world worth inhabiting, and then we must work to create it. We sometimes hear the term *transformation* bandied about as if it were a magic talisman, but in fact, all it means is structural change. Personal transformation is the hard work of changing the structure of our awareness, and social transformation is the even harder work of changing the structure of our society.

New social structures can be built from the bottom up by citizens, and especially by civil society organizations, called NGOs, or they can be built from the top down by power centers. As Macdonald notes, the civil society organizations have a moderately good track record. Top down changes from the power centers often don't, because they lack the detailed knowledge and experimentation that goes into the bottom up kind. The value of all the work on transformations of the social system and of our psyches is that at the end of the day, it looks like it creates a new kind of virtuous spiral upward. It would probably take the form of a new renaissance, where new social systems can support personal transformation and better cultural knowledge, and where transformational change in large numbers of people and their micro-cultures gives rise to new orders of cultural creativity that support further development of the social and cultural milieus that further support the people, and so on. We are then playing in the biggest game that anyone could imagine. What matters could be more consequential than that?

> * In the research monograph, *The Integral Culture Survey*, I called that emergent culture an Integral Culture, but found that the term did not communicate well to a general audience, and tended to get confused with what Ken Wilber was doing in parallel with my work. So I decided *Wisdom Culture* is the better term. But as Macdonald says, what will get us there is very much an "integral" approach.

CONTENTS

Preface

My interest in both fundamental reality and the reality of the human situation goes back more than thirty-five years. My life in the mid-1960s centered on electronic design engineering. It was creative work, and I enjoyed it. But as the '60s wore on I began to feel an urge open up, to touch the larger world beyond the technical, to broaden my outlook, and to maybe some day come to understand this crazy trip called human existence.

Some of the initial explorations were experiential; some were intellectual. I traveled, experimented with various kinds of "doing," and read a lot. From my traveling I learned that the globe is dotted with wonderful people doing their best to enjoy life and to put something worthwhile back in the pot. From my reading I learned a multitude of facts. Later, little by little, I also began to acquire a sense of the relationship between and among facts—a sense of context, a sense of how things fit together, a "big picture" sense. As this happened, I came to see that individual facts were isolated islands of information—sometimes useful, but telling us little about our overall situation and deepest concerns. Yet—wonder of wonders—when integrated into the right interpretive framework, the very same facts could acquire a new luminosity and reveal deep meanings.

My first encounter with this phenomenon was a lecture given by Buckminster Fuller at the University of Colorado in the autumn of 1966. One of Fuller's geodesic domes would soon house the U.S. pavilion at Expo '67; his ideas were current and hot, and his talk drew

a large crowd. At first, the audience listened attentively as Fuller presented one set of facts after another. Many of these facts were new and interesting, but Fuller kept jumping from topic to topic. His presentation lacked continuity, wholeness, and any sense of destination. After an hour of this, people began to leave. Fuller continued this way for another hour. He kept presenting isolated facts, and people kept leaving. By the end of the second hour, the audience had shrunk to less than half its original size.

Fuller spoke for a third hour, but now in a very different way. Instead of presenting more facts, he wove together the facts he had fed us during the first two hours. He presented a carefully thought out explanatory framework in which each set of facts had its place—a schema that revealed a profound meaning that was not at all apparent when we had viewed the same facts in isolation. Now, viewed from a perspective that integrated them and related them to context, those facts made an entirely new level of sense. By the time Fuller finished, those of us who had stuck it out for the full three hours felt fortunate indeed. Later, he would include many of that afternoon's fleshed–out ideas in his 1969 book *Operating Manual for Spaceship Earth*.

I don't condone Fuller's approach; he should have at least told us what he was up to. But the experience introduced me to the explanatory limitations of facts in isolation. Unfortunately, islands of information are largely what the world's knowledge–creation apparatus has given us. Much of our present knowledge has emerged in topic–centered clusters—products of those narrow fields of study called academic and scientific disciplines. That is fine to a point; we need facts and topic–centered knowledge. But they alone are not enough. We also need context–informed, perspectival knowledge and the meaning it confers.

As the years passed, my interest in these deeper and more comprehensive kinds of understanding increased. Several things fueled this interest: I gradually accumulated a large pool of facts from many disciplines. I read the works of cross–disciplinary thinkers—writers who embraced system thinking, eco thinking, process thinking, whole/part thinking, evolutionary thinking, integral thinking. And

during extended periods of meditation, I experienced personal shifts of perspective.

During the 1980s, my quest for understanding took me down two very different exploratory paths. One was intellectual and outward looking; the other was meditative, intuitive, and inward looking. These two approaches couldn't have been more different, yet both seemed to reveal truths. On one hand were science and its undeniable veracity. During my years as an electronic design engineer, I had developed confidence in the validity of science and the intellect.[1] By following scientific laws I had been able to design sophisticated physical systems that never before existed. On the other hand were meditative practice and its products: a quiet mind, connection to the deeply intuitive side of myself, and some profound shifts in the way I saw the world. In the process of spending several thousand hours intently watching mental happenings, certain truths about subjective experience and certain perspectives on the data of life had become as clear to me as scientific truths, and equally persuasive. I found myself with one foot in each of two very different worlds. I reasoned that if both worlds were grounded in reality, then it should be possible to find (or create) an explanatory schema that encompassed both. Eventually, key pieces fell into place, and the sought–for contextual framework emerged. Once that happened, the raw data of life made much more sense to me. The nature–of–reality interpretation that emerged was an ancient one, but this time around it could be expressed with new clarity, thanks to a vocabulary of modern and postmodern concepts that the ancients didn't have. I first presented this *carrier/information* clarification of the perennial philosophy to the academic community,[2] and it is a key element in the dance of ideas that follows.

My interest in the human situation and its component realities—personal, social, economic, and ecological—intensified during and after a 1971–'72 backpack trip around the world. The end of that trip coincided with the publication of *The Limits to Growth*, the first report to the Club of Rome, a group of distinguished businessmen, statesmen, and scientists who were concerned about the human situation. It was a landmark book that focused on the world "problematique"

and made a most convincing case that our high–consumption, high–pollution, industrial–society way of life is unsustainable. That book's perspective gave new meaning to my recent firsthand experience of the world. I was clearly part of the problem, and I began to look for ways to shift the balance and contribute to the solution.

One early attempt, back in the pre-Internet 1970s, was founding an international short-wave radio network dedicated to communicating about significant issues. Back in my university days, I developed a slow–scan television system that allowed amateur radio operators to transmit pictures over long distances using their short-wave voice communication equipment. Upon returning from my travels, it struck me that this worldwide voice–and–picture communication capability could be used in the service of personal growth and social change, and in July of 1972, I founded New Directions Radio. Columns in *CQ: The Radio Amateur's Journal* from July 1972 through March 1975 and in *The Mother Earth News* from September 1973 through November 1983 provided a print media link for the group. The mission statement in *The Mother Earth News* referred to us as "an international network of radio amateurs concerned with those ways of using ham radio (and related modes of communicating) that promote our own growth as individuals and which we perceive as helping to create a more aware, more caring, and more responsible human society."[3]

Later, I worked in the field of energy conservation and energy alternatives. I also wrote two books dealing with that neglected concept, *wisdom*.[4] The book you hold in your hands represents my latest effort to shift the balance. It reflects recent events and phenomena—including the dramatic spread of dissatisfaction with the status quo and a rising concern about humanity's future. Recent surveys of personal values reveal that tens of millions of people are coming to understand humanity's difficult situation and that this increased clarity about what *is,* is leading them to act on specific issues and to change the way they live their lives.

As you proceed through *Matters of Consequence,* you will encounter many facts, some of them familiar. You will also encounter a number of interpretive schemata intended to help you (as they have helped

me) make more sense of those facts. As you might expect, I have attempted to integrate fact–presentation with fact–interpretation much more closely than Fuller did. Still, this book contains fact–intensive sections and interpretation–intensive sections. If you find yourself asking, "Why is he telling me all this?" please hang in there. Rest assured that you will soon know.

Notes

[1] Macdonald, 1995b, p. 258.

[2] Macdonald, 1994, on line at http://mattersofconsequence.com/zygon1.html and Macdonald, 1998, on line at http://mattersofconsequence.com/cmtu3htm.html.

[3] Articles explaining the group's objectives in more detail include Macdonald, 1973a; Macdonald, 1973b; and Macdonald, 1976.

[4] Macdonald, 2001b [1995a]; Macdonald, 2001a [1996a 1993].

The Evolution of Understanding

A fundamental change in worldview and ethical consciousness is currently taking place. You and I and millions of others are coming to a deep and comprehensive understanding of ourselves as human beings, the systems of which we are components, and the web of relationships in which we participate. The *desire* to understand is, of course, nothing new. As far back as history allows us to look, we human beings have wanted to understand the world around us and our place in the scheme of things. Then and now, the same questions have troubled us: "What is going on?" "What does it all mean?" "What should I do and not do?" Each culture has struggled with these issues of *fact*, *meaning*, and *ethics*, and in each, systems of belief gradually coalesced. Historians of culture, in commenting on the evolution of these belief systems, have noted a progression of stages rooted in a progression of modes of consciousness. Using the terminology of Jean Gebser, Allan Combs, and Ken Wilber, the historical movement from *archaic*, to *magic*, to *mythic*, and to *rational* ways of understanding the world has now brought us to the threshold of *transrational* ways, which incorporate these others but go beyond them.[1] In this introduction, we look back at the historical shift from mythic to rational, at the gains in fact and the losses in meaning that accompanied that shift, and at the opportunity to rediscover meaning and ethical grounding by developing a transrational *deep understanding* perspective.

Judaism is a belief system that arose during the period when the mythic form of consciousness prevailed, and both Judaism and Christianity present their beliefs using the vehicle of myth (the Garden of Eden, Noah's ark, Revelation, etc.). Small subgroups in each religion—Kaballah in Judaism and various Gnostics and mystics in Christianity—involved themselves with seeing through and beyond the details of the myth to the underlying reality. But for many centuries after the founding of these religions, most people took the myth literally. Many still do, even today.

During the first half of the 1001–2000 CE millennium, the mythos of Christianity dominated Western thought, and most people looked to organized religion for truthful answers to those all–important questions. From a mixture of scripture, tradition, and Greek thought, the hierarchy of the Roman Catholic Church developed a set of doctrines and laws that they held to be absolute truth. For a long time this worked. The church maintained its authority as truth provider, and people had the warm feeling that they understood. A personal God had created the world in six days and now ran things—intervening in human lives in ordinary, and occasionally miraculous, ways. Earth was the center of the universe. And the really important rules of the game were clear enough: Live a moral life, and you will spend eternity in paradise. Live an immoral life, and you will spend eternity in hell. This medieval worldview is magnificently articulated in the *Divine Comedy*, the epic poem that Dante Alighieri wrote in the early 1300s.

In Europe at the end of the Middle Ages, the average person found life physically difficult but relatively understandable. Religion served as interpreter and guide, and life had a certain regularity. Change was cyclical, for the most part, rather than linear–progressive. The seasons came and went. War alternated with peace. Health alternated with sickness. Bumper harvests alternated with lean harvests. Good times alternated with bad. Round and round it went, all under the control of God in Heaven, who doled out the good and the bad.

A progressive decline in adherence to mythic models of reality and a rise in the acceptance of rational models characterized the sec-

ond half of the millennium. Here, modern science was the central player. In the 1530s, Copernicus figured out that Earth was not the center of the universe. Rather, Earth and the other planets traveled around the sun. He wrote all this down, but fearing reprisals from the Catholic Church did not publish his treatise until the year of his death, 1543. Once published, influential people read it, saw truth in it, and at the end of the century Galileo and Kepler were solidly in the Copernican camp—so was Giordano Bruno, whom the church burned at the stake in 1600 for holding this and other heretical positions. Sixteen years later the Inquisition put Copernicus's treatise on its list of prohibited books and warned Galileo not to hold or defend the doctrine. (It was not until 1922 that the Catholic Church finally stopped denying the validity of Copernican thought.)

During the remainder of the seventeenth century, experimental science gained a secure foothold. Isaac Newton, Blaise Pascal, Robert Boyle, and others linked mathematics with experimentation, and they derived predictive *laws of nature,* which in turn gave birth to the profession of engineering and the ordered application of those laws in the design of machines. Science led people to a radically different way of seeing and dealing with the world, and in the eighteenth century this new perspective led to an explosion of social phenomena: the industrial revolution, capitalism, the Enlightenment, political democracy, and the birth of a transmedieval *modernist* culture.

Newton and his contemporaries had unleashed the powerful ideas of *mechanism* and *cosmic lawfulness*, and during the eighteenth–century doubts about the validity of church teachings spread and deepened. In situation after situation, the new laws successfully explained and predicted. Those who understood these laws and saw mechanism at work in the universe rejected the idea of a capricious God capable of negating or overriding the lawfulness. Materialist philosophy and reductionism arose, and Diderot and other philosophers in this camp denied not only the biblical God but any sort of spirituality. They took the position that some day it would be possible to reduce happenings of every kind to the functioning of mechanistic physical laws.

Romanticism, particularly the *Naturphilosophie* of Goethe and Schelling, arose in protest to this extreme materialism. This did not, however, signal a return to a personal, interventionist God. These German philosophers were *holists*. They saw nature as one integrated whole, animated by an absolute spirit that had brought everything into existence in accord with fundamental laws and forces. For them, too, reality and the God of the Bible were at odds. In France, Rousseau, Voltaire, and others criticized the immense power of church and state over individuals, and their writings contributed to the movement for individual freedom that culminated in the American and French revolutions.

The science of the nineteenth century—particularly Charles Lyell's theory that the earth was extremely old and Charles Darwin's theory of natural selection—further undermined the credibility of traditional religious doctrine. As the twentieth century approached, an increasing number of people lost confidence in mainstream religions as the central repository of truth. New religious denominations—those having doctrines more compatible with scientific knowledge—provided an answer for some people. Reform Judaism, for example, abandoned dietary and other practices for which there was no longer a compelling need. Another, New England Unitarianism, abandoned much of the traditional Christian doctrine—including the divinity of Jesus and eternal punishment. But for some people in the late nineteenth century and for many more in the twentieth, watered–down religion was too little, too late. They turned away from religion entirely and looked to contemporary science for the answers to life's important questions.

In the end, science also failed them. Although science was doing much better than religion at answering the first of those big questions—"What is going on?"—that was *all* science was good at. Science wouldn't even touch the other two: "What does it all mean?" and "What should I do and not do?" One reason for this was that the investigative tools and modus operandi of second–millennium science weren't suited to ferreting out these other answers. Another was the position taken by some scientists that whatever can't be

detected and measured by scientific instruments doesn't really exist. Some people came to believe this, but many with a humanities orientation did not. For them, just because science ignores certain aspects of existence doesn't remove them from the universe. Other methodologies reveal to us the various philosophical truths, aesthetic truths, ethical truths, and matters of meaning that are associated with higher–level physical phenomena, such as human beings. Without these truths to supplement the scientific view, our understanding of reality is incomplete—a sterile construct of measurement and rationality that does not tell all.

The central focus of modern society during the first half of the twentieth century was *progress*, and for most North American workers this meant doing things that promised to improve the conditions of everyday life. These workers produced steel; built automobiles; built roads; built power, water, and sewage systems; built homes and office buildings. They completed countless infrastructure projects, and they produced manufactured goods in abundance. Farming became increasingly mechanized and more productive. Pharmaceutical companies began producing insulin, new vaccines, and infection–curing antibiotics. This sort of activity continued through the 1950s, and to most people of that era it looked as if progress—in the sense of creating ever–better products and an increasingly more comfortable life—might have no limits. People loved the idea of progress: Life was good today and would only be better tomorrow.

There were, however, a few people who looked at the same reality and saw serious problems. Among them was Walter Prescott Webb, a history professor at the University of Texas. In 1952, Webb warned that Western society had for a long time been spending its capital. He theorized that we are nearing the end of a 500–year–long, one–time only blip of affluence fueled by a rip–off of "free" resources: easy to get oil, rich ores, old–growth forests, soils that took millennia to develop, etc.[2] A decade later, Rachel Carson's *Silent Spring* sounded another environmental wakeup call. Soon after, Paul Erlich pointed out the extent to which world population growth worsens all other global problems. Computer–modeling deficiencies aside, the

authors of the 1972 Club of Rome report, *The Limits to Growth*, made a convincing case that resource depletion, population size, pollution, food production, and industrial output cannot be treated as independent problems, but rather, are aspects of one global *problematique.* Through the 1960s and early '70s it became increasingly clear that "progress" was not a flawless boon for humanity—nor for the multitude of other species required for a life–filled, life–friendly biosphere.

In the industrialized nations, something else happened in the 1960s and early '70s: a generation reached adulthood that had a very different take on society than that of previous generations. The task of the first half of the twentieth century was to build a societal system that would allow its members to live a comfortable life. In the eyes of many, that effort succeeded. Middle–class children born in the 1940s and early '50s grew up in the most affluent society that had ever existed. They accepted this level of affluence as a given, as the to–be–expected platform from which to launch their own lives. For their parents and grandparents, however, that affluence was the culmination of a lifelong struggle for betterment, which was not to be taken for granted. Tension arose between the generations and increased significantly in the 1960s as these young people—now in their late teens and early twenties—rebelled against the flaws they saw in the society their elders had created. Several things, in particular, bothered them: uptight sexual mores, a work ethic that might have made sense in the first half of the century but no longer did, racial inequality, and a senseless war in Vietnam.

During the 1960s, many young people worked to change "the system," but most found their efforts frustrated. They saw nonviolent protests being met with repressive force. And they saw that when some advocate for change got too powerful—powerful enough to actually change things—that person was likely to be assassinated. As the '60s ended, images of John Kennedy, Bobby Kennedy, and Martin Luther King were fresh in everyone's mind, and many young people concluded that the system was change–proof.

If you couldn't change it, perhaps you could step out of it and build a more humane system alongside it. In the early 1970s, a modest "alternatives" movement arose. Some young people formed intentional communities. Others went back to the land and subsistence farmed. But although some of these experiments had local value and fostered the growth of the people involved, industrial society continued to be a juggernaut heading toward MORE. Alternatives had not replaced the mainstream, and by the late 1970s, most North Americans concluded that the only practical way to lead one's life was to be involved—in some way, to some degree—with the mainstream system.

From a meaning–and–ethics perspective, the second half of the twentieth century was a mixed bag. As North American society moved from the 1950s to the century's end, more and more people began seeing the world through "me first" and "me only" eyes, and fewer had that strong commitment to "the good of the whole," which was prevalent in their parents' and grandparents' generations. Missing in many quarters was the sense of working together to build something worthwhile, something that would benefit everyone. There were exceptions, of course, important exceptions, and later in this book we'll look closely at some of them. But as the century progressed, fewer people seemed deeply committed to the ideals of a caring society. The acquisition of material things had become the central cultural value, and in their search for personal satisfaction many tens of millions of North Americans committed themselves to the path of consumerism.

Paradoxically, during this same period other quite different trends also took root. One was the increased ecological and whole–system awareness already mentioned. Another was what has come to be called *personal spirituality*. Back in the 1950s, a few Americans became interested in "go–see–for–yourself" spirituality, and in the decades that followed, interest in the subject has grown exponentially. Aided by a few pioneers who wrote about their experiences— Alan Watts, the Beat Poets, Krishnamurti, Ram Das, to name a few—North Americans began to discover the direct–encounter

spirituality of the East. Interestingly, the Eastern approach made perfect sense to many of those who trusted scientific methodology. Don't *believe* anything. Don't take anything on *faith*. Run a personal experiment. Immerse yourself in Eastern practices for a while and see what happens.

Many of these practices help cultivate a direct and immediate perception of one's internal and external reality, unmediated by language and concepts. Seeing the world in this fresh, direct way is in no sense a regression from rationality to pre-rational archaic, magic, or mythic modes of knowing. Rather, it is a movement toward *vision–logic* and *transrational* modes (in Ken Wilber's terminology)—or *deep understanding* and *wise comprehension* in mine—modes that embrace and utilize rationality while going beyond it.[3]

Rationality is insufficient, because it is technique only, applicable to any set of values. John Ralston Saul, in deploring "the conversion of Western civilization to a methodology devoid of values," notes that "reason is no more than structure" and innately amoral.[4] The transrational modes add meaning to the rational as well as to the residue of archaic, magic, and mythic consciousness that still operates within all of us. Ken Wilber is one of the most insightful practitioners of deep understanding, and he put it this way: "vision–logic *adds up all the perspectives*, privileging none, and thus attempts to grasp the integral, the whole, the multiple context within contexts that endlessly disclose the Kosmos…."[5] Eastern practices allow a science–compatible exploration of meaning and values issues, and facilitate the establishment of transrational modes of cognition.

By the 1990s, global life–support systems—atmosphere, oceans, forests—were experiencing major problems. Most of the negative changes resulted from world population growth and high–consumption lifestyles, and most seemed likely to get steadily worse. Some of the early–warning messages heard back in the 1960s and '70s had proved to be right on target. Others had missed the mark. But now, there were serious new problems: a hole in the ozone layer, global warming, shrinking rain forests, quickly diminishing biodiversity. Also, important new players on the international stage were changing

the socioeconomic game: the large transnational corporations. Many of these corporations—as the result of mergers and remergers during the 1980s and '90s—exercised great economic power. Of the world's top 100 economic entities in 1995—as measured by corporate sales or national gross domestic product (GDP)—fifty-one were corporations and forty-nine were nation states.[6] The growth of corporations in size and wealth, combined with a major globalization of the economy through trade treaties and electronic fund transfers, had brought about a shift in power from nation states to big business—to the transnationals and the world financial industry.

Awareness of these realities has now become widespread, and this has led many people to experience ethical discomfort and consequent calls to action. When psychologically mature people see what *is*, they also tend to see what *should be*—and, in some cases, what *must be*. This kind of seeing has made it clear that we must transform some of our present modes of personal, social, and economic functioning into modes that are compatible with a sustainable and more equitable world. At stake is long–term human well–being, the well–being of other life, and the optimal playing out of the cosmic experiment called Earth. Since the alternatives are utterly bleak, I believe that humanity will meet the challenge and bring about the needed transformation. Human understanding, caring, and vision will guide it. And a much–revised world economy will power it.

The central thesis of *Matters of Consequence* is this: If we come to understand the human situation deeply, comprehensively, and clearly, then what needs to be done—both in our personal lives and the world around us—becomes clear. Toward this end, the book advocates the development of *deep understanding*—a variety of wisdom in which we integrate broadly based contextual knowledge (the humanities *plus* the sciences *plus* economics) with introspectively acquired self–knowledge. Thus, for most people, deep understanding is the product of two activities:

The Acquisition of Relevant Intellectual Knowledge

Science and the humanities form the twin pillars of Western higher education, yet many people stand on only one. Just as many

scientists and engineers lack knowledge of the humanities, many "well–educated" people have a largely humanities–focused background and lack scientific knowledge. Economics also stands alone: Mainstream economists ignore many human and scientific realities, and most scientists and humanities–oriented people lack clarity about economic realities.

Unfortunately, none of these one–pillar stances will take us where we need to go. To come to grips with the major scientific, social, and economic issues that bear on the present world situation, we must all become more holistic knowers. Very simply, we can deal effectively with humanity's problems only if we have a deep and comprehensive understanding of the context in which those problems are set. This includes knowledge of the systemic nature of the cosmos, the evolutionary process in its most general sense, consciousness, human cultures, economic systems, and some of the more important principles, laws, and regularities that underlie functioning in all these areas.

The Intentional Pursuit of Self–Knowledge

The exploration of one's own psyche leads ultimately to an appreciation of the laws by which our inner, subjective lives operate. It also leads to ethical understanding, moral behavior, new levels of inner peace and freedom, and even insights into the nature of primal reality. Many people today are developing this largely intuitive aspect of deep understanding through psychotherapies, intentional solitude, and direct–participation spiritual practices, such as meditation.

Today, people have developed deep understanding to different degrees and with different emphases. Some have made intuitive breakthroughs; others have done highly significant intellectual work; still others have excelled at integrating the two. Remarkable advances in the sciences of information, complexity, evolution, and consciousness—when coupled with the intuitive insights of a developing personal spirituality—give us a way of looking at reality that is compatible with scientific knowledge, yet goes beyond it to help satisfy our spiritual longing for a meaning–and–ethics perspective that rings true.

How deep understanding translates into changes in power–structure agendas and policies is addressed in the latter part of this book. In general, such changes happen because those who understand deeply end up influencing others. On the one hand, their clear–seeing is infectious. On the other, those who see are inclined to act. Some become leaders—perhaps political leaders, enlightened corporate leaders, or leaders of private–sector organizations involved with aspects of the world problematique. Others become communicators and teachers—writing, creating art, or becoming involved in existing organizations—and in those ways, attempt to share their understanding with others. Ultimately, as many people recognize that the deeply understood view fits reality so well, the world community comes to see things that way and acts accordingly. Past changes of this kind include the Copernican revolution and the widespread acceptance—within just a few decades—of Einstein's relativity theories. History confirms that when a large–enough community of respected people adopt a new worldview—one that models reality in a more useful, accurate, and explanatory way than the old one—then most educated and intelligent people quickly accept it.

In summary, this book postulates that the better we understand what is really going on—intuitively and rationally—the better we can guide our own lives and the more we can benefit our world. It makes the case that a deep understanding of ourselves and of the universe is the *sine qua non* of personal and global fulfillment, and it will be at the heart of the emerging "next phase" in the evolution of world culture. The book's four parts and fifteen "matters of consequence" piece together the amazing picture of where we are today—as a universe and a species—and where we are heading. **Parts I** and **II** explore the context in which human lives are embedded. **Part I** discusses the nature of physical and mental reality and the question of cosmic purpose. **Part II** focuses on three close–to–home realities: the sociocultural, the economic, and the biospheric. **Part III** looks at our inner lives: self–knowledge, freedom, responsibility, identity, developing ethical sensibility, and creating a life characterized by meaning, purpose, and significance. **Part IV** deals with the future: Given the real-

ity described in **Parts I**, **II**, and **III**, where do we go from here? Where *must* we go from here? Discussions about predicting the future and creating the future provide background for considering the vision of a year 2050 world worth creating. That world is characterized by economic equity, physical sustainability, vibrant local cultures, an electronically facilitated world culture, and sufficient time in people's lives to pursue a full, rich life of the mind. The appendices at the back of the book introduce the reader to a variety of print, Internet, and organizational resources in support of personal efforts to develop deep understanding and live toward the vision. *Matters of Consequence* is an exceptionally wide–ranging book, and almost every reader will find some sections of it smoother going than others. No author wants their readers to give up on a book because they get bogged down in some section of it; I certainly don't. If you get frustrated because you're not understanding something, please move on to the next topic. Then, after reading all or most of the book, go back to the material that caused you trouble and try reading it again. With the additional context acquired from reading what you *do* understand, it might now make much more sense.

Have you heard the quiet pleading of future generations to leave them a world worth inhabiting? Action is needed, but in today's ultra-complex world, the only action that has a chance of succeeding is action guided by a deep understanding of the human situation and a broadly compassionate heart. In the pages to come, join me in exploring the human reality, the deep–understanding approach, and where all that might lead us.

Notes

[1] Gebser, 1985; Combs, 1996; Wilber, 1995. Here, instead of using the broad term *mental* that Gebser's English–language translator used to identify modern consciousness, I use the terms *rational* (as Wilber does) and *intellectual*. (Gebser's translator assigned the term *rational* to a much narrower, more specialized meaning than most of us give it in everyday use. See Combs, 1996, pp. 109–111 for a discussion of Gebser's use of these terms.) Detailed descriptions of Gebser's schema can be found in Chapter 5 of Allan Combs's book *The Radiance of Being* (Combs, 1996) and

in Chapter 5 of Sally Goerner's book *After the Clockwork Universe* (Goerner, 1999). Goerner's Chapter 5 has been available on line; check: http://www.integralage.org/docs/Goerner-Mind.html.

[2] Webb, 1975.

[3] See Wilber, 1998, pp. 131–32, 212.

[4] Saul, 1993, pp. 16, 18.

[5] Wilber, 1998, pp. 131–32.

[6] Anderson and Cavanagh, 1996, p. 6, Table 1.

Part I

Big Picture Reality

Science tells us what is going on, but it does not tell us what it all *means*. Meaning, as postmodern philosophers have pointed out, is context-dependent. Meaning resides in a complex network of relationships, in Wilber's "multiple context within contexts," and is revealed by looking at those contexts from myriad vantage points and through a variety of perceptual and conceptual lenses.

Clarity about meaning is crucial to full, rich human living, because from it arise our purposes and life orientations. Thus, if we come to deeply understand the nested contexts within which human life is embedded, we are much more likely to find the matrix of meaning that allows us to optimally live our lives and direct our energies. To this end, **Part I** and **Part II** explore several contexts that are especially relevant to human existence. **Part I** focuses on what the cosmos is up to: the nature of physical and mental reality, and the question of cosmic purpose.

The Nature of Primal Reality

The first Matter of Consequence concerns one of the many "true but partial" ways of looking at *what is*—one that I call the *carrier/information perspective*. The phrase "true but partial" is Ken Wilber's, and the point that he and others have stressed is that any description of reality, although it may be absolutely *true*, is inherently *partial*. This truism's corollary is that for the fullest possible understanding, we need a multiplicity of these true–but–partial perspectives. As Wilber put it: "Only by honoring multiple perspectives and multiple contexts can the knowledge quest be fruitfully advanced."[1]

In physics and cosmology, we already accept this. The *classical physics* that we were introduced to in high school is a true–but–partial perspective on reality that helps us understand how things work in our ordinary, everyday world. Einstein's *general theory of relativity* is a true–but–partial perspective that sheds light on very large–scale phenomena. *Quantum theory* is a true–but–partial perspective that helps answer questions about submicroscopic phenomena. The perspective explored here—the carrier/information perspective on reality—is helpful when we ask philosophical/spiritual questions about phenomena: What endures? What is ephemeral? And what is the relationship between the two? These different perspectives are not competing theories, but complementary ways of looking at the same reality.

It is possible—even likely—that someday a comprehensive explanatory structure will be developed that ties together all of these

slants on reality. For some years now, theoretical physicists have sought a theory that would integrate relativity and quantum theory, and have recently made progress through what is known as *string theory,* or *M–theory.*[2] Another approach, proposed by physicist John Archibald Wheeler, would link the informational perspective to the others. Wheeler noted, "[A]ll things physical are information–theoretic in origin" and predicted that "tomorrow we will have learned to understand and express all physics in the language of information."[3] Although an overarching theory would show how the individual perspectives are related, it would not fundamentally alter the perspectives themselves. With or without such a theory, each of these perspectives is essentially *true.* That is, each is founded on solid empirical knowledge. But each is also *partial.* Each tells only part of the story. Most significantly, each enriches our understanding in a different but important way.

HOW THE ANCIENTS SAW IT

The phrase *primal reality* is likely to trigger thoughts of quarks, elementary particles, and atoms—and those things are pretty basic. They are, however, a step above the truly primal. From a physical perspective, *energy* is the primal stuff—the reality that underlies all of those things and everything else. Interestingly, our present science–grounded view of primal reality is remarkably similar to an intuition–based understanding of it that arose in several parts of the world as far back as 3,000 years ago, so let's start there.

The earliest historical documentation of this view is the 100 or so records of Hindu teachings written between 1000 BCE and 600 BCE, which are collectively referred to as the *Upanishads.* These documents make several references to a primal reality that is the source of the phenomenal world and in some sense interpenetrates it. This primal reality is variously referred to as *all–pervading Spirit, universal Self, Brahman,* and the "*seed of all seeds.*" It is an enduring reality, but the phenomenal world it gives rise to—*maya*—is insubstantial and illusory in the sense that it produces a false impression of durability and permanence. Maya is sometimes referred to as "the creative illusion of the Brahman" and "cosmic play."[4] In the Upanishad entitled *Isha,* a clear distinction is made between "the seed of nature" and

"the shapes of nature." In *Kena*, the focus is on Spirit, the primal entity that enables the mind to think, the eye to see, and life to live. *Katha* refers to the all–pervading Spirit as a universal Self that is the source of nature—uncaused, eternal, self–existent, imperishable, ancient. It is the "soundless, odorless, tasteless, intangible, formless, deathless, supernatural, undecaying, beginningless, endless, unchangeable Reality…. The Self, though one, animating all things, takes the shape of whatsoever it animates; yet stands outside."[5] Roughly 1,500 years later (about the year 750 CE), Shankara, a leading proponent of the *Advaita* school of Hindu philosophy, wrote commentaries on the Upanishads in which he affirmed the nondual view of reality and expressed it in the language of his day. Among his comments was: "Though One, Brahman is the cause of the many. There is no other cause." Contemporary scholar Edward Rice summed up the Advaita view this way: "Brahman alone is real, and the world is false. The world is maya—i.e., a purely illusory manifestation of Brahman."[6]

In these teachings, the One has both an objective, active, proto-physical aspect and a subjective, receptive, proto-mental aspect. Rice notes that "the same reality is known subjectively as Atman and objectively as Brahman; the pair may be used as synonyms."[7] This first matter of consequence and the next deal with the objective/physical aspect of primal reality and physical evolution. MATTER OF CONSEQUENCE 3, **Human Mentality,** deals with the subjective/mental aspect and human mentality.

At a personal level, Advaita Vedanta takes the position that since there is only the One, human identification with the body and with mind contents (aspects of maya) is an error. Identification with the One is the only identification that makes sense, and such a shift of identity has various benefits. Although the information–processing intellect is not a suitable tool for grasping the formless One, the One can be apprehended directly—and reidentification accomplished—through a cognitive process called *realization*.

A very similar perspective on reality arose in other places at other times. It was expressed during the China of the sixth and fifth centuries BCE in the writings of Lao Tzu—among them:

Before heaven and earth are born, there is something formless and complete in itself.

Impalpable and everlasting, silent and undisturbed, standing alone and unchanging,

It exercises itself…absolutely and generates itself inexhaustively in all dimensions.

It may be regarded as the mother of all things.

Far beyond mankind's relative mental comprehension, it can be referred to by no specific name.

Yet it may be identified as Tao, the absolute nature of the universe.[8]

———————————————

The describable world comes from the indescribable source.[9]

———————————————

There is something which is prior to all beginnings and endings,

Which, unmoved and unmanifest, itself neither begins nor ends.

All–pervasive and inexhaustible, it is the perpetual source of everything else….

If I am forced to describe it, I speak of it as "ultimate reality."[10]

Similar perspectives can also be found in Mahayana and Vajrayana Buddhism, in Kabbalah (the mystical discipline of Judaism), and in Christian mysticism. Here are a few quotes from these sources:

When the Ten Thousand things are seen in their oneness, we return to the Origin and remain where we have always been.

— Sen T'sen, Third Patriarch of Zen

———————————————

It is a descending stream of pure activity which is the dynamic force of the Universe.

— Kabbalah

———————————————

The pure impulse of dynamic creation is formless; and being formless, the creation it gives rise to can assume any and every form.

— Kabbalah

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When is a man in mere understanding? I answer, "When a man sees one thing separated from another." And when is a man above mere understanding? That I can tell you: "When a man sees All in all, then a man stands beyond mere understanding."

— Meister Eckhart, Fourteenth–Century Christian
    mystic

This philosophical stance—articulated first in the Upanishads and in slightly different ways by Taoists, Buddhists, Sufis, Kabalists, and Christian mystics—is usually referred to as the *perennial philosophy*.[11]

The Western philosopher Baruch Spinoza expressed a similar view. He lived in the mid-1600s, long before the findings of modern science began to support the nondual view. But Spinoza, like those others before him, grasped it intuitively. His term for primal reality was God, but it was not the personal God of the Judaism in which he grew up. Spinoza divided natural reality into two parts. The first was an active, creative force, or process—God *as substance*. The second was the product of that process, all the forms created by that force, or process—God *as extension*.[12] Spinoza also saw that the emergence of the second part happened in accordance with certain laws of nature. To him, *nature* and *God* were two labels for the same reality. Thus, the laws of nature and divine intention were also identical.

INTUITION MEETS SCIENCE

Do these dated perspectives on reality make any sense in the light of contemporary science? Early last century the answer would have been no. But from mid-century onward several breakthroughs in understanding occurred, and by century's end the answer was a definite yes. The first of these came in 1948 when Claude Shannon tied mathematics to the formerly ill–defined concept of *information*, explicating that information was an actuality having a precise, quantifiable nature.

Shannon's focus was the relatively narrow one of *communicated* information, but during the 1950s, others began to appreciate the ubiquitous nature of information. It happened on two fronts. In biology, Watson and Crick discovered DNA's informational code, and it soon became clear that morphology and genetics were really information sciences. The information encoded in DNA molecules directly guided the informational patterning of protein molecules and indirectly guided the patterning of organs and whole organisms. Structure was now seen to be informational in nature. Form was information. As the twentieth century progressed, this realization spread and deepened—to the point that, in 1987, mathematician Rudy Rucker was able to say: "It is now considered reasonable to say that, at the deepest, most fundamental level, our world is made of information…. For postmodern people, reality is a pattern in fact space."[13]

The second informational front was computer science, whose sole interest was information and the manipulation of information. Computer science brought the concept of *algorithm* out of the mathematician's closet and demonstrated its immense power to produce useful *new* information—information that otherwise would never exist. A computer takes information in, manipulates it in accord with a preset procedural algorithm, and puts new information out. Simple. And it is the algorithm—the logical, step–by–step, if–this/then–that procedure—that performs the informational magic. Some algorithms are quite simple yet produce great informational complexity. Examples include the programs used to produce intricate fractal patterns as well as some of the simpler "artificial life" games and simulations. Other information processing situations require complex algorithms to produce simple outputs, a good example of which is the algorithm for a computer "expert system." Such an algorithm might mirror all the analysis and decision–making processes a physician uses to arrive at one of a few possible therapeutic actions. By disseminating and popularizing the algorithm idea, computer science presented a powerful conceptual gift to other branches of science—and to the culture in general.

Another conceptual gift, this one from communication technology, was the concept of the information *carrier*. A radio station sends

out energy on a specific frequency. This energy serves as a carrier for the station's program information. Voice or music *modulates* the carrier, changing its frequency in the case of FM or its amplitude in the case of AM. In a radio receiver, the modulating information is removed from the carrier, amplified, and transduced into a replica of the original sound.

It is now clear that *all* information needs a carrier, though not necessarily a carrier of the radio station kind. Plato talked about ideal forms that were disassociated from the material world—disembodied information, if you will. But real–world information must be associated with a medium, carrier, or supporting substrate of some kind. That becomes obvious when we clearly understand that **information is not a thing in itself, but is a pattern of significant differences imposed upon, or carried by, something real**. The information that defines the form of a vase is the pattern of spatial difference embodied in the clay. Information on how to construct protein molecules is embodied in the pattern of nitrogenous base sequences in the DNA molecule. Computer bits and bytes typically appear as differences in voltage with respect to time or as differences in magnetization patterns on the surface of a spinning disk. The clay of the vase, the DNA bases, the voltage, and the magnetic disk are all *carriers* of information.

Then there is *energy*. From high school science, most of us remember the first law of thermodynamics: Energy cannot be created or destroyed, but only changed in form. Easy to understand; easy to remember. And very, very special. Whereas it is easy to destroy information, it is impossible to destroy energy. In fact, when we speak of physical reality, energy is the *only* thing that can *not* be destroyed.

Energy plays many, many roles in our lives and the cosmos, but it was not until the twentieth century that its role as source–of–everything became clear. Einstein's magnificently insightful $E = mc^2$ early in the century gave us a strong hint that this was so, and by the end of the century there was no doubt. By then, the cosmologists and quantum physicists had shared their data—data that made it clear to both groups that energy is the primal stuff of the physical universe.

The "standard model" of the early universe says that our universe came into existence in the Big Bang event roughly 15 billion years ago. At the first instant of that event, time originated, space originated, and there was an immense amount of energy. Why this happened remains a mystery. One theory attributes it to quantum fluctuations in the cosmic vacuum; another to the collapse of a former universe. That controversy aside, scientists agree that during the first 10^{-43} seconds after that first instant ($t = 0$), the universe had either no structure at all or structure of the most minimal kind.[14] During this very brief period, the temperature of the nascent universe was enormous, 10^{32} degrees K or higher; its dimensions were near zero (10^{-33} centimeters, or less); its density was extreme (10^{93} grams per cubic centimeter, or more); and the universe's electromagnetic, weak, and strong forces were undifferentiated. Using the concepts we've just reviewed, we can say that at this very first stage in the evolution of the universe, there existed an energy carrier, but a carrier not yet modulated by information.

Immediately after that first 10^{-43} seconds, the informational modulation of energy began, initiating the "informationizing" process we have come to call evolution. During the 15 billion years since, this initial fund of energy—guided by laws–of–nature algorithms—has created a near infinitude of constantly changing informational patterns. To the amazement of many, contemporary science is painting much the same picture of reality that we got from the Upanishads, Taoism, and mysticism in general. The ancients didn't have the concepts of information, algorithm, carrier, modulation, and energy in their kit of intellectual tools, yet they did amazingly well with their intuitions and descriptions. We do have these concepts today, and looking back from our present vantage point, it is clear that both groups—the ancients and contemporary science—agree on certain fundamentals:

> **There is an enduring absolute reality which is the ground of the universal process.** Call it Energy, Brahman, Tao, Spirit, Being, or substance. It is the cosmic medium.

There is also a transient, ephemeral, relative reality which that ground brings into existence and progressively elaborates. Call it information, form, maya, or extension. It is the cosmic message.

The first reality is the source of the second and is its carrier. Call the combination of the two existence, nature, phenomena.

There are rules that guide the first in creating the second. Call them laws of nature, cosmic algorithms, primal intention, or the rules of the Existence Game.

Ancient and contemporary views concerning duality and nonduality are also compatible. As the ancients saw it, there was the absolute nondual *One* as well as the relative, dualistic, multiplistic, maya–based *many*. As we see it today, relative reality is dualistic because it is informational, and the very essence of information is *difference*. Absolute reality, on the other hand, is a nondual *monism*. Today, as at the primordial instant, there is one energy. It has become distributed unevenly in space and time—more here, less there—but that is the nature of informational modulation: spatial and/or temporal differences get applied to the carrier.

Whether we see duality or oneness depends on our perspective. The ocean/wave analogy is sometimes helpful. Waves are ocean's informational modulations, and the ocean is the carrier of the waves. From a relative perspective, we see waves and a dualistic relative–reality of shape, form, and spatiotemporal distribution. From an absolute perspective, however, what we see is ocean. The waves are there, but they are simply more ocean, more of the one reality. That reality remains constant in both magnitude and intrinsic nature; the surface disturbances change neither. When we observe the phenomenal cosmos from this absolute perspective, it is the same. What we see is energy, the primal One, the universal carrier. It is distributed in space and time, but that changes neither its overall magnitude nor its intrinsic nature.

The human psyche almost always adopts the relative, dualistic, multiplistic perspective on things. And that's fine to a point. Because

so much depends on our ability to sense differences—differences in light intensity, color, pressure on nerve endings, etc.—we couldn't deal effectively with daily life if we didn't spend most of our time viewing things that way. Still, increasing numbers of people are switching, on occasion, to the absolute perspective. The value of doing that—both for our troubled world and ourselves—will become increasingly apparent as our exploration of matters of consequence proceeds.

Notes

[1] Wilber, 2000c, p. 167.

[2] This string theory/M–theory effort is described with eloquence and clarity by Brian Greene in his book *The Elegant Universe*. (Greene, 2000.)

[3] Wheeler, 1996, pp. 296, 298.

[4] The maya quotes are from Rice, 1978, p. 249.

[5] The Upanishad passages are from the translation by W.B. Yeats and Shree Purohit Swami in Griffith, 1994.

[6] Rice, 1978, p. 5.

[7] Rice, 1978, p. 33.

[8] Lao Tzu, 1979a, p. 19–20.

[9] Lao Tzu, 1979b, p. 110.

[10] Lao Tzu, 1958, p. 29

[11] Aldous Huxley's 1945 book *The Perennial Philosophy* popularized the term "perennial philosophy" and made a convincing case that, at many times and in many places, people had independently arrived at this same interpretation of reality.

[12] See Mendelsohn, 1964, p. 111.

[13] Rucker, 1987, p. 31.

[14] In the standard cosmological model, the universe at $t = 0$ is dimensionless—a point. String theory, on the other hand, postulates that the universe was never smaller than Planck size: 10^{-33} centimeters. Brian Greene has said: "At this beginning moment of the universe, all the spatial dimensions of string theory are on completely equal footing—they are completely symmetric—all curled up into a multidimensional, Planck–sized nugget." (Greene, 2000, p. 358.) Wilber, 2000c, p. 167.

The Development of
Informational Complexity

This matter of consequence tells the story of how Brahman creates maya, how the One creates the many, how Spirit creates nature, how energy creates its informational overlay. It is about evolution, but evolution in the most general sense: the arising of new, interesting, and useful informational patterns of all kinds, not just biological ones. *Complexity theory* is the umbrella term for a set of explanatory perspectives that, in different ways, shed light on the nature and origins of informational complexity. To help clarify various issues I will call upon four of them: *system theory*, *evolutionary theory*, *chaos theory*, and the emerging new field of *network theory*. We begin with a system–theory look at the emergence of complexity.

SYSTEMS, HOLONS, AND THE SECOND LAW

In several books published during the 1970s and '80s, system theorist Ervin Laszlo described the evolutionary process from a systems perspective.[1] In this view ordered complexity has emerged, and continues to emerge, level by level as a hierarchy of natural systems. System–theory mathematics says that complexity usually arises in this way—as step–by–step hierarchies—rather than as one homogeneous super–complexity. Subatomic particles get together to form atoms. Atoms interrelate to form molecules. Molecules of a single type sometimes combine to form crystals. And molecules of many different types sometimes join to form the living systems we call

cells. Cells interconnect to create those complex systems called plants, fish, birds, and animals such as human beings. Living things of many types interact with each other to form ecosystems. Ecosystems communicate with each other and together form the biosphere. Human beings communicate with each other and give birth to those systems we call societies and nations.

We can also look at this system hierarchy as a hierarchy of *holons*. Arthur Koestler popularized the term, and Ken Wilber built his comprehensive analysis of evolutionary reality around it.[2] Each of the systems mentioned above—atom, molecule, cell, organism, etc.—is a holon. That is, it has the property of being both a *whole* at its own systemic level as well as a part or *component* in a system at the next level up in the hierarchy. The entire hierarchy of holons has been referred to both as the *holonomic order* and the *holarchy*.[3]

Holons have two essential characteristics: individuality and communal functioning. Koestler said:

> *Every living holon has the dual tendency to preserve and assert its individuality, such as it is, but at the same time to function as an integrated part of an existing whole, or an evolving whole.*[4]

Ken Wilber put it this way:

> *Because every holon is a whole/part, it has two "tendencies" or two "drives," we might say—it has to maintain both its wholeness and its partness.*
>
> *…[E]very holon has not only its own agency as a whole, it also has to fit with its* communions *as part of other wholes. If it fails at either—if it fails at agency or communion—it is simply erased. It ceases to be.*[5]

The story of the evolving physical universe is the story of this evolving hierarchy of natural systems, this evolving holarchy. Starting with the overview on the next page, **Some Key Events in the Informationizing of the Universe**, let's go back to that instant 10^{-43} seconds after $t = 0$ and see what has happened since then in the step–by–step development of the cosmic informational labyrinth.

Some Key Events in the Informationizing of the Universe

Time	Event
t = 0	Start of our present universe
0 to 10^{-43} sec	Presumably energy only; no structure Temperature extremely high (above 10^{30} degrees K). Dimensions of universe near zero. Electromagnetic, weak, strong forces undifferentiated
10^{-43} sec	First particles appear
10^{-24} sec	T = 10^{20} degrees K. Density > 10^{50} g/cm^3
10^{-6} sec	Protons and antiprotons annihilate each other
10^{-2} sec	T = 10^{11} degrees K. Soup of matter and radiation
1 sec	Electrons and positrons annihilate each other
3 min	T = 1 billion degrees K Stable particles exist: protons, electrons, and helium nuclei
10,000 years	Universe shifts from being energy–dominated to being matter–dominated
700,000 years	T = 3000 degrees K The first atoms form: hydrogen and helium
1–2 x 10^9 years	Galaxies begin to form
2.5 x 10^9 years	T = 300 degrees K. Density = 10^{-20} g/cm^3
4 x 10^9 years	First stars form
─────────── 5 to 10 billion years pass ───────────	| New stars and new galaxies form. | Within stars, complex atoms are created. Stars explode. | Dust clouds containing heavy, complex atoms form.
4.7 x 10^9 years ago	The sun forms
4.6 x 10^9 years ago	Earth and other planets form
Between 4.6 and 3 x 10^9 years ago	Increasingly complex chemicals evolve on Earth
3 x 10^9 years ago	Microscopic life appears on Earth
2 x 10^9 years ago	Oxygen–rich atmosphere develops on Earth
1 x 10^9 years ago	Macroscopic life appears on Earth
450 x 10^6 years ago	First fish appear on Earth
200 x 10^6 years ago	First mammals appear on Earth
300,000 years ago	T = 2.7 degrees K. Density = 10^{-30} g/cm^3 First Homo sapiens appear on Earth

Data Source: Barrow and Silk (1980), Weinberg (1988), and other sources
Table Source: *Zygon* (Macdonald, 1994)

According to the cosmologists' "standard model" of the early universe, it took three minutes for the temperature of the rapidly expanding newborn universe to drop to a billion degrees. During those three minutes, reality's laws–of–nature algorithms guided the informational modulation of some of that initial fund of raw energy into electrons, protons, and neutrons—the structural building blocks of ordinary matter. The modulation took place in the space–time energy fields that physicists call *quantum fields*. Several physicists, in writing for the general public, have described these fields and their "particles."

Fritjof Capra's explanation goes like this:

> *The quantum field is seen as the fundamental physical entity; a continuous medium which is present everywhere in space. Particles are merely local condensations of the field; concentrations of energy which come and go, thereby losing their individual character and dissolving into the underlying field. In the words of Albert Einstein:*
>
> *"We may therefore regard matter as being constituted by the regions of space in which the field is extremely intense…. There is no place in this new kind of physics for the field and matter, for the field is the only reality."[6]*

Further clarifying the nature of particles, Capra said:

> *Subatomic particles are dynamic patterns which have a space aspect and a time aspect. Their space aspect makes them appear as objects with a certain mass, their time aspect as processes involving the equivalent energy…. When we observe them we never see any substance; what we observe are dynamic patterns continually changing into one another—a continuous dance of energy.[7]*

At $t = 3$ minutes the temperature was still too high for stable atoms to form, but even at that stage neutrons were pairing up with protons to form stable helium nuclei—each nucleus consisting of two protons and two neutrons. The universe expanded, and as it expanded it cooled. As time went on, more and more of the original energy configured into protons, neutrons, electrons, and helium nuclei. At $t = 10,000$ years, about half of the original energy was still

in the form of radiation and half was in the form of particles. For a long time, not much new happened. The cosmic fireball grew in size and cooled, becoming a cloud of hot gas. At about $t = 700,000$ years, the temperature had dropped to 3000 degrees, and the next stage of systemic patterning began: atom building. During the preceding 700,000 years, electrons and protons had been passing near each other, but they were always too energized to stick together for long. Now, at this lower temperature, whenever an electron and a proton got close to each other, the electron would start orbiting the proton: A hydrogen atom would come into existence. The motion of the particles was random, but their joining whenever chance brought them together was a necessary and appropriate unfolding of the rules of the cosmic game.

Electrons also began to associate with helium nuclei, and this creation of hydrogen and helium atoms represented a movement from one level in the holonic/systemic hierarchy to the next. About this particular shift Ervin Laszlo observed: "The entropy of the whole atom is less, and its information content more, than the sum of its parts at equilibrium (electrons and nucleons)."[8] This observation applies to all examples of holons at one level coming together to create more complex "next–level" holons. In every case, local information is created, and local entropy goes down—but the entropy of the universe increases.

At the heart of the matter is the second law of thermodynamics. It says, in effect, that even though the total amount of energy in the universe is constant, as time goes on and information is created, less energy is *available*—less of it remains in a form capable of doing useful things. The measure of energy's unavailability is called *entropy*. One articulation of the second law is: *Whenever energy is used in an irreversible process, entropy is created, and the energy leaving the process is less available to do work than the energy entering it.*

Kenneth Boulding came up with a generalized form of the second law that uses the concept of potential and avoids mentioning entropy: *If anything happens it is because there is a potential for it happening, and after it has happened that potential has been used up.*[9]

Energy, entropy, and information are mathematically related, and during the 1960s those relationships were explored and clarified. Myron Tribus and Edward McIrvine discuss some of the details in a 1971 *Scientific American* article.[10] The authors reported several interesting findings:

1. By the early 1970s, it had been mathematically proven that information (as Shannon defined it and as his equations suggested) is negentropy, the negative of thermodynamic entropy.

2. It takes available energy to create information, but the amount needed depends on the nature of the process and varies widely. The authors presented figures that ranged from 1.4 joules per bit for characters typed by an electric typewriter to 0.00002 joules per bit for a TV picture on a CRT screen.

3. Whenever new information is created locally, an accompanying global (whole–universe) entropy increase occurs. In an extremely efficient information–creation system—wherein one molecule is able to store one bit of information—each bit of information created would be accompanied by an entropy increase of 10^{-23} joule per degree K. Usually, however, the entropy increase is much greater than that.

4. The sun radiates an enormous amount of energy, and 1.6×10^{15} megawatt hours of it reach Earth each year. On arrival, this energy creates *information*—much of it meteorological, some of it biological. The Earth then re-radiates an almost equal amount of energy to the cold darkness of space. The temperature differences between sun, Earth, and outer space determine the amount of entropy generated. Tribus and McIrvine calculated the value of the entropy flux to be 3.2×10^{22} joules per degree K, and the maximum rate of information creation to be 10^{38} bits per second.

Energy, in its relationship with information, has two roles: Energy is the *carrier of information*, and energy is the *creator of information*. Creating information comes, unfortunately, with a price: A local information increase is always accompanied by a global entropy increase. Energy that does thermodynamic work or creates informa-

tion loses some of its potential to do more work or create more information.

STARS, ATOMS, AND MOLECULES

When the temperature of the young cosmos dropped below 3,000 K, hydrogen and helium atoms formed in unimaginable quantity. During the next billion years, this cloud of gas cooled and expanded—but the expansion wasn't quite even. Gravitational attraction between gas atoms accentuated the unevenness, and the one huge cloud gradually broke up into more than a billion smaller clouds. Huge is the key word here, because each of these "smaller" clouds would eventually become a galaxy containing, on average, more than a billion stars. (Boggle, oh mind!)

One of these clouds eventually became our Milky Way galaxy. As this cloud contracted, eddies in the movement of the gas triggered its rotation. Eventually spiral arms formed. Within these arms, "hot spots" formed where enough gas had been pulled by its own gravity into small–enough spaces to generate intense heat. The temperature in some of these condensations rose to the point that continuous nuclear–fusion reactions started. These isolated fireballs were the first–generation stars.

Besides their familiar role as planet warmers, stars serve as the alchemist's fiery cauldrons in which the heavier chemical elements are created. All of the atoms that make up our bodies either date back to the period soon after the Big Bang or were forged later in some star. Hydrogen and helium atoms are stable arrangements, or systems, of electrons, protons, and neutrons. There are close to 300 other stable arrangements as well. Forming the nuclei of these other arrangements requires extremely high temperature and pressure—and the interior of a star provides exactly that sort of environment.

Stars differ in size and temperature. A star with an internal temperature of ten million degrees is able to convert hydrogen to helium. At 100 million degrees, helium converts to carbon and oxygen. At about a billion degrees, those atoms break down and form magnesium, sodium, calcium, and sulphur. At three billion degrees, chromium, iron, nickel, and small quantities of many other elements form.

Hotter yet are the stellar furnaces called *supernovas*—the source of the heaviest, most complex elements such as gold and uranium.

These happenings inside stars give us a glimpse of the role of random processes in evolution. Randomness does not create order, but it can often help a latent potential for order to reveal itself. The potential for order, for forming the ordered arrangements we call atoms, inheres in the subatomic particles and rules of the game—the program behind the process. The chaotic random nature of these stellar processes is an *enabling mechanism* that allows the potential for order, for structure, to be realized. It happens like this: Inside a star, elementary particles are forced at random into countless different configurations, but the interplay of forces is such that only a few of these configurations are able to endure. As noted, of all the conceivable ways of arranging these particles, fewer than three hundred of them meet all the requirements—all the behavioral rules of the cosmic algorithms—for stable structures. Random forces bring together the bits and pieces, but whether or not a particular arrangement becomes a lasting arrangement is determined by the intrinsic rules of particle behavior, by the cosmic program.

From the standpoint of information, the situation as a whole embodies all the information needed to define what happens. Each particle brings part of the information with it. The rest is supplied by the milieu in which the particle finds itself. The total information brought together from all sources, in conjunction with the laws–of–nature programming, determines which potential mode of existence will be actualized.

The first–generation stars in our galaxy condensed from part of the original gas cloud. They turned on, converting hydrogen to heavier elements and radiating energy into the universe. These stars eventually grew old, went through many changes, and before turning off spewed their newly formed elements out into space to form new clouds of gas and dust. Second generation stars condensed from these new clouds. Our sun is a second–generation star that condensed more than 4.6 billion years ago. This time the clouds contained not only gases like hydrogen and helium, but also particles containing heavier elements. In a similar process, Earth also formed

at about the same time as the sun. Dust particles joined each other by gravitational attraction until an Earth–sized mass formed and until there existed no more material around to attract.

The heat generated by radioactive elements allowed the internal temperature of Earth to rise—growing hot enough to melt the heavy elements—but nowhere near hot enough to start a nuclear fire. Rather than becoming a furnace for forging atoms, Earth instead became the scene of even more complex and interesting happenings. Earth was an especially favorable place for the next stage of system–building: chemical evolution, the emergence of those tiny systems of matter called *molecules*.

We've seen that the systems we find in nature tend to emerge in hierarchies. The ordered coming together of less complex (sub)-systems creates a new, more complex, system. So it is with atoms and molecules, and the creation of molecules is the third major level in the "informationizing" of the universe. With the exception of a few humanly created elements, the elements and isotopes produced by the stars exhausted the potential for stable systems made directly from electrons, protons, and neutrons. Starting a whole new level of system–building was the only available route to increased complexity. Atoms became the building blocks—the subsystems—in the arrangements of atoms we call molecules.

Whatever atoms could do, they did do, in the environment that existed. Once again it was a matter of actualizing inherent potentials. Each atom had the potential for certain kinds of combining under certain environmental conditions. Sodium will bond with chlorine to form the molecular system we call salt. Hydrogen will bond with nitrogen to form ammonia—but only if enough energy enters the process. The laws of chemistry are a human description of the natural potential of atoms to form configurations with other atoms.

LIFE

The Earth's temperature was just right for chemistry—not an inferno, but not the icy cold of space either. That nearby star, the sun, kept the Earth's temperature in the right range for many chemical reactions, and geothermal heat provided the higher temperatures

needed for others. Some molecule–building had already been taking place in space, but Earth was much more hospitable. Not only were Earthly temperatures more suitable, but gravity held things together—allowing solids, liquids, and gases to interface with each other.

Though scientists disagree about the details, the situation on early Earth seems to have been something like this: The earth had an atmosphere, but not one that you or I would like. It contained little or no oxygen. According to some theorists, it contained lots of ammonia, methane, and hydrogen sulfide—as well as hydrogen and water vapor. Others speculate it contained primarily carbon dioxide and water vapor. There were erupting volcanoes, ejecting hot gases and lava. There also were oceans—and within them, magma–heated hot springs. When the sun shone, intense ultraviolet radiation poured on the Earth, and violent lightning storms sometimes raged.

A lot was happening in the oceans of that early Earth. Molecules that had formed in the atmosphere with the aid of ultraviolet radiation and lightning flashes were washed by the rain into the sea along with minerals from the land. Quite complex carbon–based compounds form in outer space, and some of these may have reached the Earth's oceans via meteorite or comet impacts. Almost all writers refer to these early oceans—or at least the small pools at their edges—as having attained the characteristic of a broth or soup containing a wide variety of organic molecules. The sun (and possibly hot springs) provided energy and allowed intricate molecules to form: amino acids, nitrogen compounds, various types of sugar molecules, and perhaps even organic molecules as complex as enzymes. The ingredients of this soup existed in varying degrees of segregation from other molecules, and in varying concentrations. In some circumstances, quite complex molecules formed, probably with the aid of clays and other mineral catalysts. The sun shone, and the sky darkened. Temperatures rose and fell. Winds blew, and other things happened to stir the soup—all in a chancy, random way. The atoms and molecules did whatever the informational constraints of the situation directed them to do under the ever–changing conditions in the soup.

This scene, or something roughly like it, comprised the precondition for the emergence of life. It is still unclear, however, how we got from chemical soup to the first living cell. Somehow, a very special kind of molecule came into existence. It was probably some form of nucleic acid, and it exhibited a peculiar characteristic. Its presence in the broth provided enough guidance to other molecules and atoms near it so that they arranged themselves in the same pattern as the guiding molecule. Most theorists attribute this to a coincidence of favorable circumstances. The right bits and pieces just happened to be in the right place at the right time. They reject suggestions that the primordial soup had to be "seeded" with replicating molecules developed elsewhere in the cosmos.

However these replicating molecules arose, they froze chance on an upswing, and from then on additional molecules of the same kind emerged with no more difficulty than did simple molecules. As long as the soup contained the right bits and pieces, the replicating molecules kept directing the bits and pieces to hook up in a way that made more self–replicating molecules. It is likely, however, that this early replication was not exact, and the new molecules weren't always faithful copies of the original. What apparently happened next is that some one of the "odd" copies had, by chance, a structure capable of directing the construction of a protein molecule—a crude enzyme. This enzyme could assist the nucleic acid molecule in making an accurate copy of itself. This point in evolution—when nucleic acid molecules started getting help, when systems started to develop around them to help them replicate—marks the emergence of life, according to the thinking of some biologists. Thereafter came the cell and the evolution of increasingly complex living things—the chance–and–necessity, natural–selection, biological evolution with which most of us are familiar.

When something is too improbable, when the odds against it happening seem just too great—and yet it happens anyway—we call it a miracle. For a long time life seemed miraculous in just that sense. Life's many forms seemed to require the existence of a master planner: a God who guided all the details of creation, a designer of oak trees and robins and human beings. It appeared just too improbable

that all this order emerged in any other way. We now know that living systems are inherent potentials of energy itself, and that "intelligent designing" is only one possible way of realizing those potentials. It turns out that you don't need an intelligent designer if you have a sufficiently capable medium.

The real miracle is the primal reality itself—a reality that, through means beyond our present understanding, is *programmed* to work in certain ways. *Laws of nature* are our verbal and mathematical descriptions of the algorithms behind the cosmic programs, subprograms, and subroutines that define what will happen under various conditions. These programs interact with existing information, causing new informational arrangements to evolve.

Chance also plays a key role. As I have said elsewhere:

> *It is through the interplay of chance and programmatic determinism that evolution proceeds. And although evolution is program– guided and program–directed, this does not mean it is totally deterministic in the "clockwork universe" sense. Computer programs often call up random numbers to introduce chance and serendipity into otherwise lock–step processing. Similarly, true randomness appears to be built into the programmatic operation of the universe at the subatomic level.[11] Also, the vastness of the universe and the large number of things going on ensures additional serendipity through the intersection of countless largely independent chains of cause and effect. Chance sets up certain informational situations—information inputs in computer terms. The cosmic computer continuously monitors those situations, and through its laws–of–nature programming creates new informational situations—new information outputs.*
>
> *Unlike the desktop computer that processes its data in serial fashion, the programs that guide the universe all function at the same time, in parallel. These laws–of–nature algorithms operate everywhere, simultaneously, continuously. It is parallel data– processing in the extreme.*
>
> *Because of this ongoing activity, the informational pattern of the universe constantly changes. An informational situation*

inherited from the previous instant gets turned into a new informational situation by the operation of various laws of nature. The process never rests. In the next instant the new *pattern is once again subjected to that whole matrix of algorithms—and to the extent that the algorithms dictate, again the pattern changes…. These algorithms are ceaselessly applied to what is now, turning it into what will be.*[12]

Once again, the mind boggles.

Work in the new scientific fields of *chaos theory* and computer–based *artificial life* are relevant to this discussion, because they so clearly demonstrate that iterative functioning of simple algorithms can bring into existence intricate and beautiful complexity. Chaos theory is rooted in our recent understanding that many things that appear chaotic and totally random are, in fact, not random at all. Instead, they involve the playing out of relatively simple algorithms. Most of us have seen images of Mandelbrot Set fractals, which some consider to be the most complex object in mathematics. No matter how small the portion of the fractal image being explored, detailed complexity still exists. Yet, all that complexity arises from the simple algebraic equation $Z = Z^2 + C$ solved iteratively: Multiply Z by itself. Add C. The answer is the new value for Z. Repeat until the value of Z is greater than two, or the counter expires.[13]

Artificial life is a computer–based activity involving programs that create computer–display "organisms"—visual entities exhibiting at least some characteristics of biological organisms. The earliest work dates back to the 1950s and '60s. It involved the behavior of square–cell "individuals" in a grid "universe." The behavior of a given cell depended on the occupancy state of adjacent cells and a simple set of rules. In this environment, stable patterns of cells formed and moved around in interesting ways. Since then, artificial life research has proliferated. New computer programs have produced more interesting, more lifelike phenomena—but still via the repetitive functioning of relatively simple algorithms. By the end of the twentieth century, researchers were creating plant–like entities, animal–like entities, and even multiorganism ecosystems "in silico."[14]

ECOSYSTEMS AND ECONOMIES

Among the most complex systems on Earth are biological ecosystems and human economies. These systems have several things in common, including the phenomena we call *development* and *expansion*. In both kinds of system, development has to do with qualitative differentiation and the ongoing informational elaboration of the system. It has to do with increasing diversity. In both kinds of system, expansion has to do with the quantitative growth of the system—with increasing the total quantity of biomass in an ecosystem and the total volume of activity in an economy.

Jane Jacobs sheds light on both phenomena in her book *The Nature of Economies*. She pointed out that high levels of development in either kind of system result from interactions within a rich "web of interdependent codevelopments. No codevelopment web, no development."[15] In other words, to reach a highly developed state, an ecosystem must have many interrelating organisms, and a well–developed economy must have many interrelating economic activities.

Quantitative expansion of an ecosystem or economy arises from the efficient capture and use of available energy. As Jacobs put it:

> *Expansion depends on capturing and using transient energy. The more different means a system possesses for recapturing, using, and passing around energy before its discharge from the system, the larger are the cumulative consequences of the energy it receives.*[16]

Development leads to increased diversity, and increased diversity facilitates expansion by allowing the available energy to be used in multiple ways. In a complex ecosystem the original solar energy is reused many times as organisms consume other organisms and their waste products. In a complex economy, raw materials are turned into products; simple products are incorporated into more complex products; waste is recycled; people use products to perform services, and services facilitate the manufacture, sale, and distribution of products. Thus, higher levels of complexity allow the energy available to these systems to produce more—more life and more economic activity.

Low levels of complexity characterize "pioneer" few–species ecosystems, and vulnerable rural and one–industry economies.

Our universe, over the past 15 billion years or so, has been engaged in the creation of information—amazing amounts of it—and that information has appeared in a hierarchy of increasingly more complex nested structures. A host of information–creating processes have moved the cosmos along the scale of complexity from simple particles to unbelievably complex systems: galaxies, human beings, ecosystems, and economies. Until very recently, such processes were guided directly by laws–of–nature algorithms. Eventually, however, trial–and–error evolution produced intelligent systems that could themselves create complexity and determine its details.

For better or worse, we human beings are the new evolutionary players, the new producers of complexity, the new agents of Energy/Being/Spirit. Sophisticated human mentality is the source of these new powers, and the next matter of consequence explores this other face of the universe: reality's sentient, aware, experiential side. It seems that the primal reality is not just energy, but something more like energy–awareness. As Kurt Vonnegut put it in *Breakfast of Champions:* "$E=Mc^2$. It was a flawed equation, as far as I was concerned. There should have been an '*A*' in there somewhere for *Awareness*—without which the '*E*' and the '*M*' and the '*c*,' which was a mathematical constant, could not exist."[17]

Notes

[1] Laszlo, 1972a; Laszlo, 1972b; Laszlo, 1987.

[2] Wilber presents his evolutionary worldview in two books, the popular *A Brief History of Everything* (Wilber, 1996) and the more detailed and scholarly *Sex, Ecology, Spirituality: The Spirit of Evolution* (Wilber, 1995).

[3] Joseph Chilton Pearce used the phrase *holonomic order* in his book *The Bond of Power* (Pearce, 1981), and Ken Wilber used *holarchy* in several of his works.

[4] Koestler, 1967, p. 201.

[5] Wilber, 1996, pp. 21, 22.

[6] Capra, 1975, p. 210.

[7] Capra, 1975, p. 203.

[8] Laszlo, 1972a, p. 57.

[9] Boulding, 1978.

[10] Tribus and McIrvine, 1971.

[11] This assumes that Einstein's "hidden variables" do not exist. Einstein felt that the universe was a totally determined "clockwork" universe. (God did not play dice with the universe.) He hypothesized that quantum "randomness" is really a pseudo-randomness that arises from a submicroscopic determinism that is hidden from us—it arises from "hidden variables." What this would mean in our computer analogy is that the subatomic random number generators would not be truly random, but would, in fact, be program–directed pseudorandom number generators.

[12] Macdonald, 1994, pp. 141, 138, 139.

[13] The procedure is discussed in detail at http://www.cygnus-software.com/theory/theory.htm. See also James Gleick's book *Chaos* (Gleick, 1987). Fractint, a free fractal–generating program for IBM–compatible computers has been available on line. Check: http://spanky.triumf.ca/www/fractint/fractint.html.

[14] For an excellent history of artificial life activity see Levy, 1992. For collections of Internet links to artificial life resources, check:
http://www.scs.carleton.ca/~csgs/resources/gaal.html and
http://www.spacelab.net/~catalj/rl_alife.htm.

[15] Jacobs, 2000, p. 19.

[16] Jacobs, 2000, p. 47.

[17] Vonnegut, 1973, p. 241.

Understanding Human Mentality

We humans spend our waking and dreaming hours in an inner world of subjective experiences: images, sounds, bodily sensations, smells, tastes, thoughts, feelings, moods, and more. What is the nature of this sentient reality? And what is its relationship to the physical universe, including brain structure and function? Late twentieth–century advances in neurology and in the philosophy of mind are finally bringing us close to satisfactory answers to these questions.

As noted briefly in MATTER OF CONSEQUENCE 1, **The Nature of Primal Reality,** the ancients who articulated the perennial philosophy considered absolute reality to have both active and receptive qualities. Absolute reality was the source and ground of physical nature, but it was also the source and ground of mentality and mind. Given this, it should not surprise us that the concepts of information, carrier, and modulation that shed light on an information–rich physicality can also shed light on an information–rich mentality. In this chapter, we will consider a carrier/information interpretation of mental reality that complements the carrier/information interpretation of physical reality examined in MATTER OF CONSEQUENCE 1 and 2. First, however, let's touch on some of the historical attempts to explain the nature of mind and the mind/body relationship.

For the Greeks of Socrates' time, *psyche* was what distinguished living things from dead matter, and represented for them the full vitality of life, not mentality alone. Still, Plato seemingly viewed the psyche as separate from the body, and both he and Socrates

considered it to be immortal. As a young man Aristotle shared this view, but later in life he no longer considered mind and body to be separate and distinct.

The Greek word *psyche* is often translated into English as *soul*. For Christians of the Middle Ages, the content–filled mind (including elements of personality) constituted one's soul. The soul inhabited the body during life but left it at the time of death to one or more of those after–death fates described by Dante: *paradiso*, *purgatorio*, or *inferno*. For a few people during medieval times, believing in the establishment mythos was not sufficiently satisfying, and they sought a direct inward connection with truth. Within branches of all three Western religions—Islamic Sufism, Judaic Kaballah, and certain enclaves of Christianity—dedicated seekers established contemplative and meditative practices. A primary aim of these practices was direct experience of the *ground of being, God*—or *Godhead,* as it was often referred to by Christian mystics.

In the early seventeenth century, René Descartes went beyond the views propounded by medieval scholasticism and developed the detailed theory of mind now called *Cartesian dualism*. Descartes considered matter and mind to be completely different kinds of substance, and although he acknowledged that mind and body interacted in a causal way (supposedly via the brain's pineal gland), he believed the mind was autonomous and could think thoughts independently of the body. The publication of Descartes' theory was a significant event in Western philosophy. His was the first modern philosophy of mind, and it stimulated a new level of interest in the nature of mind and mind's relationship to the body. From Descartes onward, Western philosophy would be deeply involved with the attempt to understand consciousness and mind.

In opposition to Descartes' dualism, three other philosophers soon presented *monistic* theories based on the idea that there is only one kind of ultimate substance:

1. Thomas Hobbes advocated a *physicalist monism*. He took the position that the universe was physical only, denied the existence of a soul that could separate from the body, and held that mental happenings are an effect of the motions of matter.

2. Baruch Spinoza advocated a *dual–aspect monism* in harmony with the perennial philosophy. Starting from the assumption that there is one God/Nature, Spinoza reasoned that there had to be just one primal substance, and that both the mental and the physical had to be rooted in that substance. He felt that every expression of that substance, every *thing*, could be conceived of in either mental terms or physical terms. In other words, all things mental also had a physical description, and all things physical also had a mental description.

3. George Berkeley advocated a form of *idealist monism*. He held that reality is inherently mental in nature, consisting of the mind of God plus finite, discrete minds such as human minds. He held that mental experience is the only reality, and that matter exists only as ideas in finite minds and in the Divine Mind.

Thus, in less than a century after Western philosophy got serious about the nature of the mind, proponents had put forth theories in four of the major philosophy of mind categories: *dualism*, *physicalist monism*, *dual–aspect monism*, and *idealist monism*.

Of these four initial theories, only Cartesian dualism managed to retain its original form on into the twentieth century. The other three categories have included many additional contributor theorists:

- The list of contributors to the materialist or physicalist position is a long one. It includes John Locke, David Hume, and John Stuart Mill in the nineteenth century, and in the twentieth century, John B. Watson, B.F. Skinner, Gilbert Ryle, Herbert Feigl, D.M. Armstrong, Patricia Churchland, Paul Churchland, Daniel Dennett—and many, many others.

- Contributors to the dual–aspect or neutral monism view include Friedrich Schelling and G.W.F. Hegel in the eighteenth and nineteenth centuries; Bertrand Russell and Alfred North Whitehead in the first half of the twentieth century; and Ervin Laszlo, Gordon Globus, and Christian de Quincey in the second half.

- In the idealist camp, Immanuel Kant and Johann Fichte made major contributions in the eighteenth and nineteenth centuries.

Clearly, having four mutually exclusive families of theories, each with many variations, was not a satisfactory state of affairs. Where did truth lie? Which of the many proposed explanations of mind and mind's relationship to matter most accurately mapped the underlying reality? The way to find out seemed clear enough: get more empirical, get more scientific. Subject the various philosophical theories to scientific rigor. That, unfortunately, has proved exceedingly difficult.

In the late nineteenth century, Wilhelm Wundt, Oswald Külpe, and Edward Titchener approached the problem through *experimental introspectionism*. The idea was to look carefully at mind content and happenings, determining what light they shed on things. This technique led to useful discoveries, but results from one lab often conflicted with results from another. Unfortunately, instead of continuing to refine this approach and to then use it only where appropriate, *behaviorism* came along in the early twentieth century and swept away the entire introspective effort.

Behaviorism looked at human beings and other animals as behavioral black boxes. It said that the important things to study were inputs and outputs, stimuli and responses. Perhaps something called mind and consciousness was buried within the black box, but because it was inaccessible with the tools of physical science, it should be ignored. Instead, science should focus its attention on what could be detected and measured—*behavior*. Behaviorism held sway through the 1950s, and the textbooks of that period rarely mention consciousness.

Neurological investigations also continued throughout the century, and in the 1960s, when behaviorism seemed to be reaching its explanatory limits, three new physicalist approaches emerged. One of these was *central–state physicalism* and its *psychoneural identity theory*. As defined by Jerry Fodor: "Central–state identity theory is the philosophy of mind that equates mental events, states and processes with neurophysiological events. [The] property of being in a given mental

state is identical with the property of being in a given neurological state."[1]

Neuroscientist Roger Sperry, winner of the Nobel Prize in physiology/medicine for his split–brain work, advanced a theory of mind/brain relationship that he called *emergent interactionism*.[2] Sperry recognized that a variety of neuronal systems are associated with consciousness, and he saw the elements of mind—thoughts, emotions, etc.—as emergent properties of those systems. He held that these conscious–system emergents have a top–down, causal influence on system components and their functioning. In other words, the emergent mental events are able to affect physical brain processes and cause physical things to happen.

The third new approach integrated insights from psychology, neurology, and computer science, and became known as *cognitive science*. The main theory of mind that arose from these activities was *functionalism*, which sees mental activity as a product of functional arrangements, logic, and flows of information. This theory gives little or no consequence to the nature of the particular physical substrate (neurons or silicon), so long as that substrate can support the functions. Whereas Sperry considered consciousness to be causal, most forms of functionalism and identity theory assume consciousness is *epiphenomenal*—just going along for the ride and playing no causal role.

TOWARD A SCIENCE OF CONSCIOUSNESS

Interest in the scientific study of consciousness slowly increased during the 1970s and '80s, and by the end of the 1980s, consciousness was being taken seriously by at least part of the scientific community. In fact, an increasing number of scientists began to consider the nature and function of consciousness to be the most significant still–unsolved riddle of the universe. In the early 1990s, consciousness studies became one of the hottest areas of scientific interest—a magnet that drew into the field world–class scientists like Francis Crick and keen young philosophers like David Chalmers. New scholarly journals emerged: *Consciousness and Cognition* in 1992, the online journal *Psyche* in 1993, and the *Journal of Consciousness Studies* in 1994. Philosophers, neurologists, psychologists, computer scientists, and others attended a proliferation of multidisciplinary academic confer-

ences dedicated to greater understanding of consciousness and its relationship to brain function. Among the most important of these conferences were the Toward a Science of Consciousness conferences held in Tucson, Arizona, in 1994, 1996, 1998, and 2000. The 1996 conference was typical: more than a thousand attendees and more than five hundred papers presented.

A major focus of this recent activity has been what David Chalmers called the "hard problem." It has several components:

1. How can consciousness arise from matter? Or, as one person put it, "Why, in principle, should a neuronal system of any degree of complexity give rise to the phenomenal experience of consciousness?"[3]

2. Is consciousness epiphenomenal or causal?

3. How are the various aspects of conscious experience (which presumably arise in quite separate brain processes) brought together in one experiential field? This is often called the "binding problem."

Part of the excitement these days has to do with the constant flow of new experimental results coming from labs around the world. Of particular interest are experiments that correlate mind events with brain events. In the past, it was very difficult to get this kind of information. If someone had to have their skull cut open for a legitimate purpose, such as removing a tumor, a research–oriented neuroscientist might take a few extra minutes to electrically stimulate points on the surface of the cortex and to ask the patient what was happening in their mind. Wilder Penfield did some of this in the 1960s, but ethically suitable opportunities for this kind of investigation are quite limited.

Another traditional approach is lesion analysis. If someone sustains a brain injury, such as a stroke, that person often has abnormal mental experiences. If reports of these experiences are carefully recorded and after the person dies the neurological damage is carefully investigated, the neuroscientist may learn something new and interesting. One more traditional tool is the electroencephalogram or EEG, which picks up brain–generated signals from the scalp. Unfortunately, the scalp is so far from the seat of neural activ-

ity that most detail is lost, and the EEG gives just a rough general picture of what is going on in the brain.

New ways of investigating correlations in a high–resolution manner include brain–scan technologies, such as CAT and MRI; focused magnetic stimulation of small brain areas from outside the skull; and experiments with monkeys in which the monkeys reveal to the experimenter some information about their inner experience. In a typical monkey experiment, electrodes previously implanted in various areas of the monkey's brain detect the activation of specific neurons, and this neural activity is then correlated with what the monkey is paying attention to.

As the tools of science get more powerful, the mind–body problem gradually moves from being a philosophy–only issue toward being a science–only issue. At the moment, both camps are actively involved, and both have much to contribute. Philosophy arrives at plausible hypotheses, and this gives direction to scientific investigation. In turn, scientific results inform the philosophy and help philosophers refine their theories. We do not yet have definitive answers, but as neurological and psychological findings accumulate and as philosophers take new tacks and sharpen their arguments, fewer and fewer theories remain on the "highly plausible" list. In the end, science will enable us to learn which of the last–remaining stories is in fact the *true* story.

VIEWS OF WANING PLAUSIBILITY

Already, growing neurological and psychological knowledge has reduced the number of credible philosophical positions. In other words, fewer of philosophy's many "ways that it might be" remain realistic possibilities. In the sections below we review the plausibility of the major theories in the light of present knowledge.

Cartesian Dualism

Though still alive in Christianity, Cartesian dualism is scientifically dead because it calls not only for a *sentience, raw subjectivity,* or *contentless awareness* that is separate from physical reality—but also for a *fully functioning, separate mind* complete with memories and flows of information. In Cartesian dualism's modern incarnation, John Eccles

refers to this detached mental entity as "the self–conscious mind."[4] In the view of the great majority of those in the consciousness field, no such thing can exist. Countless neurological investigations have made it clear that memory and information flows in the human mind arise from neuronal processing. The neurological "wetware" carries out these functions, and a disembodied mind separated from a functioning brain would have no memories or other information flows.

Central–State Theory

A few cracks flaw central–state, or psychoneural–identity, theory. First, it is hard to make the case for "identity" in any ordinary sense of that word. Gordon Globus summed it up:

> *Although the statement that mind is identical with brain seems quite acceptable as an intellectual thesis, when one considers it in a personal way, the thesis seems totally preposterous. How could it be that my experience at this moment—as I look out over a sculptured mosaic of green and brown in the valley below, the many blues of the ocean stretching to the horizon, and the vast illuminated space overall—is neural activity? The "is" here means that, following Leibnitz's law as to the strict identity of indiscernibles, both consciousness and neural events possess all their properties in common. But this seems absurd in that consciousness and neural events seem to have strikingly different properties rather than all properties in common.*[5]

Second, identity theory is often associated with epiphenomenalism, and as discussed below, epiphenomenalism doesn't make evolutionary sense.

Epiphenomenalism

Whether of the dualistic or monistic type, epiphenomenalism is not tenable from an evolutionary perspective. Something as complex and intricately refined as human mentality is very unlikely to have evolved unless it played a functional role—unless it helped individuals to survive and/or to reproduce.

Emergent Interactionism

Although causal rather than epiphenomenal, Sperry's emergent inter-actionism presents plausibility problems if we assume (as physicalists do) that primal reality is physical only. How is a strictly physical system going to give rise to a nonphysical emergent—and one that then has a causal effect back on the physical system?

Functionalism

The main criticism of functionalism is not that it is wrong, but that in its present form it is incomplete. The functionalist view clearly applies to the vast amount of non-conscious, logical, computational information processing that goes on in the brain. But computational logic alone does not explain sentience and the transduction (conversion) of neurally embodied information into awareness–embodied information.

PROMISING PIECES OF THE PUZZLE

While shooting holes in some theories, present knowledge enhances the plausibility of others. We now turn our attention to some of those ways of looking at mind that enhance our understanding today and point toward a truly comprehensive theory of mentality down the road.

Neural Information Flows and Global Workspace Theory

The acceleration of neurological research in both animals and humans during the last third of the twentieth century gave us much insight into the processes of perception, decision–making, and behavioral control. The creation of extensive maps of information flows within the brain have led to theories at the black–box or block–diagram level about how our brains process perceived and remembered information and make decisions.

In a theory put forth by Bernard Baars, a large amount of non-conscious computational information processing is augmented by a "global workspace," a conscious stage or arena where some information is presented in conscious form and selected by attentional processes for further unconscious processing.[6] This global workspace is, of course, the mind as we know it, the virtual "place" where our mental experience occurs. This is not itself a new idea. Julian Jaynes

reported that Heracticus referred to consciousness as "an enormous space whose boundaries, even by traveling along every boundary, could never be found out."[7] And in his 1976 book on the origin of consciousness, Jaynes called *spatialization* "the first and most primitive aspect of consciousness."[8]

Consciousness as Fundamental

Most twentieth–century scientists assumed that reality is physical only—that at a fundamental level, reality possesses no mental or proto-mental qualities. Although a major axiom of physicalism, this assumption is really just that—an unproven, *a priori* assumption. Recently, David Chalmers and others have challenged this assumption, suggesting that it may be plain wrong to assume that fundamental reality is physical only. Furthermore, they contend that this assumption may have led us down unproductive paths over the years, actually impeding our efforts to understand consciousness. These theorists propose that we consider consciousness (or at least some level of proto-consciousness) to be fundamental—and see where that leads us. To date, that proposition has led in two directions:

1. To exploring the possibility that consciousness is a quantum–mechanical phenomenon
2. To addressing the dual–aspect theory at a more specific level

   Quantum mechanical views. The possibility that consciousness originates in quantum–mechanical activity is being discussed and theorized about by Roger Penrose, Stuart Hameroff, and others.[9] Their major focus has been the tiny structures within cells called *microtubules*.

   Dual–aspect theory and panexperientialism. In the past, dual–aspect theory has been associated with the term *panpsychism*—one of those dirty words that self–respecting philosophers have avoided. The problem with the term arose out of naïve assumptions about what it meant. "What? Are you saying rocks think?" No, rocks don't think, but there may be, at every level of existence, including geological, some kind of primitive experience that takes place under certain circumstances. *Panexperientialism* is the new, sanitized term, and panexperientialists are careful to explain what they mean:

The central tenet of panexperientialism is that experience goes "all the way down." "Pan" means "all of," "the whole" or "universal"—therefore "panexperience" means experience as an ingredient throughout the universe, permeating all levels of being. Not just human brains, but individual cells, individual molecules, individual atoms, and even individual subatomic particles incorporate the capacity for "feeling," a degree of subjective interiority.[10]

Other theorists are taking dual–aspect theory to the neural level in an attempt to answer the question: "How does the transition from neural activity to the conscious global workspace and back to neural activity actually take place?"[11]

WHERE THIS TAKES US

If dual–aspect monism is the correct view, what then is the neutral reality out of which both the physical and the mental emerge? The only plausible candidate is *energy*—that clearly primal, enduring, indestructible stuff that physicists and cosmologists agree is the ground of the physical world. Traditionally, physicists, chemists, and geologists have considered energy to be physical only. From the perspective of dual–aspect theory, however, energy is not only *proto-physical* (the ground and source of physical phenomena), it is also *proto-mental* (the ground and source of mental phenomena). In other words, energy has inherent potentials for both physicality and mentality, and during the past 15 billion years, countless potentials of *both* kinds have been actualized.

As indicated in MATTER OF CONSEQUENCE 1, **The Nature of Primal Reality**, early spiritual seers of both East and West intuited just such a primal reality. Many translators of their views have labeled that reality *spirit*. Wilber's references to Schelling and Hegel illustrate the point:

[Schelling] maintained…that mind and nature are both simply different movements of one absolute Spirit, a Spirit that manifests itself in its own successive stages of unfolding. As Schelling's colleague Hegel would soon put it, Spirit is not One apart from Many, but the very process *of the One expressing itself through the Many—it is infinite activity expressing itself in the* process *of development itself—or, as we would now say, Spirit*

expresses itself in the entire process of evolution.[12]*…[f]or Schelling (and for his friend and student Hegel), Spirit goes out of itself to produce objective nature, awakens to itself in subjective mind, and then recovers itself in pure Nondual awareness, where subject and object are one pure immediacy that unifies both nature and mind in realized Spirit.*

And so: Spirit knows itself objectively as nature*; knows itself subjectively as* mind*; and knows itself absolutely as* spirit—*the Source, the Summit, and the Eros of the entire sequence.*[13]

As used here, spirit = energy = the ground of both physicality and mentality—the primal, neutral, immanent, proto-physical, and proto-mental monism that is the ground and source of all.

THE CARRIER/INFORMATION EXPLANATION OF HUMAN MENTALITY

If we take this conceptual leap and assume that the mental is as fundamental as the physical, much falls into place. This is especially true if we view the mind–brain process from a carrier/information perspective. A psychophysical primal reality, in addition to being a carrier of physical information, will also be a carrier of mental information. We have labels for energy's mental–carrier aspect: *awareness, sentience, pure subjectivity, consciousness without content.*[14] In the detailed explanation that follows I will usually use the term "awareness," because it seems the least confusing, one–word label and because much of the perennial philosophy literature uses it.[15]

Beyond labeling this carrier, we can refer to its roles and functions:

- Awareness is the ground, medium, and carrier of mind.
- Awareness is what permits conscious experience.
- Awareness is the subjective capability that is present during brain arousal.
- Awareness is the sentient medium that, when modulated by neuronally generated information, becomes *mental qualia*—mind with informational content.

We also need to be familiar with a few other terms:

- *Qualia* is a term used by philosophers–of–mind and consciousness researchers to refer to distinct types of mind content. In the perspective presented here, qualia are awareness–associated informational artifacts—specific instances of informationally modulated awareness. They are components of the informational totality that constitutes conscious experience.

  Gerald Edelman has said: "Qualia constitute the collection of personal or subjective experiences, feelings, and sensations that accompany awareness. They are phenomenal states— 'how things seem to us' as human beings. For example, the 'redness' of a red object is a quale. Qualia are discriminable parts of a mental scene that nonetheless has an overall unity. They may range in intensity and clarity from 'raw feels' to highly refined discriminada."[16]

  In another sense, qualia are mental metaphors that symbolize the modulating stimulus or elements of a mental analog of some perceived reality.[17] For example, specific odors are mental metaphors for specific airborne molecules. And visual experience is a reasonably accurate mental analog (map) of the optical scene projected on the retinas.

- *Mind* refers to the space–like awareness environment in which qualia appear—the subjective global workspace, the composite experiential field.

- *Attention* is a condition of mind and brain marked by heightened and usually selective noting of qualia. Research tells us that selective attention is caused not by varying the intensity of awareness—which is simply present during periods of arousal and not present during deep sleep—but by selectively changing the intensity of the neuronal information that modulates awareness.[18]

If reality is inherently mental *and* physical, then the role of the neuronal system is not to mysteriously *create* awareness and mind from alien substance. Rather, it is to organize a pre-existing propensity for awareness into useful, functional awareness and to provide for its modulation by useful information.

We face the issue of utility. If the mental face of energy is as primal and ubiquitous as its physical face, then it will be present in every system. But whether or not it plays a *functional* role will depend on how a particular system has been configured and on the nature of its connections to the world outside it. This is obviously true of the physical utility of systems. If I take a handful of electronic parts at random, interconnect them in some unplanned way, and apply a voltage between two points, something *electrical* will probably happen. A current may flow; parts may heat. But nothing particularly *useful* is likely to happen. Only a tiny percentage of possible systemic structures and energizing arrangements allow interesting and useful physical happenings. We must expect the same to be true of the mental aspect of physical systems. Even if a system has been carefully designed for physical utility, there is no reason to suspect that its mental aspect will have any mental utility. The analytical challenge is to find out what sort of physical arrangements give rise to *useful* mentality.

The scientific evidence leads us to believe that during pre-biological evolution (the cosmological and geological phases of evolution) awareness played no functional role. At the level of atoms, chemicals, and rocks, things happen predictably, always in accord with the laws of physics and chemistry. It is clear, however, that at some point during biological evolution, awareness was harnessed and put to work. If today we humans were given the task of designing systems that harness subjectivity and put it to work, we literally would not know where to begin. Yet evolution—with its slow, plodding, chance–and–necessity genius—did a magnificent job of it. From the carrier–information perspective, this was possible because the medium on which the cosmic algorithms have been operating is a mental–physical medium, not just a physical one.

Early in the evolution of living things, organisms exhibited sensitivity to their environments, and some were able to respond to environmental changes. Many types of plants align themselves to maximize their exposure to light. Paramecia move away from irritating stimuli. Most scientists believe that these behaviors arise from totally physical, reflex–like mechanisms. They feel that subjectivity and mind play no functional role, and this may well be true. It may even be true

of amphibians. In the classic study of "What the frog's eye tells the frog's brain," the frog's eye reportedly has different types of retinal sensors that trigger, quite automatically it seems, a limited set of stereotyped behaviors.[19] If a small dark object passes across the frog's field of vision (a fly, perhaps?), the frog's tongue reflexively darts out. If the overall light level suddenly drops (the shadow of a hawk, perhaps?), the frog reflexively jumps off the lily pad. Whether or not these organisms have a functional consciousness may become clear when we finally understand how *human* mentality works at the neural level.

As evolution progressed, species proliferated and ecosystems became more complex. Increasingly intricate forms of animal life emerged to take advantage of newly created environmental niches. Increasingly sophisticated sensory systems evolved. New survival opportunities opened up, but so did new threats to survival. Accordingly, better situation–analysis capabilities and decision–making capabilities were needed. With just one perceptual mode (say, chemical sensitivity or taste) and a limited number of action modes (say, eating and flight), purely physical, reflex–type control of behavior would appear to be adequate. But in organisms equipped to receive several different kinds of highly detailed sensory information simultaneously and to respond in many different ways, the demands on the control system increase dramatically. Then, quite sophisticated analysis and decision–making systems are needed to avoid behavioral chaos or gridlock from competing information.

Artificial intelligence research has shown that it is not easy to sort out the relevant from the irrelevant or even to make figure/ground (thing/background) discriminations using physical–only approaches.[20] I am suggesting that mentality—and selective attention in particular—was evolution's way of solving this problem. I am not saying that it is impossible, in principle, to perform these same tasks using only the physical aspect of systems and computational techniques. Rather, I'm hypothesizing that this is not what evolution did. If we human designers were given the task, we would be forced to take an all–physical approach (the only one with which we are currently familiar), and given sufficient time and resources we might

eventually succeed in solving the problem that way. Evolution, however, had another design option, one not yet open to us—the option of incorporating mentality as well as physicality into its designs.

This, of course, is not a new idea. Baars notes William James's comment: "The study…of the distribution of consciousness shows it to be exactly such as we might expect in an organ added for the sake of steering a nervous system grown too complicated to regulate itself."[21] Theorist of evolution Harry Jerison put it this way: "I regard the mind and conscious experience as constructions of nervous systems to handle the overwhelming amount of information that they process."[22]

Evolution's mental–physical approach seems to have been this:

> *Create neuronal systems that generate mental metaphors or analogs of the immediate physical situation, and bring them together in one mental "space." Combine this with a selective attention mechanism that allows the superposed mental fields to be scanned for qualia having survival or reproductive significance, and arrange for the neuronal correlates of attended–to qualia to become available for unconscious computational processing.*[23]

In this view, the conscious field is the great simplifier. The creation of a mental "workspace" allows large amounts of relevant and irrelevant information to come together in one subjective arena. Selective attention then allows the rapid survey of that massive data. Using computational processes, neuronal correlates of attended–to items are checked for relevance. Different kinds of relevance cause different kinds of data–processing *outputs* to appear in the mind: mental images, thoughts, and feelings of, for example, pleasure, pain, fear, anger, hate, or tenderness. These newly arisen qualia are themselves then available for possible selection by attention, and if selected, *their* neuronal correlates would be used as input data for further processing. At the end of all the processing, the ultimate behavioral decision is frequently accompanied by a mental correlate of its own—a yes feeling, a no feeling, fear, or anger, for instance.

Though all aspects of this activity involve neurons, a key part of the situation–analysis and decision–making action happens in, and *requires*, the conscious field. The initial information generation is

physical, and the final results are physical, but in between those physical events, the information is transduced into mental form and selectively attended to. Thus, mind is an essential part of the causal chain. Mind is not epiphenomenal.

This kind of analysis–and–control system is flexible. Because evolution's behavioral suggestions—lust, fear, hunger, anger, a desire for sweets, etc.—are presented mentally, they are not hardwired action imperatives. Priorities can be accommodated: "Don't grab the fruit; flee the tiger." And learning can override evolution–developed mental messages: "I'm already overweight, so I'll ignore the impulse to have dessert." Through our immersion in culture we acquire a learned hierarchy of values that can, in various circumstances, over-ride evolution's default hierarchy. If our learning has been appropri-ate to our reality, then we will behave appropriately and wisely in a much wider range of circumstances than if the human control system had been hard wired in another era.

Physicalists have long assumed that for consciousness to arise you need an extremely complex physical system—something like our 10 billion–neuron brain. A two–aspect universe, however, allows us to take seriously the possibility that an extremely complex brain is not needed to bring a relatively primitive mentality into existence. If sub-jectivity is fundamental, then we should expect that relatively simple forms of mind would require only relatively simple systems for their arising. It appears that even in the human brain, awareness may not arise as one unified whole, but rather involves the integration of many localized instances of awareness—each of which is associated with the functioning of a relatively simple local system.

Although human awareness *seems* unified, research during the past few decades indicates it is not. Widely separated regions of the brain are devoted to vision, hearing, bodily sensations, taste, and smell, and there are strong suspicions that each of these sensory modalities is associated with its own separate awareness.[24] In this view, each modality has its own subjective field, and each separate field is made to relate topologically to the subjective "body image" by a process of arrangement and binding that we do not yet fully under-stand. The effect is a super–positioning of the individual fields. These

overlay and overlap much like multiple transparencies laid on an overhead projector, with all five sensory fields occupying roughly the same subjective space.[25] Together, the superposed fields simulate a unified multimodal consciousness and constitute a subjective global workspace.

It is also quite possible that even within a single brain region or sensory modality, awareness may not be unified. Let us think for a moment about the discrete nature of the information involved in visual perception. Although human visual experience seems smooth and continuous, we know that the information that gives rise to it is actually discrete, segmented, and elemental. Being derived from the outputs of individual retinal neurons, visual experience is like a computer image or newspaper picture in that it contains a limited number of visual elements. Visual experience *seems* continuous, because the elements are tightly packed and so abundant. But it is not continuous. The seemingly smooth and continuous experiences of sound and touch also originate in impulses from discrete sensory neurons in the cochlea and skin. If the information filling the various sensory fields seems continuous but isn't, why assume that the awareness associated with that information is continuous? It is more reasonable from an evolutionary and systems point of view to assume that each element of conscious data is associated with its own element of awareness.

To carry this a bit further, the elemental–awareness view suggests that in the visual, auditory, and somatosensory cortex of the human brain there exists a multitude of relatively simple neuronal systems, each of which organizes the medium's inherent subjective capacity into a functioning elemental awareness. If an appropriate neuronal signal is received from an external source, each of these mind–element systems also informationally modulates its elemental awareness, creating in the process an elemental quale—a pictorial element (in the case of visual perception), part of an auditory experience, or a localized sensation in the somatic sensory field. Although this theory does not address the binding and orienting problems, it may turn out that what is being bound and oriented are a large number of small elements of awareness—each with its associated informational modulation.

Prime candidates for these awareness–organizing, awareness–modulating subsystems are the neural columns present in the sensory processing areas of the cortex. In support of this contention is experimental data showing the similarity between visual data resolution in the primary visual cortex and column–spacing (500 microns). In 1992, F.T. Hambrecht reported on the electrical stimulation, via two closely spaced electrodes, of the central (*foveal*) region of a subject's visual cortex. The person experienced two separate visual bright spots when the electrodes were 500 microns apart, but just one bright spot when they were 250 microns apart.[26]

The vertical organization of these columns is also suggestive. The sensory cortex (including these columnar structures) is organized in a series of layers, with the outermost layer called layer one and the innermost layer six. Neurological research has identified layers two, three, and four as being involved in the processing of sensory data, and layers five and six as being involved in arousal and the presence or absence of consciousness.[27] This suggests the possibility that neurons in layers five and six may be involved in organizing awareness tendencies into useful awareness, and that neurons in the middle layers may be involved in modulating that awareness with sensory data and "sensory–like" imagined or remembered data.

Various next–step research activities have been suggested.[28] These include:

- Continuing the search for the mechanism that aligns whole fields of awareness elements with the body image and for solutions to other aspects of "the binding problem;"
- Continuing the effort to learn more about brain/mind correlations;
- And, eventually, "reverse–engineering the wetware" to determine in specific detail how neural functioning actually does give rise to subjective experience.

These activities could form elements in a coordinated research program designed to determine, once and for all, whether consciousness really is a bottom–up phenomenon, a fundamental feature of the universe.

Notes

[1] Fodor, 1981, p. 117.

[2] Sperry, 1967.

[3] *Journal of Consciousness Studies*, Vol. 1, No. 2, p. 240.

[4] Popper and Eccles, 1977.

[5] Globus, 1973, pp. 153–54.

[6] Baars, 1988, 1997a, 1997b; and Newman and Baars, 1993.

[7] Jaynes, 1976, p. 2.

[8] Jaynes, 1976, p. 59.

[9] Hameroff and Penrose, 1996.

[10] de Quincey, 1994, p. 218.

[11] Macdonald, 1998.

[12] Wilber, 1996, p. 298.

[13] Wilber, 1996, p. 303.

[14] Can we really talk about consciousness without content, awareness without informational modulation, mind without qualia? Absence of mind content is not part of our everyday experience, but accomplished meditators approach this condition. They find that during prolonged periods of meditation, mind content drops toward the asymptotic limit of no content. They also find that awareness remains present, irrespective of the level of mental information. At some point in their practice, many advanced practitioners experience a cognitive shift in which awareness becomes figure rather than ground, and is thereafter recognized as a tangible reality in its own right.

[15] I do realize the term "awareness" is also used in other senses—Chalmers' use, for example (1996, p. 28).

[16] Edelman, 1992, p. 114.

[17] Jaynes, 1982.

[18] Newman and Baars (1993) report that, "virtually all information conveyed to the cortex from visual, auditory, and somatosensory pathways is relayed through the thalamus," and that "gatelets" in the reticular nucleus of the thalamus regulate the "flow of information from the thalamus to the cortex." They report that these gatelets are opened and closed in response to control signals from various regions of the cortex.

[19] Lettvin, J. et al., 1965.

[20] Hurlbert and Poggio, 1986.

[21] Baars, 1997a, refers to James, 1983 [1890], p. 141.

[22] Jerison, 1973, p. 4.

[23] A number of researchers have presented results that link conscious experience and the attentional process to specific physical brain correlates. For example, Wurtz, Goldberg, and Robinson, reporting on their primate research, said:

> *If the monkey is alert, but not attending to anything in particular, the response of the nerve cells in [the posterior parietal cortex] is relatively uniform. When the monkey begins to attend to some object, however, the nerve cells in the posterior parietal cortex that are related to the object because it is in their receptive field begin to discharge more intensely…. We do not know how the enhancement arises, and in the absence of this knowledge it is tempting to say that the enhanced response amounts in itself to visual attention. It remains quite possible, however, that the enhancement is only a correlate of visual attention.* (1982, p. 124)

It is also possible to pay attention to visual attributes other than position and to detect, in the secondary visual processing areas, physical correlates of that kind of attending. As Corbetta, Miezin, Dobmeyer, Shulman, and Petersen found:

> *[A]ttention to basic visual attributes such as shape, color, or velocity appears to influence… physiological measures of visual processing…. Physiologically, neural activity is increased in extra–striate regions specialized for processing information related to the selected visual attribute.* (1990, p. 1556)

[24] Jackendoff (1990, p. 52) saw just this kind of "disunity of awareness." Other kinds of disunity have also been noted. Hebb (1980, p. 40), in referring to the split–brain patients of Bogen, Gazzaniga, and Sperry, noted that after the two brain hemispheres were separated surgically "a patient might seem to have two minds, a left–hand and a right–hand mind." MacLean (1977, p. 313) saw "three mentalities." He felt that each part of the "triune brain" (reptilian brain, limbic system, and neocortex) has "its own subjectivity."

[25] Should you wish to investigate this for yourself, I have elsewhere (Macdonald, 2001a [1996a 1993], pp. 25–26) described a little experiment:

> *If I look straight ahead and move my hands around to find the edges of the visually active part of the field, I conclude that it's about one unit high and three or four wide. If I then put a bottle of perfume under my nose, the experience of odor fills much of this same field—being most intense in the center, less so at the edges. If I next bite into a piece of fruit and pay attention to my experience of taste as I chew it, I find that taste occupies a more sharply defined zone than odor. Taste sensations appear in a horizontally oriented oval located below the center of visual data. Touch, body sensations, and sounds also appear in the awareness field, sometimes extending beyond the edges of the visual data. The location of most body feelings and sensations is sharply defined, while the direction of most sounds is just roughly indicated.*

[26] Hambrecht, 1992.

[27] See, for example, Livingstone and Hubel, 1981.

[28] Macdonald, 1998.

The Question of Cosmic Purpose

Why something rather than nothing? What is the universe up to? Is the cosmos driven by some purpose? Is evolution heading somewhere? In times past, most considered these questions completely unanswerable, fit only for theological speculation or so far removed from daily life as to have no practical significance. But recent events have given us hope that we will eventually come to understand at least some of these contextual mysteries.

One cause for hope has been the extension of human capabilities conferred by advanced technologies. During the last third of the twentieth century, human beings walked on the moon, sent investigative spaceships to look at the planets, and put in space a telescope capable of looking back in time to the formation of early galaxies. Here on Earth, scientists conducted studies that illuminated the origins of life and the processes by which organisms coevolved into a tightly integrated biosphere.

Attention to context was also fueled during this period by a multitude of human screwups. It became clear that we were fouling our biospheric nest, exterminating species right and left, depleting resources at an unprecedented rate, and—by multiplying our own species into the billions—challenging the Earth's carrying capacity. Millions of people began to see that humanity's superiority complex and hubris had gotten us into a bad and ever–deepening mess. Many felt that in order to clarify the roles humanity should play in these

systems, we needed more clarity about the "why" of the systems themselves.

This chapter addresses the question of purpose writ large—in the cosmos as a whole. The three matters of consequence that follow (**Part II**) involve the interaction of purposeful human beings with purposeful sociocultural, economic, and biospheric systems.

REDUCTIONISM, COMPLEXITY, AND HIGHER LEVEL LAWS

Much is *allowed* to happen in our universe. We look around and see physical growth alongside physical destruction. We see ecstasy followed a moment later by excruciating agony. We see war and death and disease. We experience suffering and exploitation. But we also experience beauty and joy, the wonder of human creativity, and the power of human love. From the perspective of daily living, these wildly differing events dominate our view and often give the impression that we live in a chaotic universe that functions in arbitrary ways. Contemporary science, however, helps us to see that what is going on is not arbitrary. Behind the seemingly chaotic particulars are regularities, and scientists have formulated verbal and mathematical laws to articulate and explain many of those regularities.

These scientific "laws" consist of arrangements of words and equations. But those symbols represent controlling actualities, much like subroutines in a massively parallel program, which guide and direct the functioning of everything, everywhere. As physicist Stephen Wolfram has said, "Scientific laws are being viewed as algorithms, [and] physical systems are viewed as computational systems."[1]

One of science's guiding directives (Ockham's Razor) is, always go for the simplest possible explanation. In algorithmic terms, this means *maximum algorithmic compressibility*: finding the shortest possible algorithm that will fully explain (or create) the particular situation under consideration. In Paul Davies's words: "The complexity of a physical system is the length of the minimal algorithm that can simulate or describe it."[2] Physicists, in particular, have felt that the right set of reasonably simple equations could explain everything.

As John Barrow has said:

> *Science is predicated upon the belief that the Universe is algo-rithmically compressible and the modern search for a Theory of Everything is the ultimate expression of that belief, a belief that there is an abbreviated representation of the logic behind the Universe's properties that can be written down in finite form by human beings…. [Algorithmic compression involves the replace-ment] of facts and observational data by abbreviated statements which contain the same information content. These abbreviations we often call the "laws of Nature."[3]*

Algorithmic compressibility is a commendable goal as long as it does not sacrifice completeness in the process—but it often does. *Reductionism*, as many physicists use the term, assumes that the laws of physics alone can explain the behavior of complex entities, such as chemical systems and biological organisms. Once widely accepted in scientific circles, this form of reductionism receives much less support today. During the past few decades we have come to understand that the behavior of complex systems depends on something more than just the algorithms of physics.

Zoologist W.H. Thorpe put it this way:

> *The behavior of large and complex aggregates of elementary parti-cles, so it turns out, is not to be understood as a simple extrapo-lation of the properties of a few particles. Rather, at each level of complexity entirely new properties appear, and the understanding of these new pieces of behavior requires research which is as funda-mental as, or perhaps even more fundamental than, anything undertaken by the elementary particle physicists.[4]*

David Mackay's concept of *informational causality* helps us under-stand why the physics–only brand of reductionism is inappropriate:

> *In an information system, we can recognize "informational" causality as something qualitatively distinct from physical causality, coexisting with the latter and just as efficacious. Roughly speaking, whereas in classical physics the determination of force by force requires a flow of energy, from the standpoint of information theory the determination of form by form requires a flow of information.[5]*

Reductionism fails, because the laws of physics—as presently formulated—ignore information and its causal implications. If scientists one day develop John Wheeler's information–theoretic physics, we might eventually have something approaching complete, fully explanatory reductionism—a theory–of–everything founded on an "algorithm that when iterated creates the complexity."[6] As of today, it does not exist.

Bernard Rensch referred to a particularly clear failure of physics–only reductionism:

> *When carbon, hydrogen, and oxygen become combined, innumerable compounds can originate with new characteristics like alcohols, sugars, fatty acids, and so on. Most of their characteristics cannot be deduced directly from the characteristics of the three basic types of atoms….*[7]

Sugars do not behave at all like fatty acids, nor like alcohols, yet all employ the same three types of atoms. Again, the missing element is information—in this case the unique *arrangement* of the component atoms in each of those "innumerable compounds" and the information inherent in each molecule's surroundings.

For any of the molecules mentioned above, the algorithm, or *higher–level law,* that governs the behavior of that molecule will be jointly determined by:

- The algorithms governing the behavior of the component atoms
- The information inherent in the molecule–defining arrangement of those atoms
- The information inherent in the contextual situation in which the molecule finds itself; the information inherent in the molecule's milieu

Thus, molecular behavior depends *in part* on atomic behavior—but not on atomic behavior alone. It also depends on the algorithmic implications of the informational situation in which those atoms are embedded. Classic reductionism is invalid, because it does not take into account the last two factors, above.

A law of holonic behavior more generally expresses this perspective on higher–level laws:

> **The behavior of each holon is jointly determined by:**
> 1. **The algorithmic tendencies of its components**
> 2. **The systemic arrangement of its components**
> 3. **The informational milieu in which the holon finds itself**

To reiterate, old–style reductionism is dead, because it doesn't take into account the behavioral implications of existing information. The information inherent in physical situations has causal implications and, in concert with basic laws–of–nature algorithms, gives rise to higher–level laws. In other words, the cosmic process does not just evolve new levels of informational complexity, it also evolves new behavioral rules that operate at those higher levels.

INTENTIONALITY AND PURPOSE

Ervin Laszlo wrote: "Values are goals which behavior strives to realize. Any activity which is oriented toward the accomplishment of some end is a value–oriented activity."[8] Laszlo's definition of value is a broad one. It applies to human values, the values embodied in computer programs, and the values that reside in the laws–of–nature algorithms. Computer programs, for example, consist of instruction sets, each of which define a computer task and direct the computer to pursue some goal. While running, that program is the source and residence of the machine's values. The goal of a word–processor program is to allow the user to write, save, and print text—and word–processor program code embodies those values. The goal of an accounting program is to allow the user to keep track of income and expenses, prepare invoices, etc.—and accounting–program code embodies those values.

Living beings also have intentions and pursue goals. Every animal that searches for food, builds a nest, or tries to attract a mate is

pursuing goals. We humans have goals of this kind and countless others. Arthur Koestler said: "The purposer is each and every individual organism, from the inception of life, which struggled and strove to make the best of its limited opportunities."[9] French biochemist Jacques Monod has referred to "all living beings without exception" as "objects endowed with a purpose or project."[10]

Just as we can learn much about a person's values, goals, and purposes by observing their behavior over time, we can learn much about cosmic goals and purposes by watching the evolutionary behavior of the cosmos over time. Various theorists have tried their hands at this and have come up with a spectrum of views. At one end of the spectrum is Teilhard de Chardin's view that evolution is heading toward an "Omega point" of high refinement. In the words of Paul Davies: "The Jesuit paleontologist Teilhard de Chardin… proposed, not that evolution is directed in its details according to some preexisting plan, but that it is shaped to converge on a yet–to–be–achieved superior final stage, which he called the 'Omega point,' representing communion with God."[11]

At the other end we have Jacques Monod who saw evolution in strictly chance–and–necessity terms. Yet even Monod thought evolution had a purpose—though a rather limited one. He defined the "essential teleonomic project" of biological evolution "as consisting in the transmission from generation to generation of the invariance content characteristic of the species."[12] This view puts DNA at the center of things and makes its replication the purpose of evolution. Richard Dawkins expressed a similar view. To Dawkins, the central purpose is genes perpetuating themselves. Organisms are secondary; their purpose is to protect the genes they house and to help those genes reproduce.[13]

In between these extremes are the views of several theorists who feel that evolution has no specific purpose or goal but is nevertheless *directional.* They see the evolutionary process going in certain directions and expressing certain trends and tendencies.

Philosopher of science Thomas Kuhn expressed it this way:

The Origin of the Species recognized no goal set either by God or nature. Instead, natural selection, operating in the given environment and with the actual organisms presently at hand, was responsible for the gradual but steady emergence of more elaborate, further articulated, and vastly more specialized organisms…. [a] process that moved steadily from *primitive beginnings but* toward *no goal.*[14]

Ervin Laszlo said this:

If by [a master plan in nature] one means something preestablished and realized by purposive manipulation, then the answer is that there is no such plan—or if there is, contemporary science knows nothing about it. But if by plan one means a recognizable pattern of development, then the answer is definitely yes. *That things develop the way they do rather than in some entirely different way is, within limits, perfectly logical and foreseeable.*[15]

Elsewhere, Laszlo said:

This process does not necessarily lead from protocells and algae specifically to Homo, but it does lead from systems that are relatively simple, microscopic, and relatively close to equilibrium to systems that are further from equilibrium, larger in size, greater in complexity, and more dynamic and autonomous.

Evolution is not teleological; it does not have a precise goal in the form of any particular species of organism or ecosystem. Yet it is directional in that it drives systems…progressively further from equilibrium into the high–level and non-linear realm where life appears, and possibly intelligence.[16]

Kevin Kelly sees "seven large trends or directions" in evolution, and identifies these as: *irreversibility, increasing complexity, increasing diversity, increasing numbers of individuals, increasing specialization, increasing codependency, and increasing evolvability.*[17]

Irreversibility. By irreversibility Kelly means that "evolution doesn't back up," that "life is irrepressible." Once established, life moves in the direction of filling every possible niche and does so despite repeated bio-disasters. To date, there have been five major extinctions.[18] The greatest of these, the Permo–Triassic, occurred 245

million years ago, when 95 percent of all species and 50 percent of families of species went extinct. Then, 208 million years ago, while recovery was under way, disaster struck again (the Triassic–Jurassic extinction), destroying half the recovered and new species. Although it took 100 million years to do so, the biosphere eventually recovered from those two disasters, though many species were, of course, lost forever.[19]

Increasing complexity. That evolution has moved in the direction of increasing complexity seems obvious to most people. More controversial are theories as to why this has happened and whether it represents an inherent characteristic of the process. One theory holds that complexity is evolution's natural response to a biosphere full of simpler organisms: Increased complexity allows for the filling of unfilled environmental niches and for the development of more sophisticated kinds of predation. Many other possible explanations exist, and Kelly mentions nine of them.

Increasing diversity. This is another obvious trend of biological evolution. In the beginning, there were only bacteria; today, there are roughly 30 million species of living things. The soft fossils of the Burgess Shale have shown us that about 30 million years into the Cambrian period there was great diversity of basic organism designs. Then, much of that diversity was lost. For whatever reasons, natural selection eliminated many interesting (and to us, unusual) designs. Today's high level of diversity represents a branching out from the relatively small number of designs that survived the Cambrian (and other) culling processes.

Increasing numbers of individuals. With this trend, Kelly counts the cells of large plants and animals as individuals, not just the large organisms themselves.

Increasing specialization. Another readily observed trend, specialization is one way that life's irrepressibility manifests itself. Sometimes existing organisms are unable to utilize all life resources in various environmental niches. In such situations, new life forms that can utilize these resources tend to evolve and occupy the niches. Darwin's highly specialized Galapagos Islands finches are the classic example.

Increasing codependency. This trend refers to the increased reliance of life forms on other life forms as evolution has progressed. Early bacteria related only to their geological, hydrological, and atmospheric environment. Today, we have parasite–host codependencies, the codependence of social beings and their societies, and an enormous number of ecosystem–specific codependencies between different kinds of organisms.

Increasing evolvability. The last of Kelly's trends, though less obvious than most of the others, is one of the most exciting to contemplate. It has to do with the evolution of new, more powerful, evolutionary techniques, and thus the evolution of evolution itself. It is the present state of affairs that I find particularly interesting. For 99.999+ percent of the time that biological evolution has been occurring on Earth, change in the structure and function of organisms and ecosystems has occurred extremely slowly by human standards. Then, roughly 10,000 years ago, humans began to involve themselves in the evolutionary process. Our ancestors developed new strains of animals. Starting with the taming of the occasional wolf, wild ox, wild sheep, and wild goat, they bred new varieties that met human needs. They also planted seeds, grew crops, and saved the seeds from the largest and hardiest plants to plant the following year. From those small beginnings, humanity developed a new form of evolution that I have referred to as *mind–directed evolution*.[20] We have learned to initiate change much more rapidly than via the slow, plodding evolution that got us here. That painfully slow chance–and–necessity process still operates there in the background, but humanity's mind–directed and desire–directed activities easily overwhelm it and in many situations render it irrelevant. Human purposes have become a major factor in the evolution of earthly life.

As evolutionary theorist John Stewart points out so clearly in *Evolution's Arrow*, cooperation is central to both the chance–and–necessity evolution that created what currently *is* and the mind–directed evolution that will largely determine what will be. Elementary particles cooperate and allow atoms to exist. Atoms cooperate and allow molecules to exist. Molecules cooperate and allow cells to exist. Cells cooperate and allow plant and animal life to exist. Human

beings cooperate and allow human societies to exist. As Stewart puts it, "We are cooperators that are made of cooperators that are made of cooperators and so on. It is cooperation all the way down."[21] Cooperation is managed in the simplest systems by the internal algorithmic dictates associated with the components themselves and in more complex systems by a variety of mechanisms external to the components. Governments, for example, manage societal cooperation. Stewart considers ever–greater cooperation to be a fundamental evolutionary trend. He points out, "Evolution progresses toward greater cooperation by discovering ways to build cooperative organizations out of components that are self–interested."[22] And he feels that to the extent we humans are able to internalize evolutionary goals and values, we will be able to use this new mind–directed, culture–embodied form of evolution to create a truly cooperative global society. Evolution's ultimate goal, in Stewart's view, is an intelligence–filled, life–filled, cooperative universe.

Is a movement toward intelligent life an inherent characteristic of the process? Paul Davies believes it is:

> There is no detailed blueprint, only a set of laws with an inbuilt facility for making interesting things happen. The universe is then free to create itself as it goes along. The general pattern of development is "predestined," but the details are not. Thus, the existence of intelligent life at some stage is inevitable; it is, so to speak, written into the laws of nature. But man as such is far from preordained.[23]

In saying that "the existence of intelligent life at some stage is inevitable…written into the laws of nature," Paul Davies is expressing one form of the *anthropic cosmological principle*. Out of the science of the past few decades has come the realization that we live in a universe ideally configured to bring forth life—so ideally, in fact, that it is spooky. Associated with the laws–of–nature algorithms are certain universal constants, and if the values of some of these constants were just 1 percent different from their present values, the universe could not support life.[24]

Stephen Hawking described the situation:

The laws of science, as we know them at present, contain many fundamental numbers, like the size of the electric charge of an electron and the ratio of the masses of the proton and the electron. We cannot, at the moment at least, predict the values of these numbers from theory—we have to find them by observation…. The remarkable fact is that the values of these numbers seem to have been very finely adjusted to make possible the development of life. For example, if the electric charge of the electron had been only slightly different, stars either would have been unable to burn hydrogen and helium, or else they would not have exploded. Of course, there might be other forms of intelligent life, not dreamed of even by writers of science fiction, that did not require the light of a star like the sun or the heavier chemical elements that are made in stars and are flung back into space when stars explode. Nevertheless, it seems clear that there are relatively few ranges of values for the numbers that would allow the development of any form of intelligent life. Most sets of values would give rise to universes that, although they might be very beautiful, would contain no one able to wonder at that beauty. One can take this either as evidence of a divine purpose in Creation and the choice of the laws of science or as support for the strong anthropic principle.[25]

Anthropic, in this context, refers to high intelligence. The weakest form of the anthropic cosmological principle simply states the obvious: In a universe in which human observers exist, the primal algorithms and fundamental constants will be such as to enable intelligent beings to evolve. Various stronger versions of the principle also exist. Their common theme is that the properties of the universe—including its laws–of–nature algorithms and fundamental constants—*must* be such that intelligent life will, at some point, come into existence. Our universe is clearly configured to produce life, so the only real issue is how things came to be that way—and we just don't know. Current views tend to fall into three camps. At one extreme are people who believe that a god–like intelligence "designed" the universe specifically to bring forth life. At the other are people who believe that the existence of life–favorable cosmic constants is simply

a happy coincidence. In between, we find scientists who are struggling to find a rational explanation for how this extremely unlikely convergence of numbers might have come about.

Some in this latter group start with the assumption that there have been many other universes prior to ours. They hypothesize that at the birth of each new universe, the values of the universal constants have changed, and through some sort of optimizing principle things have moved toward values that allow life. The Russian physicist A. D. Sakharov assumed that our universe (and universes, in general) would end by collapsing in on themselves. Sakharov speculated that "something of the intelligence of the universe would survive the super–dense conditions (of the Big Crunch) and inform the next universe."[26] John Archibald Wheeler expressed a similar view.[27] Ervin Laszlo takes the position that universes arise from the "vacuum holofield," and he speculates that the quantum vacuum contains "a permanent memory of all the universes ever created."[28]

Physicist Lee Smolin has come up with a theory that he feels is potentially testable. First, he assumes that the black holes of one universe seed the emergence of new universes. Second, he assumes the values of the universal constants in each new universe differ slightly from those in the originating universe. He points out that, if these two postulates are true, then over time a natural selection for universes having many black holes would occur. He also points out, "The vast majority of black holes would not have formed if there were not carbon. This means that ***any change in the parameters that results in a universe without carbon would result in the formation of many fewer stars and thus many fewer black holes.***"[29] (Emphasis his.) Since carbon is essential for life as well as for black–hole formation, the same parameter values that facilitate the production of black holes would also facilitate the emergence of life.

Whether the universe's life–friendly programming is the result of external design, self–refinement, cosmic coincidence, or something we have not yet thought of, it is hard to avoid being wonderstruck by the fact that things are as they are. Not only is there something rather than nothing, but that something is unbelievably special. The laws and constants that direct cosmic behavior are such that physical

complexity comes into existence. And physical complexity is eventually accompanied by a flowering of mentality and the ability to experience and understand. Today, after some 15 billion years of evolutionary information generation and refinement, countless aware nodes of process permit the primal reality to observe—and to some extent understand—itself. Pretty amazing.

IS PLAY THE COSMIC PURPOSE?

So what sense can we make of all this? Is there an identifiable cosmic purpose? Clearly, level–specific purposes appear at various times and stages as evolution proceeds. We might say, with Monod and Dawkins, that DNA manifests purpose when it organizes resources and creates organisms to help perpetuate itself. But that is DNA's purpose, not evolution's purpose. People manifest various purposes when they eat, reproduce, and create societies. But unless they consciously align themselves with cosmic values, these are personal purposes, not cosmic purposes.

Many of these level–specific purposes exist, and they surface at different stages of evolutionary development. However, I suggest that evolution's trends and tendencies reveal a deeper, more fundamental purpose embedded in the active/receptive ground of the evolutionary process and its laws–of–nature algorithms. The universe may have no ultimate goal, or *telos*, but it clearly does have a built-in "push" toward the evolution of increasingly complex structures and functions. Although the specific nature of these structures appears unpredictable, the cosmic algorithms seem to be saying: "Go adventuring, cosmos! Actualize potentials. Create complexity. Manifest increasingly more encompassing cooperative systems. See what wonders can be realized. As *energy–and–algorithms*, create amazing informational structures. As *awareness*, experience and appreciate them. Go as far as possible in this endeavor."

Adventure, then, is one metaphor for what Spirit is up to. *Game* is another. Among those who have recognized this game–like quality was sociologist David Barash:

> *We are all sitting at a cosmic poker game in which the house has*
> *an infinite supply of chips. Neither we, nor our genes, can ever*

really win, since we can never cash in our chips and go home.…
There is nothing but the game, and since it has been going on for
a long time, only the best players are left. It is an existential
game, the only one in town, and all we can do is to stay in as long
as possible. We are all playing, so perhaps we may as well enjoy
it. Certainly we should understand it.[30]

In his book *Finite and Infinite Games: A Vision of Life as Play and Possibility*, James P. Carse makes a distinction between games that are played for the purpose of winning (*finite games*) and games that are played for the purpose of continuing the play (*infinite games*).[31] The *Existence Game* is clearly a game of the second kind.

In the Existence Game, energy takes form. It cloaks itself with ever–evolving, ever–more–complex informational patterns. Awareness observes these changing patterns. The laws of nature are the rules. The rules are deterministic. They must be obeyed. They provide a hard framework of necessities, of dos and don'ts, cans and can'ts. But there is serendipity too. Built–in randomness at various levels of the process helps create a vast diversity of detail, of experimental informational structures. Each structure or form is tested in various ways. A few of these informational patterns survive this testing and filtering to become informational habits of the universe. Most of them do not.

Each game takes a long time to play—at least tens of billions of years, possibly hundreds of billions. It is not yet clear if the pieces are swept off the board at the end and a new game automatically starts, or if it's a one–time game. Primal reality plays the Existence Game because it is its nature to do so. Its energy aspect *does*, its awareness aspect *experiences*, and its algorithmic aspect *guides*. The object is to reach distant limits of possibility despite hazards and risks. Play happens through countless mental/physical sub-adventures. And, as in computer games, the only thing that ever really changes is information.

There are several interesting similarities between the universal process and a computer game. In a computer game the microprocessor contains and establishes the most basic operating rules—analo-

gous to the most basic laws of the universe. The computer program contains the more specific rules of the game, the higher–level laws. All these laws and rules—in combination with the data inherent in the present situation (like joystick positions)—dictate what will happen next.

Energy provides the means to conduct both types of game. And in both, built–in algorithms provide control and guide the play. In the computer game, the information displays on a television screen and then in the mind of the player. Similarly, in the Existence Game, information displays first as physical form and function, and ultimately as mind content.

In both cases, the medium that enables the game to unfold is unaffected by the playing of it. In a video game, whether the player wins or loses—and no matter how many million space ships the player zaps out of existence—the computer is still able to support continued play. In the Existence Game, pure formless energy is the medium—and 100 percent of it will continue to exist no matter how many stars explode or how many planets are devastated by rogue asteroids. What changes is information.

In a computer game as well as in the Existence Game, the physical aspect of the primal medium activates the game and enables play. And in both games, the mental aspect of that medium watches the informational ebb and flow with interest as the game progresses.

Not only do computer games parallel the cosmic game, but also, in some sense, do most of the games humans play. To some extent, all our human activities are limited metaphors for the overall game. I suspect that play is a fundamental part of a human's life—and a dog's life and an otter's—because play itself is fundamental. This serious/not–serious pursuit of objectives—despite hazards and risks—seems to be a fundamental activity of the whole universal process.

What of the game's end? Much depends on the geometry of space. Einstein not only pointed out that matter is a form of energy, he also pointed out that Euclidean geometry—where a straight line is a straight line—holds over great distances only if the universe contains a certain critical amount of matter. If it contains more than the so–called critical mass, space–time curves in on itself, resulting in a

universe that is self–contained in space and time. Such a universe—even though initially expanding—would never attain more than some finite size. Its duration, too, would be limited. Once it reached maximum size, this "closed" universe would begin to contract and would presumably end its existence by collapsing into a point–universe fireball similar to the one in which it was born. If less than this critical amount of mass exists, space–time curves outward in some four–dimensional hyperbolic way that is impossible for us humans to visualize. A universe containing either the critical amount or less is "open"—infinite in space and time. Even though it had a definite beginning, such a universe would keep expanding forever.

What is, *is*—and the human mind's preferences in the matter make no difference. At the moment, astronomers and cosmologists do not have an accurate idea of how much mass our universe contains. They don't know which of these possible situations is our situation. The betting seems to switch back and forth every few years between open and closed. As I write this, science has yet to discover enough mass to prove that our universe is closed, yet the betting currently favors that scenario. Most astronomers and cosmologists assume the "missing mass" exists in some still–undetected "dark" form. Astronomical calculations of the rate of expansion of the universe are not yet precise enough to resolve the issue, but they do indicate that our universe lies close to the critical line between open and closed.

In the open universe scenario, Being or Spirit would play its Existence Game for many billions of years. Presumably, the process would continue to uplift and up–level itself in a variety of ways. Existing trends and tendencies would extend further; new ones might emerge. Increasingly sophisticated perceptual systems and minds would emerge. If we extrapolate from the best of humanity, we might expect a gradual resolution of conflicts and a more widespread understanding of the mysteries of Being. As order increased locally—in biological beings, silicon brains, and other of Illya Prigogine's dissipative structures—entropy would increase elsewhere. Eventually no more free energy would exist to power the perceiving and information processing systems. Not only would the doing end, but so pre-

sumably would the more sophisticated kinds of watching. No longer would there be the energy needed to power complex systems and to create intricate mental "shows," such as those that appear in human consciousness. Primal reality—Being, Spirit—would simply remain its peaceful Self forever more.

In the closed universe scenario, Spirit would play its Existence Game for many billions of years too—but the game would end differently. Instead of local activity gradually stopping as the universe continued to expand forever, it would end in a different set of events as the universe collapsed in on itself. At the end of the collapse, the temperature would compare with that of the Big Bang and most (if not all) information from our present universe would be erased. The fireball might also rebound from contraction to expansion, creating a new universe. This conceivably could, as mentioned earlier, launch a truly fresh start, with even the universal constants being different.

So, what is the point of it all? We know that the universe will end. If the universe is open and expands forever, it will end in a state of lifeless structure when it has used up all free energy. If the universe is closed and contracts back in on itself, it will end in a fireball. It seems clear, therefore, that the universe's trends are not heading toward some perfect telos, some ideal and permanent state of affairs. Accordingly, what lies at the end of the process cannot be what ultimately matters. It seems clear that the point is the process itself and the adventure of trying to enrich and up–level that process despite hazards and risks. The point is the game and the playing of it. We are an adventuring universe that is attempting to raise the quality of the adventure. Sometimes succeeding. Sometimes not.

Notes

[1] Wolfram, 1984, pp. 198, 203.

[2] Davies, 1992, pp. 130–31.

[3] Barrow, 1991, pp. 11, 199.

[4] Thorpe, 1974, p. 109 as quoted in Davies, 1988, p. 145.

[5] Mackay, 1986, p. 679 as quoted in Davies, 1988, p. 192.

6 Phrase in quotes is from Christopher Ogg in a personal communication.

7 Rensch, 1974, p. 241 as quoted in Davies, 1988, pp. 145–46.

8 Laszlo, 1972b, p. 105.

9 Koestler, 1967, p. 152.

10 Monod, 1972, p. 9.

11 Davies, 1988, p. 110.

12 Monod, 1971, p. 14.

13 Dawkins, 1976. We have here a good example of the necessity for multiple perspectives to flesh out the larger truth. From one perspective, DNA creates organisms to perpetuate itself. But from another, DNA is an enabling mechanism for the emergence of life and sophisticated mentality. Both are true; both are partial.

14 Kuhn, 1970, p. 172.

15 Laszlo, 1972b, p. 51.

16 Laszlo, 1987, p. 86.

17 This quote and the Kelly–related quotes below it come from Kelly, 1994, pp. 412–19 (italics his).

18 Morell, 1999, pp. 48–49.

19 Extinction information from Liebes, et al., 1998, pp. 140, 142, 168.

20 Macdonald, 2001a [1996a 1993], p. 44.

21 Stewart, 2000, Chapter 3.

22 Stewart, 2000, Chapter 1.

23 Davies, 1988, p. 202.

24 Barrow, 1991, p. 96.

25 Hawking, 1988, p. 125.

26 As reported by Ervin Laszlo: Laszlo, 1996, p. 218.

27 Smolin, 1997, p. 95.

28 Laszlo, 1996, p. 194.

29 Smolin, 1997, p. 110.

30 Barash, 1981, quoted in Calvin, 1986, p. 27.

31 Carse, 1986, p. 3.

Part II

Humanity's Contextual Reality

Human lives are embedded not only in a cosmic context but also in several Earth–bound contexts. **Part II** focuses on three of these contextual realities:

- Sociocultural systems in general and North American sociocultural systems in particular
- The world economic system
- The global life system—the biosphere

The intent is not to rehash the long and familiar list of current social, economic, and biospheric woes—though many of these will be mentioned. It is to better understand some of the dynamics that underlie the specifics. We will consider some of the historical forces and circumstances that helped create the present reality, system/ component relationships, roles played by human attitudes and values, and a few underlying principles and laws.

Sociocultural Context

Evolution occurs in three domains: *physical*, *biological*, and *societal*. To this point, we have considered the first two; in this matter of consequence we look at the third. We begin by noting that humans are social beings. According to evolutionary theory, our primate ancestors and hunter–gatherer forebears were more likely to survive and to successfully raise offspring if they were part of a social group. Thus, evolution selected for that tendency. In looking out for their own well–being, humans created and participated in the systems we call societies. Social systems coevolved with human beings, because humans needed the benefits that those systems conferred, and because they were willing to become components of the systems and to accept certain system–determined restrictions on their behavior. The payback for the component human came in enhanced well–being and reduced risks. A group can repulse a predator or human enemy more effectively than an individual can. And a group can parcel out essential work in ways that match tasks to capabilities—ensuring that all the important bases are covered: food, shelter, clothing, child rearing, etc.

In the discussion that follows, the terms s*ociety*, *culture*, and *community* have distinct meanings:

Society. Society refers to the outer, physical, exterior–collective aspect of our sociocultural reality, to the network of organizations, to the systemic structure and its functions.

Culture. Societies also have an information–transferring, inter-subjective, interior–collective[1] cultural aspect—a "we" aspect. As used here, culture is the umbrella term for a society's collective beliefs, knowledge, and creative output. Cultural evolution is the umbrella term covering the ongoing refinement of all that.

Community. All communities are societies, but not all societies are communities. In what follows, community refers to a society (or portion thereof) in which strong cohesive bonds exist between a society's human members. All societies have a vertical, hierarchical relationship between the system and its people holons, but communities have strong horizontal relationships as well. Modern cities exemplify societies in the first sense: well–developed vertical integration but limited person–to–person relating and bonding. Traditional small towns exemplify the second, as do communities of common interest. In both, there are strong bonds between people.

Vertical and horizontal orientations can also be found in two of complexity theory's explanatory tools. System or holon theory is a vertically-oriented perspective that sheds light on the relationship between a particular level of systemic complexity and its components—in the present discussion, between societies and their people components. In contrast, network theory gives us a horizontally-oriented perspective. It focuses on the relationships and communication paths that exist between individual components (in this case people), and it sheds light on the phenomenon of sociocultural change via the spread of *memes*.

As a first approximation, society is a holon whose components are people—but this grossly oversimplifies the situation. Modern societies are extremely complex. They comprise an extensive network of holons and holonic interactions. Among those holons are persons, corporations, levels of government, many kinds of nonprofit organizations, industries, associations of corporations, associations of gov-

ernments, etc. People are components in all of these organizational holons, and some organizational holons are components of larger holons. Microsoft, for example, is an organizational holon that employs tens of thousands of people. But Microsoft is itself a component of the software–industry holon, which is a component of the economic–system holon, which is a component of the world–society holon.

It is important that we appreciate the essential mutuality here:

All societal holons need people for their continued existence. People need societal holons for theirs. Neither can exist without the other. And just as societal holons need the right people if they are to function optimally, people need the right societal holons if they are to function optimally.

The functioning of each societal holon is guided by a set of societal values. The functioning of each human component is guided by a set of personal values. These two sets of values are not necessarily the same, but for stable and effective functioning they must at least be compatible.

The whole must serve the functioning of the parts, and the parts must serve the functioning of the whole.

In oppressive societies, the whole fails to fully meet the needs of the parts. Repressive autocracies and dictatorships come to mind, as do cultures where restrictive mores limit the range of personal choice and put tight controls on personal behavior. In anarchic, lawless, amoral/immoral societies, the parts fail to serve the whole. Postwar Iraq and post–Cold–War Russia are examples of this type of failure—societies in which various forms of lawlessness have been rampant. Neither extreme satisfies the holonic imperative.

The rules governing compatible functioning are spelled out in various implicit and explicit contracts, pacts, and agreements. Some of these concern interpersonal behavior and range from implied agreements concerning manners and codes of acceptable behavior to

explicit laws that forbid certain behaviors and demand others. There are also implied contracts between societal institutions and society in general as well as agreements—both formal and informal—between institutions and their members. All the specifics are sometimes lumped together under the umbrella phrase *social contract*, a term that dates back to Hobbes, Spinoza, Locke, Rousseau, and other social theorists of the seventeenth and eighteenth centuries.

SOCIOCULTURAL EVOLUTION

For hundreds of thousands of years, human beings, like their primate relatives, lived in small groups and subsisted on the proceeds of various hunting and gathering activities. Then, some seven to ten thousand years ago, that began to change. Larger, patriarchal, autocratic societies began to replace the small, cohesive, hunter–gatherer groups. Contemporary explanations for what happened differ somewhat in detail and emphasis. I find the interpretation put forth by social theorist Gwynne Dyer especially illuminating.

Noting that humans are one of ninety-three types of primates, Dyer says data on human hunter–gatherer societies indicate that during the hundred–thousand or more years we lived in the hunter–gatherer mode, we behaved much like most other primates.

Primate groups have certain characteristics in common:

- The groups are small—almost always under 100 (about 150 for humans, for reasons to be given).
- A wide range of individual behavior, character, and talent exists within these groups in comparison with "lower" animals.
- Primates live in privilege/dominance orders, but these are marked by a shallower gradient of privilege than found with other mammals. (Male primates at the bottom of the pecking order still have sex, for example. Copulation is not the privilege of just one alpha male.) Also, in most primate groups, males and females have their own separate pecking orders, just as we find a gender–merged hierarchy among humans.

Primate bonds are primarily social, and are established and reinforced through grooming behaviors. Dyer believes the maximum group size is limited by the time budget of the animals. You have

only enough time to groom so many others. You need time to sleep, eat, travel, and reproduce as well as to groom, so an individual can establish and maintain only so many relationships. For chimpanzees, this number is about seventy, and if through low predation and the availability of ample food the numbers grow, the group will split into two groups.

It seems the maximum primate group size in natural circumstances is limited to the size that allows its members to maintain familiarity with each other. For humans, the maximum group size is somewhat larger than that of other primates—about 150 rather than seventy—because humans do much of their grooming via speech. Speech–based grooming saves time; if you have speech, you can work and groom simultaneously.

Groups much larger than 150 are desirable, because they confer greater levels of security and comfort on their members. So, if we are limited in our ability to develop familiarity and trust with a great many people, how do we go about creating large societies? It was done initially, says Dyer, by eliminating the need for familiarity and trust—by replacing trust–based order with order that is imposed externally through tyranny, violence, and a hierarchy with a very steep gradient of privilege. Because primates in their normally small groupings prefer shallow gradients of privilege, Dyer concludes that patriarchy is not an inherent, gene–based feature of humanity. Rather, he feels that patriarchy was the only answer available at the time to a problem that needed solving: How can you get humans to live together in groups large enough to permit a multifaceted economy and a high degree of security against enemies and food shortages?

These patriarchal societies were characterized by steep hierarchy (an alpha male god–king at the top and women at the bottom), tyranny, universal oppression, and militarization. This was the prevailing human experience in the "civilized" world from 5,000 years ago until the advent of the Enlightenment in Europe and the establishment of democratic government in the United States at the end of the eighteenth century.[2] For all that time, tyranny had been the only way to run a large society. But with the arrival of the printing press and widespread literacy, another route to social cohesion appeared. Mass

communication and a literate population allowed everyone to participate in a conversation about the means and ends of society, and this led to political consensus.

The new governments that arose at the end of the eighteenth century were democratic to a point, but only to a point. Slavery still existed in the United States, only property–owning males could vote, and in Canada women were not legally "persons" until 1929. Correcting these wrongs took many decades, but Dyer feels that as we move into the twenty-first century, industrial societies are in the final stages of leaving the patriarchal order. Mass electronic communication is a big part of the reason. In those Western societies that have already bought into the idea of equality, the electronic media keep putting instances of inequality in everyone's face. Seeing disparity again and again causes moral discomfort in many people, and in Dyer's view ultimately leads to corrective action.

The new media also facilitate the spread of democracy around the world. First, while democracy may seem a ho–hum idea to any remaining hunter–gatherers, it holds considerable appeal to people who live in tyrannical societies. Second, because the electronic media communicate effectively even to illiterate people, the large–scale social cohesion needed to implement democracy can come about more quickly than in the past. According to Dyer's observation, the introduction of political democracy follows the introduction of mass communication and the development of literacy within about two generations.[3]

In biological evolution, an organism survives if its genetic makeup has equipped it to deal effectively with the environmental circumstances it faces. In sociocultural evolution, a society survives if its outer and inner natures—the societal structure along with the attitudinal and informational endowment of its human components—have equipped it to deal with the circumstances it faces. In biological evolution, a highly diverse gene pool increases the chances of species adaptation and survival as circumstances change. Similarly, in sociocultural evolution, a highly diverse pool of ideas, plans, proposals, and inventions—a highly diverse *meme* pool—increases the chances of societal adaptation and survival as conditions change.

In trying to understand the evolution of societies, it is natural to make comparisons with biological evolution. In the view of system theorist Albert Wilson, "The knowledge system bears the same relation to human society that the genetic code bears to human life."[4]

B.F. Skinner said:

> *New practices correspond to genetic mutations. A new practice may weaken a culture—for example, by leading to an unnecessary consumption of resources or by impairing the health of its members—or strengthening it—for example, by helping its members make a more effective use of resources or improve their health…. A culture evolves when new practices further the survival of those who practice them.*[5]

Taking this idea further, Richard Dawkins said, "The new [evolutionary] soup is the soup of human culture. We need a name for the new replicator, a noun which conveys the idea of a unit of cultural transmission, or a unit of imitation."[6] He chose *meme*, and said:

> *Examples of memes are tunes, ideas, catchphrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process, which, in the broad sense, can be called imitation.*[7]

Kenneth Boulding viewed the situation this way:

> *Just as there is the genosphere or genetic know–how in the biosphere, so there is a noosphere of human knowledge and know–how in the sociosphere. The noosphere is the totality of the cognitive content, including values, of all human nervous systems, plus the prosthetic devices by which this system is extended and integrated in the form of libraries, computers, telephones, post offices, and so on.*[8]

> *Once human evaluations appear on the evolutionary scene, a wholly new selective process appears in the world and the evolutionary process is markedly changed by it. They have produced, for instance, cornfields instead of prairie, cities instead of fields, the space shuttle and artificial satellites…intervention in the proc-*

ess of biogenetic change, controlling biological mutation as well as selection. It may well be that biological evolution is approaching its end and will be succeeded by an evolutionary process wholly dominated by noogenetic processes directed by human values.[9]

Out of all this comes change—some of it intended, some not. And danger too.

Ervin Laszlo pointed out:

The kinship–based hunting–gathering tribe is practically inde- structible, capable of persisting as long as there are no major changes in its natural and societal environment: a more complex technological society is vulnerable to accidents and to sabotage, to external attack and to internal value change. The fact of the matter is that the evolution of complex systems involves a gamble: the sacrifice of basic structural stability for sophisticated con- trol…. The danger to our species comes in the form of instabilities in technological societies.[10]

Planned, intended, cultural change has often involved the inven- tion of new societal institutions: those first autocratic societies, for instance, money, democracy, the limited–liability corporation, the social safety net, and countless others. In a relatively democratic world, some person or group invents a meme, and society passes judgment on it. Depending on that judgment, it then becomes a significant part of the sociocultural reality, or it is rejected—discarded completely or put on the shelf with other ideas whose time has not yet come or may never come.[11] Other sociocultural habits, however, have become established in a much less democratic way—imposed on the majority by a small but powerful minority. It began with patriarchy, autocracy, and force–backed absolutism, but didn't end there. The next chapter, MATTER OF CONSEQUENCE 6, **Economic Context**, deals with the world economy in some detail. Here, let's just note that the phenomena of *transnational corporations*, *free trade agreements*, and *the globalization of the economy* were created by a relatively small group of people who used wealth and political power to make them part of societal structures around the world.

Many of the changes we experience were not intended by anyone. Just as useful drugs often have side effects, many useful technological advancements have had unintended negative consequences. DDT was a miracle insecticide, but when birds ate food contaminated by it, it made their eggshells thin. PCBs were excellent heat–conducting fluids for power transformers, but they proved to be carcinogenic. Asbestos was the heat insulator of choice for many purposes, until it was discovered that it, too, caused cancer. Penicillin killed many kinds of bacteria, but it also helped create antibiotic–resistant strains of bacteria.

Social inventions, too, have had unexpected consequences. Development banks were ostensibly invented to improve the standard of living of people in developing countries. Instead, their activities—while benefiting some people in those countries—have often reduced the standard of living and quality of life of the majority. National parks were invented to preserve wildlife and natural beauty, but they now attract so many people that it has eroded their protective function. The transnational corporation was invented to increase the wealth of its shareholders, but in operating to maximize profit and share price, corporations have abandoned traditional social responsibilities at home. Drug patent legislation was passed to encourage research for cures, but it keeps the cost of those cures high.

Jane Jacobs has pointed out that some social inventions are responses to temporary problems, and they become harmful when kept on after the initial need has passed. She notes that, while the famous economist John Maynard Keynes advocated deficit financing in hard times, he also advocated paying off the debt in good times. Keynesian deficit–financing helped countries get out of the Great Depression, but when it was over, governments failed to switch to the payback mode—"creating… the vicious circle of intractable indebtedness." She also notes: "Monopolies, justifiable on the grounds of urgency, hang on anachronistically and become drags and stultifiers."[12] Other examples that come to mind are subsidies for mineral exploration that might have been justified eighty or a hundred years ago, but no longer are, and tax breaks that once served a useful social purpose, but no longer do.

The anachronisms Jacobs noted are related to the more general problem of social–system life cycle. In his book *Meaning*, Cliff Havener notes that there is always a purpose behind the creation of a social system and that during the system's *formative* phase, a materially grounded system is configured to satisfy that original "spiritual" purpose behind its creation. Once the system is up and running, it then moves into a *normative* phase, and most established corporations, organizations, and political institutions are currently in this phase of their life cycle. Havener notes that when this shift occurs, a shift in goals also occurs: "The goal of the formative phase was to figure out how to materialize the system's intent. The goal of the normative phase is to maximize the efficiency of the forms and processes it created to do that, whatever they were."[13] In the normative phase, the system no longer welcomes change—even change that would better fulfill the purpose that brought it into existence. In this phase, the system becomes both resistant to change and increasingly distant from its original purpose. Havener gives many examples (most from business) of how this plays out in the lives of organizations and their human components. It is not a pretty picture.

If the normative phase continues to its usual conclusion, the system eventually declines and dies. But Havener talks about another possibility: of moving a system out of its normative phase and into a phase of renewal that he calls the *integrative* phase. In his words: "The integrative phase means unifying the fragments of the normative phase by recognizing *both* the spiritual and material states of the system, *both* its principle complements and its original purpose. It doesn't mean throwing away what exists. It means discovering the meaning behind it. It often means redesigning the system, based on its original intent, to fit current conditions."[14] As discussed further in **Part IV** of this book, the world today needs much of this normative–to–integrative transformation.

Sociocultural change and technological change are tightly linked and mutually reinforcing. Largely because of this, Western society has found itself in an accelerating spiral of change for the past three hundred years. In instance after instance, technological change has led to social change, which has led to more technological change, and so

on. Especially troublesome are changes that are both *extensive* and *rapid*. These changes create problems, because we humans are unable to think through all of their ramifications in advance. Instead, we implement and then get surprised when the unexpected occurs. In fairness, many things cannot be known in advance, and implementation is often the only way to find out what will happen. Because of this, one might expect that societies would first introduce changes on a small scale and carefully monitor their effects before introducing them on a mass scale. That rarely happens, however. In most situations, the economic motivation to implement rapidly and widely meets no societal restrictions. Especially where powerful technologies are concerned, this keeps society constantly at risk.

HUMAN NATURE AND THE EFFECT OF CULTURE ON PEOPLE

During the past several decades, it has become clear that there is not just one, standard human nature.[15] Instead, each human's inner life and outer behavior is the joint product of nature and nurture: genes on the one hand and one's life experience on the other. On the nature side, each of us arrives on Earth with a set of genetically determined potentials, some of which are common to all and some of which differ from person to person. All babies drink, cry, sleep, and wet their diapers. But some babies sleep their first month away while others cry it away. Some startle easily; some don't. Some are exceptionally alert and attentive; others are less so. Some have a generally rejecting attitude, others a generally accepting one. In addition to these built–in attitudes and tendencies, each baby is born with a very wide range of undeveloped potentials. These include intellectual potentials, physical potentials, musical potentials, artistic potentials, potentials for generosity and caring, potentials for selfishness and mean–spiritedness, etc. What is common to all at this early stage of development is, as psychologist Gardner Murphy put it: "A raw distinctive humanness differing from the nature of all other creatures and possessing sharper wits, greater capacity to learn and, above all, keener exploratory functions and the capacity to discover and use new relationships."[16]

On the nurture side, it is society's job to take this raw malleable humanness, this watchful, willful, bundle of potentials, and develop some of them into functioning actualities. As Murphy pointed out, these "potentialities are not just incompletenesses but radically new kinds of human nature…."[17] In other words, when one set of potentials develops, you get one kind of person and one expression of "human nature." When another set develops, you get a different person and a different human nature. Ruth Benedict and Abraham Maslow stressed this point. They gave examples of societies peopled by likeable, caring human beings (high–synergy, all–win societies) and of societies peopled by mean, nasty humans (low synergy, few–win societies).[18] On the high–synergy side, they pointed to several Native American societies where community well–being and personal generosity were highly valued, and where the society's institutions fostered these attitudes. In these societies, the "richest," most admired person was the one who gave away the most at the annual Potlatch or Sun Dance ceremony. Everyone gained in these societies.

Sadly, many modern North American societal institutions have been cultivating the opposite tendency. Sometimes directly, sometimes indirectly, they have encouraged us to pile up personal wealth and reduce our level of concern about those less well–off than ourselves. During the second half of the twentieth century, the dominant culture influenced people to put self first, to avoid social responsibility, and to replace generosity of heart with various degrees of unconcern and mean–spiritedness. Neither the political right nor the political left is blameless in this. When it was their turn in office, each has pumped the bellows under the fires of acquisitive consumerism. And both are guilty of failures of empathy. The right's failure involves ethnic minorities, the poor, immigrants, women who want to change things, and gays and lesbians. But, as Michael Lerner has pointed out, the left is also guilty. The left can empathize with those who are suffering economically or being deprived of their rights, but it fails to give much weight to the spiritual suffering of middle–income people—to the suffering that comes from living in our society's ethics–and–meaning vacuum. This failure of empathy is, in Lerner's view, very divisive, and one reason why the left has not

received more political support from middle–income people than it has.[19]

How societies go about encouraging the adoption of one set of values and behaviors rather than another is not difficult to understand. It is the matrix of *influences* in each person's life that determines which innate potentials develop into actualities and which do not. The law governing this phenomenon is simple:

> **A person's values, attitudes, skills, knowledge, and personality at any point in their life is the joint product of the physical influences (genes, nutrition, etc.) and the mental influences (family, education, personal experience, etc.) that the person has encountered up to that point.**

Is that really true? Doesn't it leave something out? At the very least, it seems pretty impersonal. Strangely, however, the personal is precisely this intermixture of genetic makeup, physical influences, and mental acquisitions. What else is there but the physical substrate at birth and all the things that happen afterward? It is not all nature, not all in the genes, not all in the physical makeup. Neither is it all nurture, all in one's life experience, all in one's learning. Rather, a person is a combination of both nature and nurture. Together, nature and nurture cover all the possibilities, including intuition, imagination, deep spiritual understanding—and even free will and Jung's "collective unconscious," to the extent that they exist. Physical influences and cultural influences have together made each of us what we are today. That's the reality—and in some eyes the bad news. The very good news is that this process never stops, and through exposure to new influences people can change.

To ensure that individuals within a society cooperate with societal goals, society's institutions use a variety of techniques to educate, indoctrinate, and appropriately mold personal mindsets and behavior. These measures aim to create players who accept the overall goals, values, and ethical standards of the society—and who willingly contribute to the well–being of the society's major institutions.

Earlier, in the historical overview in this book's introduction, I touched on the situation in North American society. I mentioned that the central task of the first half of the twentieth century was to build a societal system that would allow its members to live a comfortable life, and that as lives became more comfortable, that sense of communal effort began to erode. As the century progressed, one of society's subsystems—the economic—came to dominate the social agenda, determining many of society's goals and values. The socio-economic regime that these economic forces brought into being has been called *consumerism*, and as surprising as it may seem, society's human components had to be induced to cooperate before it became deeply entrenched.

To most of us, working hard to continuously improve our material standard of living may seem like innate human nature. But it is not. An anecdote from my father's days with the War Food Administration during World War II illustrates the point. The American military was using coconut oil in some of its munitions and wanted to increase production. To do this, it needed more dried coconut. At the time, the major source of supply was the Philippine Islands. There, individuals cut coconuts from local trees, sun–dried the coconut meat, and sold it. The Philippines clearly had the potential to deliver more, so the U.S. government decided to increase production by doubling the price it paid. This had immediate but unexpected results. When the price doubled, the rate of production quickly dropped to half of what it had been. Apparently, the coconut gatherers needed *some* money but had little interest in earning more than that amount.

Even North America had a period of pre-consumerism. In the nineteenth century, roughly 70 percent of the population lived on farms, and thrift was a widely accepted value. Prudence put the brakes on spending. In those days, the risks to one's economic and personal health were many and great, and social safety nets had not yet been invented. Personal savings provided at least a small buffer against disaster. In general, people bought what they needed and saved what they could.

During this same period, fortunes were made building railroads and other kinds of infrastructure. That, however, could not go on forever. At some point, everything that needed to be built would have been built. When that had happened, how would the rich get richer? This issue bothered turn–of–the–century economists, financiers, and titans of industry. They had to find some means to keep the economy growing. Increasing the population through immigration and larger families was one approach, but it was slow. Turning all those savers into spenders was another. The economic powers–that–be promoted both approaches, focusing most of their energy on the second. In 1907, economist Simon Nelson Patten put it clearly: "The new morality does not consist in saving but in expanding consumption."[20]

New engines of stimulation were needed, and they were quickly invented. The mail order catalog was among the first: Eatons in Canada; Sears Roebuck and Montgomery Ward in the United States. These catalogs contained pictures and descriptions of a thousand necessities, time– and labor–saving devices, and tempting "luxury" goods. By the start of World War I, the arrival of each year's catalog was a much–anticipated event in millions of farmhouses across North America. Billboards, the advertising agency, radio, and high–quality graphic printing were other inventions that facilitated merchandising in the early twentieth century. Then television arrived. And to the delight of business, the average person decided to spend several hours per day paying attention to the glowing screen.

The merchandising and advertising industries maintain that advertising simply facilitates the market process by creating better communication between buyers and sellers. In this vein, a *Britannica* article says: "Marketing is not a coercive process: All parties must be free to accept or reject what others are offering." Yet advertising's real agenda obviously goes beyond the provision of information. Ads are prepared and paid for not just to inform, but also to induce the potential customer to buy what is offered. And when people are bombarded by hundreds of advertising messages each day, the collective inducement is to buy a lot. So, in addition to providing information about products, this constant flood of ads has succeeded in

hammering home the consumerist philosophy: Acquire. Get. Have. The newest. The best. The trendy. The fashionable. Aided by easy consumer credit—the financial industry's contribution to consumerism—the approach worked. People bought, and have continued to buy—many increasing their spending to the limits of their income and beyond.[21]

Along with the intended consequences also came some unintended ones. The original aim, we assume, was to increase consumption while maintaining the same level of commitment, cooperation, civility, and morality that previously existed. That hasn't happened. Consumerism worked, because advertising and other merchandising techniques successfully stimulated human acquisitiveness, promoted human desire, and triggered human greed. If you fan those particular flames in enough different ways for enough years, you develop some acquisitive, greedy people who are likely to express those qualities in all areas of life.

Other pernicious influences have had an impact as well. Among them are advertising's illegitimate appeals, which imply that people can meet their unmet needs for sex, love, status, security, and esteem by buying things having little or no connection with those needs. Associated with this is an unfortunate meta-message: It's okay to try to fool people. Manipulate people to get what you want from them; use their desires to trick them into doing what you want them to do. Easy credit also conveys some negative meta-messages: Indulge yourself now and worry about the consequences later. It's okay to spend beyond your means.

The distortions of reality created by entertainment programs and news coverage are also troubling. These include the meta-message that the world is a terrible place, full of rotten people constantly doing rotten things to each other. Both news and "entertainment" programming tell us that violence is common; violence is acceptable; violence is a solution. We also get the message that we can do nothing about what is going wrong: Much news coverage concerns problems; there is little coverage about creative solutions to problems. And then there is the meta-message: Be passive, not active. Watch sports, rather than play sports. Watch the creative efforts of others,

rather than cultivating your own creativity. Vicariously live the lives of others, rather than create a more interesting life of your own.

Unfortunately, the influences pushing us toward selfishness and away from community are as dangerous as they are ubiquitous. Development of a me–first attitude destroys people–to–people and people–to–environment bonds of caring and consideration. And it is destructive both to the community today and to the sustainable economic well–being of tomorrow. The truth is:

> **In holonic relationships, when the parts fail to serve each other and the whole, the functioning of the whole is at risk.**

With simple systems, the failure of just one component is often enough to completely stop system functioning. Removing one gear from a watch or one electronic chip from a television set will do it. Most biological systems embody a lot of redundancy, and this makes reduced function a statistical matter. The death of a single cell does not cause a problem. The death of enough cells does. Sometimes the parts remain and function, but they function in unhelpful ways. In a watch, perhaps the mainspring becomes weak, or, in our TV example, the chip still functions, but in a peculiar way. The prime biological example is the cancer cell. It is a cell out of control, a cell executing its own incompatible agenda and not serving the purposes of the organism. As we know, too many of these cells put the organism at risk. Similarly, too many individuals not serving the whole put their society at risk. We don't know how to calculate the magnitude of the danger; we simply know that if enough individuals become sufficiently nonsupportive, their society is in deep trouble. And if even a few sufficiently powerful individuals work against their society, they can create havoc.

Many contemporary writers have deplored the rise of antisocial attitudes and commented on their danger. Charles Derber fears the level of self–absorption could reach the point that the honoring of moral constraints and commitments is so minimal that communities fall apart.[22] Canadian Mark Kingwell is especially concerned that society's new monied elites—the information and money managers—are

among those who have turned their back on community and social responsibility.[23] Michael Lerner bemoans the rise of selfishness, the willingness to exploit others, and the erosion of concern about the common good.[24]

Fortunately, people need not be just sponges, waiting to absorb whatever cultural influences are presented to them. Each person's receptivity to a particular influence depends on his or her mental makeup at the time of the influence. That, in turn, depends on physical factors (genes, brain chemicals, health, etc.), prior life experience, and what sense they have made of that experience. In other words, while we are surrounded by cultural influences, these influences do not *necessarily* program us. It is possible, instead, to assess, weigh, and make a serious effort to understand what is really going on. When we do this, moments of insight come—when we see beneath the surface messages to the underlying actualities. From that point on, we have a new and very powerful influence: insight that comes out of our own experience and analysis. Such influences can take us in new directions.

Today, a surprisingly large number of people have had such insights and are moving in the direction of a saner culture. These are people who—while appreciating many of modernity's contributions—see and reject its many harmful psychological, ecological, and spiritual effects. For more than a decade, Paul H. Ray has studied the lifestyles, interests, values, expectations, preferences, and choices of Americans. *The Cultural Creatives: How 50 Million People Are Changing the World*, coauthored with Ray by Sherry Ruth Anderson, is a mind–opening book that draws on this body of work—especially two highly focused values surveys conducted in 1995 and 1999.[25]

Ray and Anderson describe a present–day America divided into three subcultures, each of which coalesces around a different set of values. The *moderns*, numbering some 93 million adults, make up the largest subculture. They adhere to the mainstream American worldview and "accept the commercialized urban–industrial world as the obvious right way to live." The *traditionals*, totaling 48 million adults, are characterized by "a complex cultural conservatism." Traditionals "react against a rapidly changing and uncertain modern world" and

would like to return to the America of the 1920s and '30s. Traditionals are declining in numbers, from roughly half the population at the time of World War II, to less than 25 percent today. The main focus of the book, however, is the large and growing group of *cultural creatives,* who are moving toward and helping to create a saner culture.

Cultural creatives in the U.S. number 50 million adults, making this group slightly larger than the traditional group. Ray and Anderson divide cultural creatives into *core* cultural creatives and *green* cultural creatives. The core group numbers 24 million (two-thirds women) and represents "the creative leading edge of the subculture." Both green and core cultural creatives are concerned about the environment and committed to a sustainable future. But the core group "is far more intense and activist about them,"[26] and they value spirituality and personal growth more strongly than do the green group. Western Europe claims an estimated 80 to 90 million cultural creatives.[27]

Elsewhere, Ray has said:

> *This new subculture is busily constructing a new approach to the world: a new set of concepts for viewing the world, an ecological and spiritual worldview, a whole new literature of social concerns, a new problematique for the planet in place of the old set of problems that Modernism set out to solve, a new set of psychological development techniques, a return in spiritual practices and understandings to the perennial psychology and philosophy, an elevation of the feminine to a new place in human history.*[28]

Who are these cultural creatives, and where do they come from? The usual demographics aren't much help. Ray and Anderson's research tells us that their incomes range widely from low to high, but that few are very poor or very rich. Their age profile resembles that of the population in general, but with somewhat fewer in the eighteen- to twenty-four–year age range and even fewer over seventy. Their education and occupations, too, blend with the rest of the population. Ray and Anderson note, "There are a few more professionals and college–educated people among them," but many are engaged in "the everyday work of the modern culture."[29] They also

report that most "are very mainstream in their religious beliefs and affiliations." What does set apart cultural creatives is that most have been involved with a variety of "the new social movements and the consciousness movements that began in the 1960s and continue today."[30] This doesn't mean they have necessarily spent time on the barricades, but that these movements have deeply influenced them and they have been exploring these matters in their own lives.

Ray and Anderson conclude that "the cultural creatives are not an incoherent mess of bleeding hearts and do–gooders and me–firsters, but a slowly growing convergence of once–discrete movements into a great current of cultural change."[31] They note several kinds of convergence. There is convergence in similarity of approach and worldview between social change groups, greater cooperation between them, and growing links between these groups and the consciousness movement. Another type of convergence is constituency centered, involving the emergence of the cultural creatives and their interest in, and support of, a wide range of movements. The research indicates that, although the cultural creatives stand at the leading edge of this phenomenon, these past and present movements have influenced the thinking of *everyone*. As Ray and Anderson put it: "A general movement for change is growing now, cutting across dozens of social issues and affecting millions of people, not just Cultural Creatives."[32]

About where all this is heading, Ray has said:

> *The appearance of the Cultural Creatives is about healing the old splits: between inner and outer, spiritual and material, individual and society. The possibility of a new culture centers on the reintegration of what has been fragmented by Modernism: self–integration and authenticity; integration with community and connection with others around the globe, not just at home; connection with nature and learning to integrate ecology and economy; and a synthesis of diverse views and traditions, including philosophies of East and West. Thus* Integral *Culture.*[33]

This transmodern, or "integral culture," vision is rooted in a deep understanding of our existential situation, and it incorporates a

new ethics that values both "the good of the whole" *and* the well–being and inner development of individuals. Supporters of this view advocate:

1. The long term sustainability of human society
2. Economic justice (e.g., an adequate material standard of living for all, an equitable sharing of resources and the fruits of technological innovation)
3. The establishment of cultures and institutions that:
   a. Allow people to develop their innate physical, intellectual, emotional, and spiritual potentials
   b. Facilitate a deep understanding of our existential situation
   c. Lead people to voluntarily choose an empathetic, caring–based personal morality—a morality that is compatible with our existential situation and which must become widespread if this vision of the future is to become an actuality

Others are also calling our attention to this shift in values. Duane Elgin has reported on a massive forty-three–nation *World Values Survey*[34] that revealed a major values shift in Scandinavia, Switzerland, Britain, Canada, and the United States. Ronald Inglehart, the study's coordinator, calls it the "postmodern shift." The study revealed:

- A loss of confidence in all kinds of hierarchical institutions, including government, business, and religion
- A shift in emphasis from external authority to the authority that comes from an inner sense of what is appropriate
- A shift from concern about material well–being to subjective well–being
- A tendency to subordinate economic growth to environmental sustainability
- A growing interest in discovering personal meaning and interest in life
- An interest in roles for women that allow for greater self–realization

Elgin articulates a paradigm that incorporates views from several studies (including those mentioned above) and concludes that: "In the U.S., a conservative estimate is that 20 million people—10 percent of adults—are consciously exploring new ways of living that seem consistent with this paradigm."[35]

The Ray and Elgin estimates are exciting, providing a quantitative indication that a revolutionary transformation to an ethical and sustainable society is not just possible but is already underway. This is exactly the position taken by Paul Hawken, another insightful commentator on this phenomenon. Hawken feels that we have entered an era of *reformation* and draws a parallel with the Protestant reformation:

> *There is no Martin Luther, and there will be no cathedral door, but like the first reformation, this shift is being precipitated by enormous corruption on the part of those people who hold the public trust, both politically and commercially…. Over the next twenty to forty years, we will witness the continued breakdown of industrialism. At the same time we will experience the connecting of the dots if you will, a connecting of the different points of perception and initiative. So you can see two signals; one of hope, renewal, and transcendence, and the other of decay and degradation. I suspect that the media will pay attention mostly to the latter, but both are going to happen very powerfully at the same time.*[36]

Notes

[1] *Exterior collective* and *interior collective* are terms used by Ken Wilber in his four–quadrant model of reality. For an extensive discussion of this model, see Wilber, 1996, or Wilber, 1995.

[2] There were, of course, a few early experiments with democracy—notably in Athens and Rome. These, however, were short–lived exceptions, involving relatively few people and heavily supported by slavery.

[3] The paragraphs above summarize points made by Gwynne Dyer in his talks at the University of Prince Edward Island on 13 February 1995. (Dyer, 1995).

[4] Wilson, 1973, p. 130.

[5] Skinner, 1972, pp. 123–24, 127.

6 Dawkins, 1976, p. 206.

7 Dawkins, 1976, p. 206.

8 Boulding, 1981, p. 122.

9 Boulding, 1981, p. 22.

10 Laszlo, 1987, 128.

11 Richard Brodie has written an interesting and comprehensive book on memes and "memetics," the study of memes: *Virus of the Mind.* See Brodie, 1996. A book that insightfully explores the role of memes in human behavior and history is Howard Bloom's *The Lucifer Principle: A Scientific Expedition into the Forces of History* (Bloom, 1995).

12 Jacobs, 2000, pp. 117–18.

13 Havener, 1999, p. 39.

14 Havener, 1999, p. 52.

15 See, for example, Gardner Murphy's *Human Potentialities* (1958).

16 Murphy, 1958, p. 15.

17 Murphy, 1958, p. 12.

18 See Abraham Maslow's *The Farther Reaches of Human Nature* (1971, pp. 200–07) and Ruth Benedict's *Patterns of Culture* (1934).

19 See Lerner, 1997.

20 Quoted in Suzuki, 1997, pp. 21, 242.

21 The extent of "spending to the limits of their income" is indicated by U.S. Census Bureau figures. Of the 66 percent of American families who used credit cards in 1995, 28 percent "hardly ever" paid off the balance. (Source: Census Bureau press release cb97-199.html)

22 Derber, 1996, p. 101.

23 Kingwell, 1996, pp. 122, 123.

24 Lerner, 1997, pp. 89, 141.

25 The first of these is described in Ray, 1996: *The Integral Culture Survey: A Study of the Emergence of Transformational Values in America*—a study sponsored by the Institute of Noetic Sciences and the Fetzer Institute and available from the Institute of Noetic Sciences as Research Report 96–A. The second, a "sustainability survey," conducted in 1999, was sponsored by the Environmental Protection Agency and the President's Council on Sustainable Development.

26 The quotes in this paragraph and the preceding one are from Ray and Anderson, 2000, pp. 27, 30, 32, and 14.

27 Roberts, 2001, p. 7.

28 Ray, 1996, p. 72.

[29] Quotes from Ray and Anderson, 2000, p. 22.

[30] Quote from Ray and Anderson, 2000, p. 103.

[31] Ray and Anderson, 2000, p. 105.

[32] Ray and Anderson, 2000, p. 229.

[33] Ray, 1996, p. 30. Ray also notes that the concept of "Integral Culture" has been around for fifty years. He refers to Pitirim A. Sorokin's *The Crisis of Our Age and Social and Cultural Dynamics*; Sri Aurobindo's *The Life Divine* and *A Practical Guide to Integral Yoga*; and Jean Gebser's *The Ever–Present Origin*.

[34] Elgin, 1997, p. 11–12.

[35] Both Elgin quotes are from Elgin, 1997, p. 2.

[36] Hawken, 1995.

Economic Context

Whether a society is simple or complex, part of its raison d'être is helping its members acquire the physical essentials of life, such as food and shelter. Each traditional hunting and gathering society had established ways of obtaining and distributing food. Typically, the men hunted, fished, or trapped, and the women gathered wild vegetables, roots, seeds, nuts, berries, and perhaps shellfish. Tradition also determined how this food would be distributed. In some groups, those who had acquired the food gave it away; other groups considered food communal property and shared according to an established formula. However it was done, stable hunter–gather societies met everyone's basic needs. As historian Karl Polanyi put it, "The individual in a primitive society is not threatened by starvation unless the community as a whole is in a like predicament."[1]

With the arrival of plow–facilitated agriculture and patriarchy, the West entered a long era of *absolutism*, characterized by societies in which a small but powerful elite controlled a large population of peasants and unskilled laborers. Either the state or members of the ruling class owned all the land. Most peasants and laborers lived at a subsistence level. The surplus went to support the elite—whose military power and enjoyment of life were enhanced as time went on by a growing trade in metals and luxury goods. Political and economic control were tightly intertwined, both being exercised by whatever autocrat was in power in a particular place and time.

A relatively high level of economic development—due in part to trade and to an effective division of labor—marked the classical era from roughly 800 BCE to 200 CE. During the last 200 years of that period, the Roman Empire reached its height and relative political stability existed within its borders. The agriculture of the day produced the needed surpluses. Road building and ship building facilitated commerce. And the population of the Mediterranean region grew. Then, during the third century CE, things began to fall apart. Lawlessness, in the form of barbarian invasions, attacks on commercial vessels by pirates, and corruption within government, combined to deplete economic resources. In an attempt to compensate, the empire instituted harsh revisions to the tax system and to the rules governing work, but these measures in the long run were unsuccessful. With no surplus to distribute, trade collapsed and people were forced to leave the towns and cities in search of subsistence in the countryside. No longer was there enough food to keep all those people alive, and the population plummeted.

The vacuum left by the collapse of the Roman Empire was eventually filled by the economic and political reality called *feudalism*. In its manorial variation, the manor was the local unit of survival. Serfs and their descendants worked specific plots of manorial land and raised livestock, supporting the lord and his knights in the process. In turn, the lord and the knights protected the serfs from attack by outsiders and administered justice. Christianity brought a degree of moral cohesion to the patchwork of fiefdoms, and people conceived of a geographical "Christendom" extending throughout Western Europe. While society was politically and economically fragmented during this period, it was spiritually cohesive.

Through the introduction of new crop varieties and the invention of new tools, agricultural efficiency rose under manorial feudalism. Rising agricultural surpluses allowed the population to increase, trade to reestablish, towns to restore their former roles as centers of commerce and artisanship, and the lords to purchase luxury goods. It also became clear at some point that the land worked by "free" peasants who paid rent or collected wages brought the lords more profit

than land worked under the rules of serfdom, which led some lords to allow their serfs to purchase their freedom.

The fourteenth century was marked by a major famine, the Black Death, the Hundred Years War, and—throughout Europe—a revolt of peasants and workers. During this difficult period, the population of Europe dropped from about 70 million to 45 or 50 million, creating both a shortage of workers and an excess of tillable land. As a consequence, most of the remaining serfs became free peasants—generally continuing to work manorial lands, but under new, more favorable arrangements. By the end of the fifteenth century, feudalism in Western Europe had all but ended, and economic conditions were again on the upswing.

Agriculture had been the dominant economic reality in medieval times; commerce was the dominant reality from the fifteenth century through the eighteenth century. A variety of innovative steps taken during the late Middle Ages made possible a great expansion of trade: the invention of the mariner's compass and mariner's astrolabe, the charting of coastal waters, and the development of increasingly large, increasingly seaworthy ships. Columbus's 1492 trip to the West Indies and Vasco da Gama's 1498 opening of a trade route to India around the tip of Africa also had major effects. The influx of large amounts of plundered gold and silver from the Americas led to the monetization of trade, and da Gama's new route led to a much broader trade with the Orient than had existed before. The *mercantile era*, as this four–century period of commercial dynamism and concentrated economic power has been called, coincided with the emergence and growth of monarch–led nation–states in Europe. And within each country, nationalistic and economic aspirations were tightly integrated.

Trade was central during this period, but free it was not. Monarchs wanted the new economic activity to strengthen the state—and often their own hold on power—so they imposed restrictions and chartered a variety of monopolistic, proto-corporate commercial enterprises that shared their profits with the crown. Among the earliest of these were the English East India Company (founded in 1600), the Dutch East India Company (1602), and the Bank of

Amsterdam (1609). Each nation strove to have a favorable balance of trade, because that would mean an inflow of gold and silver—needed by sovereigns to fund wars as well as other expensive pursuits and tastes. Governments also found it helpful to keep the wants and incomes of ordinary people low; this improved the balance of trade and minimized the outward flow of gold and silver. Colonization was also helpful. Colonies provided controllable markets for goods manufactured in the colonizing nation and were often the source of inexpensive raw materials. In general, colonies were forbidden to manufacture products, certainly those that competed with businesses in the home country.

The political absolutism of monarchy and the economic absolutism of mercantilism formed two sides of a single reality during this period, and the tight regulation of commerce did not start to lessen until political absolutism began to weaken. In England, the seed event for this weakening was the establishment of an elected parliament in 1689. From that point on, parliament—rather than the monarch—had financial control of the nation. Parliament chartered the Bank of England in 1694 as a joint stock company to make loans to the government and to issue notes. A market for public and private securities was established, and though mercantilism's monopoly charters were not quickly rescinded, it was parliament and not the monarch who had control of those arrangements. Private capital markets responded favorably to all these changes.[2]

The precursors of more radical changes to come were the Enlightenment and Liberalism, which, as mentioned earlier, culminated in the American and French revolutions. Commentators usually focus on the political side of these revolutions—the desire for individual rights and freedoms, and for representative government. But there was also a drive to disconnect the economic from the political. Adam Smith presented the basic tenets of this philosophy of economic liberalism in his 1776 book *An Inquiry into the Nature and Causes of the Wealth of Nations.*

Smith envisioned a new (and in his view, final) stage of society that enshrined the legitimacy of private property under personal control. In this society, governments would not constrain or control

commercial activities, nor would guilds control wages. Governments would exist only to protect society from invasion by other societies, to protect individuals and their property from injustice or harm from other individuals, and to create necessary public works and other public institutions that people, as individuals, could not create. Smith felt that people had a strong desire to better the circumstances of their lives, but he saw this "betterment" in strictly economic terms—wages, prices, markets, and things that could be bought and sold. The freely functioning market was, in his view, a behavior–coordinating mechanism—an *invisible hand*—that automatically reconciled personal desires for economic goods with the labor and capital needed to produce those goods in a socially beneficial (if not equal) way.

The new governments that arose from the American and French revolutions did much to implement Adam Smith's vision. Early on, they took steps to effectively separate the economic sphere from the political. Rondo Cameron described the situation in France:

> *The revolutionary assemblies went beyond mere declarations of the legal foundations of the new order. In addition to abolishing the feudal regime and establishing private property in land, they did away with all customs duties and tariffs, abolished craft guilds and the whole apparatus of state regulation of industry, prohibited monopolies, chartered companies, and other privileged enterprises, and replaced the arbitrary and inequitable levies of the Old Regime with a rational and uniform system of taxation.*[3]

At the same time the new governments abolished the old order and instituted some degree of equality in the area of rights and freedoms,[4] they also put mechanisms in place that effectively maintained existing economic inequalities. Constitutional articles were written and laws were passed to ensure that private property would remain in the hands of those who already possessed it. Smith, himself, had said: "Civil government, so far as it is instituted for the security of property, is in reality instituted for the defence of the rich against the poor, or of those who have some property against those who have none at all."[5] Regarding French laws, Rondo Cameron said: "The Code Civile, promulgated in 1804, is the most fundamental and

important. Written by middle–class lawyers and jurists, it clearly reflected the preoccupations and interests of the propertied classes. It treated property as an absolute, sacred, and inviolable right.'"[6]

What had changed, and drastically so, was the concentration of power. For more than 5,000 years, most people had lived under the absolute control of a centralized authority or sovereign, with no check on that power or recourse to other authority. This unlimited control covered every aspect of life: rights, freedoms, responsibilities, opportunities, as well as everything that we today call economic—what we eat, where we live, what we own, etc. Then, within a fraction of a lifetime, it all changes—at least in a few places in the world. Decisions were made, not by some autocrat, but by groups of people chosen *for* their abilities and *by* the mass of ordinary people. Certain rights and freedoms were guaranteed. Politics and economics had been separated, and economics was in the hands of small players. No more trading monopolies. No more guild control over manufacturing activities. In these places, the era of political/economic absolutism had ended.

What supplanted mercantilism at the end of the eighteenth century might be called *small–scale commercial capitalism.* It was a market economy—one that still focused primarily on trade and the exchange of goods, but with greater entrepreneurial freedom. Even then, however, the focus was beginning to shift from commerce to manufacturing, from trade to production. The industrial revolution was in its early stages in Great Britain, and was about to take root in the United States. The harnessing of waterpower and then steam to run new kinds of production equipment was starting to bring workers from their cottages into factories. And for the first time in history, scientific knowledge was being applied to the problems of economic production.[7] During the first decade of the nineteenth century, Eli Whitney used some of this new production equipment, the principle of the division of labor, and unskilled workers to mass–produce interchangeable parts for 10,000 muskets—the first such venture on the North American side of the Atlantic.[8]

Because real economies are far too complex for human minds to grasp in their entirety, economic theories are invariably oversimplifi-

cations. They tend to reflect the major characteristics of the situation that exists at the time they are created. Each theory takes into account what then and there seems most relevant, and it ignores other things that might be highly relevant in some other situation. This was true of Adam Smith's theory. Smith lived in a time of small–scale capitalism, and his theory fitted his times. Land, labor, and capital were, at that time, under the control of individuals who could personally decide what would be done with them, and there were many small competing enterprises. Under these conditions, the markets for goods and labor behaved much as Smith's theory predicted they would, and to the extent that market mechanisms actually did produce the most goods for the lowest cost, he would have held that social benefit had been maximized. This idea, however, would have been hard to sell to the miners and factory workers in early Nineteenth–Century England. Many lived in appalling poverty, with "lowest–labor cost" actually meaning less than bare subsistence. Robert Heilbroner notes that, "In 1840, according to the calculations of Arnold Toynbee, the wage of an ordinary laborer came to eight shillings a week, while his family necessities of life cost him fourteen shillings; he made up the difference by begging, stealing, sending his children to the mills, or simply drawing in his belt."[9] (The sidebar on the next two pages entitled "Markets: The Good, the Bad and the Ugly" presents an overview of what markets do well, and where they fail.)

To people of Adam Smith's day, extreme differences in wealth were a given, a natural feature of life, and intrinsic to the economic system itself. In Smith's words, "[W]herever there is great property, there is great inequality…. The affluence of the rich supposes the indigence of the many."[11] In 1848, however, John Stuart Mill articulated a very different view. In his *Principles of Political Economy*, Mill made the telling observation that the science of economics had everything to do with the *production* of goods, services, profit, and wealth, but nothing to do with their *distribution*. Distribution was a societal matter and has always been that. In hunter–gatherer societies,

Markets: The Good, the Bad, and the Ugly

In his insightful book *Evolution's Arrow: The Direction of Evolution and the Future of Humanity*, John Stewart takes a comprehensive look at the phenomenon of the *market*. He points out that markets can be amazingly effective at fostering cooperation, despite the fact that "participants have no interest in being cooperative or in making the market system work." In a market situation, self–interested people come together, cooperate, and solve each others' problems without any conscious desire to help others or any master plan coordinating the activity. It is also clear that economic markets tend to foster innovation, organize an efficient division of labor, and boost production efficiency. They have played a major role in the creation of the high material standard of living that we in the industrial nations enjoy today.

That said, not even in theory are markets the solution to all economic problems. Markets, for example, are ineffective in situations in which the product or service offered brings potential widespread benefit, such as national defense, universal education, or an extensive system of roads. Wherever there can be "free riders"—people who avoid paying their fair share of the cost while still receiving the benefit—others will be reluctant to pay their share, and the market approach fails.

Markets are inherently competitive, and businesses that don't successfully compete eventually fold. Because of this, markets discourage business behavior that might have positive social benefits, such as educating employees beyond the needs of the job itself, keeping employees on the payroll even if profits would increase if they were let go, raising wages to levels higher than the minimum necessary to retain the employee, etc. Markets also encourage business behavior that harms society. Competitive businesses externalize costs as much as possible. If they can dispose of their wastes by sending them up the stack or dumping them into a public sewer, they

will. If it is a resource extraction business, it will leave its mess behind to the extent that the law allows.

Pointing out another negative, Stewart notes that markets "tend to produce a distribution of income that concentrates most of the wealth of society in the hands of a small minority." In turn, this concentration of economic power "gives the wealthy the potential to bias the management of the market so that it operates in their favor."

A partial corrective to these and other market negatives is some form of external management—usually provided by government through legislation and regulation. This is great in principle, but the kind of market management practiced by government today is far from ideal. For one thing, economic systems are extremely complex, and regulatory "fixes" are often based on an oversimplified analysis of the problem. More disturbing still is the control the wealthy beneficiaries of market activity are able to exert on these regulatory efforts via well–financed lobbying, court challenges, and contributions to the election campaigns of politicians who share their particular goals, values, and attitudes.

A final, very serious, deficiency of markets is their exclusivity. To participate in a market you must either have something to sell that others want or you must have money to buy what others offer. And billions of people on this Earth have little or none of either. The destitute are excluded from the market system. Stewart put it starkly:

If you do not have sufficient money to buy the food you need to live, the market will do nothing to help you as you starve to death. If you have a curable but potentially fatal illness and do not have the money to pay for a cure, the market will let you die. Markets do nothing to stop millions dying in these circumstances around the world every year, even though there are enough resources to prevent their deaths. The market's invisible hand is drenched in blood.[10]

Our challenge for the future is to find ways of keeping the baby of market benefits while discarding the bath water of market limitations, abuses, and harmful effects.

tradition determined how the members of the society would share the available goods. In autocracies, the strongman at the top determined who got what. In a democracy, distribution could—at least in principle—be politically determined.

THE RISE OF CORPORATE CAPITALISM

Industrialism grew at a tremendous rate during the second half of the nineteenth century. To understand our present economic situation, we don't need to review that period in detail. We do, however, need to note the shift that occurred from trade–dominated, small–player, commercial capitalism at the beginning of the century to a production–dominated, big–player, industrial capitalism at the end. And we need some insight into the practice that facilitated that shift—the chartering of corporations.

By definition, entrepreneurs are people who see possibilities for new moneymaking enterprises and manage to get them going. One problem they face—often the biggest problem—is that of startup funding. In general, banks have been unwilling to supply it. Banks want a high degree of assurance that they will get their money back (with interest), and they rarely find that assurance in a proposal for a brand new business. Risk, unfortunately, is part of the entrepreneurial reality, and new ventures require lenders who are willing to put their money at risk. If the proposed enterprise is small, the owner's personal savings may be enough to get it going. If it is somewhat larger, bringing in a partner or two (and their savings) could be the answer. If the enterprise is massive, however, it presents a real problem: Who is going to put up all that money and assume the risk?

Columbus found his Queen Isabella, but for most proponents of big ventures, the answer has been some variation on the theme of multi-person investment, where each investor owns a share of the enterprise and receives a share of the profits proportional to the amount they have invested. In the mercantile era, the *joint–stock company* performed this function. Some of these companies were created for single, time–limited purposes, such as a specific voyage. Others were permanent, and investors could get their capital back only by selling their shares to another person.

Many of the grievances that led to the U.S. War of Independence were grievances with the commercial arm of British power: the chartered companies. For this reason, the U.S. was slow to embrace the corporate form of business organization. As Jane Anne Morris put it: "Because they were well aware of the track record of government–chartered corporations, and because they guarded their freedom so jealously, citizens of the newly independent United States of America chartered only a handful of corporations in the several decades after independence."[12] She also quotes Justice Louis Brandeis's observation that when they did charter a corporation, the states had been cautious: "[T]he powers which the corporation might exercise in carrying out its purposes were sparingly conferred and strictly construed."[13]

As industrialization progressed on both sides of the Atlantic, the need for investment capital was ever–increasing. Railroads and bridges and cities needed to be built, and those projects required steel—steel rails, steel trusses, steel girders. The U.S. had a civil war to fight, with all the armaments and other manufactured goods that required. The corporation was the only business structure that lent itself to raising the capital needed for these massive undertakings. Complicating things further, most investors were unwilling to put their entire wealth at risk in any particular venture and began to insist that their liability be limited to the amount they had invested. As a result, laws were changed. These new laws made it easier to form a corporation and they limited shareholder liability. In England this happened in stages. An 1844 act made it possible to incorporate simply by registration, an 1850 act limited liability under certain conditions, and an 1862 act made limited liability generally available.[14]

In the U.S., the individual states had the power to issue corporate charters. In most states before the Civil War, corporations were chartered only for limited, well–defined purposes, and the charter was valid for only a limited period—not perpetuity. In Maryland, the limit for manufacturing charters was forty years; in Pennsylvania it was twenty.[15] Also, state legislatures had the power to revoke a char-

ter. In Wisconsin, corporations were prohibited from making direct or indirect political contributions, and both the legislature and the state attorney general had the right to examine corporate records.[16] In other words, during this period the issuing of corporate charters was tightly controlled, with each case being considered from the perspective of the public good.

After the Civil War, the country developed rapidly, and the pressure to issue charters for manufacturing enterprises grew dramatically. Between 1860 and 1900, invested capital increased by 970 percent, number of employees by 405 percent, and product output (in $) by 690 percent.[17] In 1886, steel production was thirty-two times what it had been in 1870, just sixteen years before.[18] And in 1901, United States Steel Corporation was formed with a capitalization of $1.3 billion—an amount greater than the $1.0 billion capitalization of the entire manufacturing sector in 1860.[19]

The country's judicial system facilitated this growth. As Grossman and Adams tell it:

> *Maintaining strong charter laws and state corporation codes was ineffective once courts started aggressively applying legal doctrines that made protection of corporations and corporate property the center of constitutional law. Following the Civil War and well into the twentieth century, appointed judges gave privilege after privilege to corporations. They freely reinterpreted the U.S. constitution and transformed common law doctrines…. [A severe] blow to citizen constitutional authority came in 1886. The Supreme Court ruled in* Santa Clara County v. Southern Pacific Railroad *that a private corporation was a "natural person" under the U.S. Constitution and thus sheltered by the Bill of Rights and the Fourteenth Amendment…. Led by New Jersey and Delaware, legislators watered down or removed citizen authority clauses. They limited the liability of corporate owners and managers then started handing out charters that literally lasted forever.*[20]

Aided by this turn of events, corporations and investors increasingly had their way. But not everyone thought this was a good thing. In an 1864 letter, Abraham Lincoln said:

> *I see in the near future a crisis approaching that unnerves me and causes me to tremble for the safety of my country. As a result of the war, corporations have been enthroned and an era of corruption in high places will follow, and the money power of the country will endeavor to prolong its reign by working upon the prejudices of the people until all wealth is aggregated in a few hands and the Republic is destroyed. I feel at this moment more anxiety for the safety of my country than ever before, even in the midst of war. God grant that my suspicions may prove groundless.*[21]

In an 1873 address to the graduating class of the University of Wisconsin Law School, the soon–to–be Chief Justice of Wisconsin's Supreme Court, Edward G. Ryan, said:

> *[There] is looming up a new and dark power…the enterprises of the country are aggregating vast corporate combinations of unexampled capital, boldly marching, not for economical conquests alone, but for political power…. The question which will arise and arise in your day, though perhaps not fully in mine, which shall rule—wealth or man; which shall lead—money or intellect; who shall fill public stations—educated and patriotic freemen, or the feudal serfs of corporate capitalism.*[22]

And in his annual message to Congress in 1888, President Grover Cleveland said: "Corporations, which should be the carefully constrained creatures of the law and the servants of the people, are fast becoming the people's masters."[23]

Adam Smith abhorred the monopolistic joint–stock companies of the mercantile era. The new capitalism he described relied on competition between myriad smallish enterprises to keep prices fair and reasonable. With the rise of large corporations, competition was greatly reduced (sometimes even eliminated), and the natural protection provided by Smith's kind of market no longer existed. Capitalists of the day continued to venerate Smith, while simultaneously ignoring or discounting this inconvenient aspect of his theory. Public out-

rage called for government intervention, which led to passage of the Sherman Antitrust Act of 1890 and the Clayton Act of 1914. These laws attempted to limit the concentration of economic power in any given industry, but with only limited success. The situation in the steel industry is telling. In 1957, the two largest steel companies in the country—United States Steel and Bethlehem Steel—together produced 45.1 percent of the nation's steel ingots. A 1958 antitrust court decision describes the resulting lack of competition:

> *There is no real price competition in the iron and steel industry. The record in this case establishes that United States Steel initiates the price changes for steel products and that its lead is followed by all other steel producers. With few exceptions, the mill price for each steel product does not vary significantly from company to company.*[24]

A second problem with free–market capitalism has been the economic instability that has accompanied it. Part of this instability has been called "the normal business cycle." It is an ongoing oscillation between more prosperous and less prosperous times which one nineteenth century observer erroneously linked to the eleven–year sunspot cycle.[25] Of greater concern are free–market capitalism's less frequent but more devastating economic collapses. Among these, one contemporary author lists the Dutch tulip craze, the Mississippi bubble in France, the South Sea bubble in Britain, the panics of 1837, 1857, 1873, 1890, 1907, and, of course, the Great Depression, which began in 1929 and lingered for more than a decade.[26]

In the U.S., the Great Depression was so devastating to so many people—and social stability so fundamentally shaken—that the society might have eventually turned to the extreme left or extreme right for a remedy. Before that happened, however, there arose a leader from the privileged stratum of American society who took on the mission of saving capitalism—although few wealthy Americans saw it that way at the time. Franklin Roosevelt did this by getting legislation passed that ensured the market economy would function not only in the interests of those who owned the enterprises and financed their operations, but also in the interests of the larger society. Many of his

New Deal programs became permanent features of American life: Social Security, the Securities and Exchange Commission, the National Labor Relations Board, and the Federal Deposit Insurance Corporation, to name a few.

During the 1930s, other nations with damaged economies also turned inward and focused their efforts on improving things at home. Most of these economies were slowly improving when along came World War II, seriously disrupting international trade and all but destroying the economies of many nations. During the war the Allies realized how the economic collapse of Germany in the 1920s and the depression of the 1930s had produced disastrous social and political consequences, and they wanted to avoid any repetition. This intention stimulated an internationalist mindset among Allied leaders. Even before the war ended, they decided to create postwar institutions that would help create worldwide political and economic stability. The United Nations (UN) would foster political stability, and the accords and institutions that came out of the 1944 Bretton Woods monetary and financial conference would foster freer trade and a stable international monetary system.

Bretton Woods established a monetary system in which the various national currencies were valued in relation to gold, but which allowed those values to be adjusted if necessary. The U.S. dollar was the key currency. It was pegged at $35 per ounce of gold, and that remained its value for international exchange purposes from 1946 to 1971. The International Monetary Fund (IMF) was created to help stabilize exchange rates by making short–term loans to cover imbalances in international payments. The International Bank for Reconstruction and Development (World Bank) was created to make long–term loans for World War II reconstruction and economic development. There was also to have been an International Trade Organization (ITO) to facilitate trade and other commercial matters, but that part of the Bretton Woods agreement was not ratified by the member states. In its place (and performing some of ITO's intended functions) came GATT, the General Agreement on Tariffs and Trade. GATT remained active until 1995, when the newly created World Trade Organization (WTO) superceded it.

For more than two decades following its creation, the Bretton Woods system served the industrial nations well. Europe quickly rebuilt its war–shattered infrastructure. The U.S. experienced the extended economic boom of the 1950s and '60s. Under the GATT umbrella, tariffs were gradually reduced and removed. The pegged–but–adjustable currency system worked. And there was economic stability on both sides of the Atlantic. Trouble arose in the late 1960s when speculators bought $3 billion worth of gold in anticipation of the devaluation of either the dollar or the pound. The currency values held, but in selling gold to defend their currencies the U.S., U.K., and several European countries drastically depleted their gold reserves.

This turned out to be the beginning of the end of the Bretton Woods monetary system. For a while, there was a two–tiered gold–pricing system. The official price of $35 an ounce was maintained for transactions between national institutions. But governments withdrew from the gold market, and for private buyers the metal was allowed to find its own price. Then, in August of 1971, President Nixon announced that the dollar would no longer be convertible to gold under any conditions. Soon, other nations unpegged and floated their currencies, and the currency–stabilizing aspect of Bretton Woods evaporated.

LATE TWENTIETH CENTURY

During the twenty years immediately following World War II, the annual rise in the U.S. cost of living hovered around 2 percent. Then in the late 1960s, it rose to 3 percent, then 4 percent, and then 5 percent. Inflation remained a problem from then until the early 1990s. Between 1970 and 1996, consumer prices in the U.S. rose 300 percent, with energy (330 percent), shelter (380 percent), and medical care (570 percent) leading the advance.[27] High interest rates accompanied inflation, and in the U.S., Canada, and other industrial nations, both government debt and debt–service costs rose dramatically during this period. In 1990, more than 25 percent of all U.S. government revenue went to pay interest on the federal debt.[28] In many other countries, the situation was even worse.

What could be done? One option, in theory at least, was to repudiate the debt. But with 79 percent of the U.S. federal debt held by U.S. creditors—commercial banks (17 percent); insurance companies (16 percent); nonprofit institutions and individuals (13 percent); and nonfinancial corporations, brokerages, and other levels of government (33 percent)—that was not a real option.[29] The approach the U.S. and most other governments took was deficit reduction.

Governments had several possible ways of going about this. They could have taxed wealth. Or they could have brought corporate and personal income taxes more nearly into balance by eliminating or reducing various corporate subsidies and tax breaks. (In 1985, corporate income taxes provided 8.4 percent of total U.S. federal revenue, while personal income taxes provided 45.6 percent.)[30] Governments never seriously considered these approaches because they were highly offensive to the governments' creditors—the wealthy individuals, banks, insurance companies, and other organizations that held the debt.

A new invisible hand had come to rest on the shoulder of governments—the invisible hand of debt. And from the late 1970s into the 1990s, neoconservative economists, financiers, and corporate leaders used the financial/social squeeze that governments were experiencing as an opportunity to sell, and ultimately to implement, their laissez–faire agenda. Only one acceptable solution to the "debt crisis" existed, according to these voices of the economic right, and that was for governments to deregulate, remove financial controls, privatize activities, remove trade barriers, cut social services, switch to user–pay and—in effect—return to a free–market, economy. Aided by big–money advertising, this message was effectively sold to electorates in most industrialized countries, and conservative politicians came to power: Reagan and Bush in the United States, Mulroney in Canada, Thatcher in England, etc.[31]

The initial effect on government debt was not what electorates expected. Not only did conservative policies fail to reduce debt, those policies—especially tax reduction—dramatically increased it. When New Zealand's free–market revolution began in 1984, that country's debt was $12 billion. In 1995, it had risen to $67 billion.[32] Between

1985 and 1995, the U.S. debt almost doubled—from $2.6 trillion to $5.0 trillion, in constant 1995 dollars.[33] The conservative governments of the 1980s eventually addressed the deficit problem, and this deficit-reduction focus was maintained by the governments that replaced them. Deficits began to fall in the mid-1990s, and in 1998, both Canada and the United States finally experienced zero–deficit fiscal years. The debt itself is still there, of course, and considerable government revenue still goes to service it.

In 2001, it looked as though this unfortunate period in economic history might repeat itself, at least in the United States. A few months after taking office, the George W. Bush administration passed a $1.35 trillion tax cut that, according to one analyst, gives 35 percent of the benefits to the top 1 percent of taxpayers.[34] The Bush Administration justified the multiyear plan on the basis of large anticipated surpluses—despite an economic downturn that, if it persisted or worsened, threatened to evaporate those surpluses.[35] That downturn did persist and worsen. The surplus did evaporate. And deficits returned.

In 2003, Bush proposed additional tax cuts totaling $726 billion. This plan was strongly opposed by many prominent economists including ten Nobel prize winners. In their statement of opposition they said the purpose of the Bush plan was not "jobs and growth in the near-term," as Bush contended, but "is a permanent change in the tax structure." Furthermore, it will add to the "nation's projected chronic deficits," "will reduce the capacity of the government to finance Social Security and Medicare," and "will generate further inequalities in after-tax income."[36] In the end, Congress pleased the President with a $350 billion package having "sunset" clauses that if extended could bring the total to $800 billion or more. At the same time, knowing that these tax cuts and the previous ones would have to be paid for with borrowed money, Congress increased the U.S. national debt limit by a record $984 billion to $7.4 trillion.

During the 1980s and 1990s, major changes were also taking place in the world of publicly traded corporations. One thread of change concerned the perceived purpose of the corporation. Making money has always been part of it, but during the first half of the century the corporate vision also included a sense of social relevance

and social responsibility. Henry Ford wanted to make money, but he envisioned ordinary people owning cars, and he paid his employees higher than ordinary wages so they could afford to buy what they produced. Thomas Watson wanted to make money, but he built country clubs for IBM employees and arranged the corporation's affairs so that even in slack times, no employee would need to be laid off. George Eastman wanted to make money, but he also wanted to make photography accessible to everyone, and he was one of the first to share company profits with his employees. Almost everywhere, there was an implicit agreement between companies and their employees: Work hard, be loyal to the company, and as long as the company is doing well, you will keep your job. For corporate stock-holders during this period, the focus was on earnings. Investors bought AT&T and other "blue chip" stocks because they provided reliable quarterly dividends, not because the value of the shares was likely to rise.

In the 1980s and '90s, corporations found ways to give investors something more valuable than dividend income. By changing the way they operated, they could offer investors rising share price—and therefore *capital gains* (which are taxed at a lower rate), rather than just income. Mergers and acquisitions provided one technique for making this happen. To merge with another company or to acquire it meant getting larger. More important, it usually meant reduced competition, increased market share, and the perception on the part of investors of improved profitability. If that happened, share price went up. Down-sizing offered a second technique—doing the same job with fewer people. Offshore production was a third—doing the job with less–expensive people. Investors loved this new approach, and during the 1990s, stock market indices all over the world rose dramatically. In the process, large publicly held corporations became single–purpose machines—equipped and programmed to maximize share value.

There is nothing intrinsically wrong with taking steps to reduce costs, improve profitability, and boost share price. What many people have objected to is the enthronement of high share price as the *domi-nant* corporate value—the value that always takes precedence when a conflict arises between it and any other value. In the financial climate

of the 1990s, the CEOs of publicly held, large–capitalization corporations faced a carved–in–stone rule of the game: *Do whatever it takes to keep share price rising at the rate of 15 to 20 percent per year. If you don't do that, you're gone. If, however, you manage to do it, you will be handsomely rewarded.* Handsomely, indeed. A 1999 *Business Week* article reported: "Thanks to a pay structure that has linked most executive compensation to the stock market through huge option grants, the head honcho at a large public company made an average $10.6 million last year. That's a 36 percent hike over 1997—and an astounding 442 percent increase over the average paycheck of $2 million pocketed in 1990." The article also mentioned that the pay of the average U.S. blue–collar worker rose 2.7 percent during the same period.[37] Elsewhere, we learn that the *ratio* of CEO pay to factory worker pay climbed from $41/$1 in 1960 to $419/$1 in 1998.[38]

In the new financial climate, the CEOs of large corporations no longer held the kind of discretionary power that CEOs of an earlier era took for granted. Nothing that could hurt share price was allowed. As a consequence, many CEOs caused their corporations to renege on the traditional "work hard, be loyal, and you'll have a job here" agreement and to downsize. Many moved plants out of high–wage areas to low–wage areas or offshore. CEOs and their hired accounting firms used "aggressive" (sometimes illegal) accounting practices to create financial statements that misled analysts and investors about the financial health of the company. And if environmental considerations put profits and share price at risk, CEOs often took steps to avoid environmental responsibilities and costs.

Billionaire financier George Soros assessed the situation this way:

> *Corporations do not aim at creating employment; they employ people (as few and as cheaply as possible) to make profits. Health care companies are not in business to save lives; they provide health care to make profits. Oil companies do not seek to protect the environment except to meet regulations or to protect their public image. Full employment, affordable medicine, and a healthy environment may, under certain circumstances, turn out to be the*

by–products of market processes, but such welcome social out-comes cannot be guaranteed by the profit principle alone. The in-visible hand cannot adjudicate over interests that do not come under its jurisdiction.[39]

Some years before, historian Lewis Mumford attributed bad corporate ethics to the nature of capitalism itself:

The capitalist scheme of values in fact transformed five of the seven deadly sins of Christianity—pride, envy, greed, avarice, and lust—into positive social virtues, treating them as necessary incentives to all economic enterprise; while the cardinal virtues, beginning with love and humility, were rejected as "bad for business"….[40]

Central to the new corporate/financial agenda was the globalization of all markets—markets for goods, labor, and capital—and freeing these markets as completely as possible from onerous government regulations. The Uruguay Round of GATT negotiations (1986 to 1994) furthered the free flow of goods and services through lower tariffs on industrial goods, reduced agricultural subsidies, and new agreements on trade in services.[41] In 1995, GATT was replaced by the WTO, whose job it is to see that the new global trading regime works as its designers intended. It does this by monitoring and regulating the 90 percent of world trade carried on by its 125 member nations and by settling disputes between members in secret judicial proceedings. (The public is not only barred from attending hearings, it is, in general, not allowed to see legal briefs, supporting evidence, or transcripts.)[42]

In North America, a Canada/U.S. free–trade agreement (FTA) was concluded in 1988, followed by a more comprehensive Canada/U.S./Mexico agreement (NAFTA) that went into effect in 1995. Though termed a free–trade agreement, NAFTA is much more than that. The agreement eliminates most barriers to foreign ownership and in other ways sets the stage for economic colonization of the weaker economies of Canada and Mexico by powerful U.S.–based interests.

The forces of economic globalization could not globalize the labor market directly. Although billions of people in the world were willing to work for very little income, the doors of the industrial nations remained closed to all but a few of them. The answer lay in using the mobility of capital to compensate for the immobility of labor; transnational corporations simply moved capital to those countries that had the cheap labor and set up factories there.

From a neoconservative economic perspective, corporations have taken the high road in all this. They have only been doing what they are supposed to do: make money and increase share value. Yet from the perspective of society as a whole, these new corporate behaviors have had some profoundly negative social and environmental consequences. Take corporate downsizing, for example. In the United States from 1990 through 1996, three million jobs were lost to corporate downsizing.[43] In other countries, the losses have been proportionally much greater. Australia, for instance, has only one-fourteenth the population of the U.S., yet during the twelve years from 1986 through 1997, 3.3 million full–time Australian workers lost their jobs due to downsizing.[44] Making more money while minimizing the number of employees is clearly part of the current corporate game, and those who are good at it are very good at it. According to David Korten: "In 1995, the combined sales of the world's top 200 corporations equaled 28 percent of total world GDP. Yet, these corporations employed only 18.8 million people, less than one–third of 1 percent of the world's population."[45]

Everywhere, those who lost jobs have had major readjustments to face. And life has not been all that pleasant for those who kept their jobs. Those who remain are usually expected to do more work than before. And having seen what has happened to their former coworkers, they live with a certain uneasiness. Although financial markets responded positively to downsizing, the general public reacted negatively. In a 1996 Canadian survey, 77 percent of respondents felt that it is "not acceptable for large companies to lay people off while making high profits."[46]

At the same time that transnational corporations were eliminating jobs in the industrial nations, they were creating new jobs in

developing countries. The world's 44,000 transnational corporations have roughly 280,000 foreign affiliates, and in 1995, these affiliates produced goods and services valued at $7 trillion.[47] Of those affiliates, 130,000 are located in developing countries.[48] Is this a giant step toward global economic equality, or is it something else?

William Greider put it well:

> In the broader sweep of human history, redistributing the world's industrial structure among many new nations may eventually be understood as a great act of economic justice—sharing not only jobs and incomes, but also capitalism's power of wealth creation. But in the here and now, this process adds stress to the accumulating social and economic contradictions.[49]

In a few developing countries—South Korea and Taiwan being the best examples—the incomes and standard of living of production workers have improved substantially in recent years. Today, average South Koreans and Taiwanese are significant consumers as well as producers. In other developing nations, such as Thailand, China, and Vietnam, this has not happened to anything like the same extent. In those countries, government policies forbid totally free trade unions, open protest, and other measures that might lead to improved working conditions and higher–than–subsistence wages. These are the so–called "producer economies," organized to produce goods for industrial–nation consumer markets at the lowest possible labor cost— both today and tomorrow.

Technology–facilitated downsizing and the transfer of manufacturing work offshore have placed a special burden on the lowest–paid workers in industrial countries. As plants modernized and introduced new high–tech manufacturing processes, many low–skill jobs were eliminated forever. But despite the fact that production workers must now be more highly skilled than in the past, their real wages have declined. In the twenty-five years from 1948 to 1973, a production worker's average hourly wage (adjusted for inflation) rose 64 percent. In the twenty-five years from 1973 to 1998, it fell 1 percent.[50] In contrast, real incomes in the highly paid sectors of the economy have increased substantially. Edward N. Wolff, professor of economics at

New York University, reports that "forty-seven percent of the total real income gain between 1983 and 1998 accrued to the top 1 percent of income recipients, 42 percent went to the next 19 percent, and 12 percent accrued to the bottom 80 percent."[51] In late 2000, economist Jared Bernstein commented: "One begins to worry that inequality has stabilized at a historically high level. I don't see any good reason in an economy as strong as ours, at this point in the business cycle, why we don't seem to be nudging income inequality down."[52]

This shift in the distribution of income has been paralleled by a shift in the distribution of wealth. According to Wolff, in 1983 the richest 1 percent of U.S. families held 33.7 percent of the wealth, while the poorest 80 percent of families held 18.7 percent. By 1989, the wealth of the top 1 percent had risen to 38.9 percent, and the wealth of the bottom 80 percent had dropped to 15.4 percent.[53] If only financial wealth is taken into account, the 1989 figures become 48 percent and 6 percent, respectively.[54] During the 1990s, the stock market boom further benefited the wealthy. According to the IRS, capital gains income rose from $163 billion in 1993 to $427 billion in 1998, and as the *New York Times* noted, "the great bulk of those earnings went to tax filers with incomes over $200,000."[55]

Tax policies that allow corporations to avoid shouldering their fair share of the overall tax burden also contribute to economic inequity. The official U.S. corporate tax rate is 35 percent—quite possibly a fair rate. But because lawmakers included a subtext of credits and special conditions in corporate tax legislation, many corporations pay far less. In fact, some of America's largest, richest corporations have years when they pay no taxes at all, despite reporting large profits to their shareholders during those same years. The *New York Times* reported on a study of taxes paid by 250 large, publicly traded companies from 1996 through 1998. A dozen of those corporations—including Goodyear, Texaco, Colgate–Palmolive, and MCI–WorldCom—earned more than $12.2 billion in profits during that period but paid no taxes at all. Instead, this group of companies received $535 million in credits and refunds. The report noted that forty-one companies paid no taxes in at least one of the three years, while reporting $25.8 billion in profits to their shareholders for those

years. Instead of paying $9 billion in taxes, as they would have at the 35 percent rate, the forty-one companies received $3.2 billion in refunds.[56]

FINANCE CAPITALISM

The globalization of markets for *goods* and of markets for *labor* represent two of the three steps needed for complete economic globalization. The globalization of *capital* markets and the elimination of barriers to foreign ownership is the third. At times in the past, capital was largely free to move where it wanted to move and to do what it wanted to do. The free–market era of the late nineteenth and early twentieth centuries was one of those periods. Following the 1929 crash, national governments instituted a variety of domestic regulations designed to dampen speculative investment and to restore confidence, but a new *international* regime didn't arise until after World War II, when the Bretton Woods accords went into effect. As we have seen, under this regime currencies were backed by gold, and destabilizing imbalances in international payments were reduced or eliminated by short–term loans from the newly created International Monetary Fund.[57] The accords also allowed member nations to control the flow of capital in and out of their countries.[58] This created a climate of investment stability in which capital tended to stay at home, and the nation–state was, to a much greater extent than today, in control of its own economy.

Before going deeper into this issue of global finance, we need to differentiate between enterprise investment and speculative trading. Enterprise capital is new money that actually goes to build factories, to purchase production equipment, and to erect office buildings. Speculative trading involves money "on the move," money used to "play the market," money invested (often for relatively short periods) in the hope of making more money by guessing right about what some stock, bond, commodity, currency, or derivative will do next. Society clearly benefits from the first. But does it benefit from the second? David Korten has pointed out that speculative finance can put inflated claims on society's real wealth: "[Finance capitalism's] sole objective is to increase the total *market value* of traded securities,

which serves only to create a temporary financial bubble that increases the claims of those who hold these securities against the society's real wealth."[59] Speculative finance also creates market instability, unreasonable and unsustainable expectations among investors, booms and busts, bubbles and the collapse of bubbles. When the inevitable collapses occur, whole societies suffer.

Speculators like to speculate and will do so if given the opportunity. Speculative finance, however, requires a regulatory atmosphere that allows it. In the early twentieth century, that atmosphere existed, and especially in the late 1920s, speculation flourished. During the Bretton Woods era, speculative tendencies were seriously dampened by the Bretton Woods mechanisms themselves and by post–Depression government policies that encouraged enterprise capitalism and discouraged speculation. Gambling of all kinds was looked down upon in those days: slot machines, "numbers racket" lotteries, and the socially risky game of speculative finance. With the collapse of Bretton Woods and the push by business for free markets and deregulation, the most onerous restrictions on speculative finance were gradually removed. Simultaneously, the whole idea of gambling gradually became respectable—to the point that governments themselves began running lotteries and casinos. With the regulatory lid off and gambling respectable, it is little wonder that speculation once again flourishes. And once again, the economic structures of whole societies are at risk.

The magnitude of this speculation is astonishing. In 1992, new stock issues in the U.S. totaled $26.8 billion. This is "enterprise capital," capital that goes to create something new and real in the world. That same year, the trading in all U.S. stocks totaled $3.1 trillion. Subtract $26.8 billion from that, and we have the value of the speculative trading in stocks—something like $3.07 trillion. During that year, the buying and selling that made or lost money for the trader but did not create anything new and real was 114 times greater than the enterprise capital figure. And there is nothing special about stocks. For corporate bonds, the ratio was 122 to one. For U.S. government securities, it was 169 to one.[60] And those figures are for the U.S. only.

Currency speculators often get rich (quite legally) by taking money out of national treasuries when governments make unsuccessful attempts to support their currencies. George Soros made $1.6 billion in 1992 out of Britain's unsuccessful attempt to maintain the value of the pound sterling.[61] Economist Michel Chossudovsky claims that during the 1997 Asian economic crisis "more than 100 billion dollars of Asia's hard currency reserves had been confiscated and transferred (in a matter of months) into private financial hands."[62] Soros admits that his hedge fund also participated in these Asian activities, but considers currency speculation to be amoral rather than immoral, because the existing rules of financial trading allow it. On the other hand, he recognizes that the existing rules are not in society's interest and feels they must be changed. In his book *The Crisis of Global Capitalism,* he says: "Market forces, if they are given complete authority even in the purely economic and financial arenas, produce chaos…. At present there is a terrific imbalance between individual decision making as expressed in markets and collective decision making as expressed in politics. We have a global economy without a global society. The situation is untenable."[63]

Aspects of the present situation that support the need to reign in speculative finance include:

Illegitimate claims "against society's real wealth" that inflated stock values represent. The accelerated growth of these claims is quite disturbing. In late 1998 David Korten reported that, "a study by McKinsey and Company found that since 1980, the financial assets of the OECD countries grew at two to three times the rate of growth in gross domestic product (GDP)." He went on to say: "This means that potential claims on economic output are growing from two to three times faster than the growth in output of the things that money might be used to buy."[64]

The sheer magnitude of worldwide trading activity. Speculative financial trading is estimated at $4 trillion per day, if all markets are taken into account.[65] On a normal day in a bull market, ups and downs tend to average out. But when opti-

mism flags, confidence evaporates, and a bailout mentality becomes widespread, the sheer volume of trading is such that a lot of damage can occur in a very short time.

The speed at which trading takes place. Global finance carries on its transactions electronically via several electronic funds–transfer systems. SWIFT, the Society for Worldwide Interbank Financial Telecommunication, connects 5,800 financial institutions in 154 countries and transfers $2 trillion per day.[66] SWIFT interconnects with two U.S. based networks; CHIPS; a clearinghouse system with 103 member banks in twenty-nine countries; and Fedwire, a 15,000–bank network operated by the Federal Reserve System.[67] When the high transactional speed provided by these systems is coupled with the computer–programmed buy/sell regimes utilized by banks, brokerage houses, and other major players, it can amplify market blips, and negative things can happen in a real hurry.

Of special concern are foreign exchange transactions. William Greider notes, "[C]urrency was the first financial asset to be fully liberated, starting…when the old Bretton Woods system of fixed exchange rates for currencies was abandoned. In those days the foreign–exchange market existed mainly to facilitate commercial trade and its size was trivial—a turnover of $10 billion to $20 billion a day, compared to $1,200 billion a day two decades later."[68] Clearly, a large percentage of today's foreign exchange trading involves currency speculation, that is, making money by intuiting correctly what will happen in currency markets tomorrow, or an hour from now. For a nation to defend the value of its currency against capital flight or currency speculation, its central bank must be willing and able to buy large amounts of its own currency. Today, no national government holds more than a fraction of the currency reserves needed to fight a group of speculators intent on driving down the value of its currency. With today's fast–as–light, yet unregulated, currency–exchange market, whole national economies can be brought to their knees in a matter of

days or even hours. During the Asian financial crisis of 1997, several were.

The lack of restraints on withdrawal of capital. Most observers agree that overt manipulation of currencies by experts at that game contributed to the fall of Asian currency values in 1997. Worsening the situation was the rapid flight of capital from those countries by scared investors who were selling their stocks, bonds, and other financial instruments as quickly as possible and getting their money out of the country. The same thing happened in connection with the bursting of the Mexican bubble in December 1994 and the Russian collapse in 1998. Behavior of this kind is hardly conducive to creating a strong, stable global economy.

The debt–financed nature of much speculative trading. One of the reasons for the crash of 1929 was that people were buying stock on margin, that is, with borrowed money and as little as 5 percent down. Although the percentage required up front is higher today, trading on margin still puts individuals at risk of losing more than they can afford to lose. And when debt–financed traders are wiped out, entire creditor institutions can go with them.

Financial industry "bullish" hype. Bullish stock markets are based in part on optimism that stock values will continue to rise in the future. When there is a giant industry of financial corporations, traders, and firms whose stock is being traded, news media owned by tycoons, etc.—all with a vested interest in keeping boom times going—optimism invariably overshoots reality. As a result, boom markets become artificially prolonged, with stock prices rising more than economic fundamentals warrant. Eventually, some uneasiness sets in as unreasonably large price–to–earnings ratios and other phenomena are noted and a few warnings sound. These warnings are immediately countered by arguments that the "old" fundamentals no longer apply and this will be a "long boom,"[69]

extending perhaps for decades. For a while, the boom does continue. Then, a cluster of events take place that undermine the overextended, misplaced confidence; the pendulum swings from optimism to pessimism; and the house of cards falls. Again, innocent people get hurt, and the farther from reality the bullish hype has taken the market, the deeper that hurt.

Promotion of consumer debt by the finance industry. The maintenance of boom economies and bull markets requires high levels of consumption. Inducing people to go into debt to make purchases they couldn't otherwise afford to make can extend the duration of economic booms. To help make this happen, the financial industry has offered easy–credit inducements, such as multiple credit cards and home–equity loans. This works only in the short run. Just as people have income limits, they also have credit limits. And as they reach those limits, buying frenzies and the economic booms that go with them inevitably end. When the bubble finally bursts, people with major consumer debt suffer more than those who had decided to fund their consumption via income and savings. Debt–promotion activities have been going on for some time now, and the danger signals are there to see. A 1997 study by the Consumer Federation of America revealed that the credit card debt of some 56 to 60 million households exceeds $6,000, with interest and fees on that debt exceeding $1,000 per year.[70] The lowest–income families are in the most precarious position. Almost 27 percent of families earning less than $10,000 per year have debt loads that absorb more than 40 percent of their income.[71] And 31 percent of families making less than $50,000 per year "hardly ever paid off the balance" on their credit cards.[72]

As much as international finance has come to dominate our lives, the financial powers–that–be want still more. The new trade agreements deal adequately with the sale of commodities, manufactured goods, services, and intellectual property across national borders, but have not given the financial community everything on its

wish list. Many countries already have bilateral investment treaties (BITs) with other countries "for the protection and promotion of investment," as one UN document puts it. In January of 1997, there were 1,330 of these treaties, involving 162 countries.[73] These agreements facilitate the transnational financial agenda, but what the financial community really wants is a global agreement that allows it to operate as it wishes, anywhere and everywhere, with no fetters at all. In April 1995, a committee of the Organization for Economic Cooperation and Development (OECD) began quietly working on such an agreement: the Multilateral Agreement on Investment, or MAI for short.

One opponent of the Agreement called the MAI "a fast track initiative to institute as absolute, transnational law a regulatory framework which overrides all national, regional and municipal jurisdictions whenever they conflict with unconditional corporate ownership of and market access to home economies."[74] A joint statement of 568 nongovernmental organizations from sixty-eight countries expressed similar objections:

> *The [January 1997] draft MAI is completely unbalanced. It elevates the rights of investors far above those of governments, local communities, citizens, workers, and the environment…. Problems with the MAI stem both from the broad restrictions it places on national democratic action, and from its failure to include sufficient new systems of international regulation and accountability…. The MAI contains no binding, enforceable obligations for corporate conduct concerning the environment, labour standards, and anti-competitive behavior [and is] explicitly designed to make it easier for investors to move capital, including production facilities, from one county to another; despite evidence that increased capital mobility disproportionately benefits multinational corporations at the expense of most of the world's people.[75]*

France pulled out of the OECD discussions in 1998. This took the MAI off the fast track, but its proponents have not given up. "Now, the same financial special interests are trying to slip a new form of the MAI into the WTO and to change the IMF charter to

prevent countries from imposing capital controls," reports economist Hazel Henderson.[76]

THE ROGUE SYSTEM DOMINATING OUR LIVES

Societal systems were created to help people survive, and one of society's tasks has always been that of provisioning its members with the physical necessities of life. In the beginning, this activity was closely integrated with other societal activities. When societies became large and complex, however, they spawned separate subsystems to handle the provisioning: *economies*. The holonic order here is important: Society is the whole; economy is the part. Society is the primary entity; economy is the secondary, subordinate entity. Society is the dog; economy is the tail.

Yet, during the last quarter of the twentieth century international finance and transnational corporations undertook a determined and largely successful effort to switch things around and to have the tail wag the dog. These forces succeeded in establishing largely unregulated goods, labor, and financial markets—electronically enhanced versions of laissez–faire markets that existed in the past. Some regulation remains, but as in the mercantile era and the late nineteenth century, much of it is corporate–friendly and finance–friendly. The economic powers–that–be have no objection to government laws and regulations that facilitate their agendas. In fact, the corporate and financial communities demand business–friendly laws, and they financially support candidates who implement them. The result is an inhumane economic system linked through pernicious flows of money to a tainted political system—a destructive combination that ensures global finance and transnational business will continue to dominate our lives and to bypass human needs as long as those money–impregnated feedback loops remain in place.

The nature of this economic/political interplay was put into bold relief during the first few months of George W. Bush's presidency. In the past, U.S. presidents had usually tempered their gifts to business and finance with something for ordinary people—but not this time. President Bush faced a set of win–lose issues that pitted long–term human and ecological well–being against the short–term interests of

business and finance—and time after time he chose the interests of business. You may recall that in a move which European leaders termed "irresponsible," "arrogant," and "sabotage," the President repudiated the Kyoto Agreement to reduce carbon dioxide (CO_2) emissions. He did this, despite consensus among more than 100 national governments that it represents our best chance for avoiding negative climatic consequences for our grandchildren.[77] He proposed a change in regulations that would permit new roads to be built in national forests, despite "the overwhelming majority" of 1.6 million comments on the issue that "supported protecting roadless areas."[78] He proposed drilling for oil and natural gas in Alaska's Arctic National Wildlife Refuge, despite widespread environmental concern and some 69 percent of respondents in a recent poll saying, "the government gives in to businesses on environmental issues."[79] His EPA administrator refused to implement the lower limits on the amount of arsenic acceptable in drinking water "proposed by highly regarded scientists after extended study" and approved by the Clinton administration.[80] His Vice President proposed an energy policy that advocated the building of one new power plant a week for the next twenty years and gave low priority to conservation.[81] And the list goes on.

It has been said that all politicians have wealthy benefactors. And the sad truth is that the influx of big money into politics has all but destroyed democracy in the United States. The corporate and financial communities demand business-friendly laws, and they spend large amounts of money in three ways to see that they get them. First, they and their senior employees make big contributions to the major parties and to individual business–friendly candidates. Second, they participate in intensive lobbying. Industry lobbyists don't hesitate to remind politicians of the financial support they have received. They openly or subtly use this leverage to get what the corporations want. (Enron even had a computer program which analyzed the effect on the company's bottom line of proposed changes in laws and regulations. This guided their decisions about when and where to apply lobbying pressure.[82]) Third, large corporations can afford protracted legal battles aimed at overturning laws and regulations they don't want. At some level people understand what is going on. Why else

would almost half of voting age Americans fail to vote in presidential elections, and nearly two-thirds stay away in off-year elections? It's hard to value a democratic process that really isn't one.

What has developed through almost three decades of economic deregulation, treaty making, and globalization is a gross and ultimately unsatisfactory power imbalance. When we contrast human society with its economic systems, it is clear that human society is the fundamental, essential, legitimate reality. Economic systems are useful but subordinate realities—societal subsystems created at the pleasure of society to help society's members meet their provisioning needs. Yet, that is not the situation that exists today. The agendas of big finance and big enterprise have come to override and to replace social agendas. Subsystem now dominates system. Creation dominates creator. Servant dominates master.

There is a certain irony in all this. Back in 1776, the people of the United States declared themselves independent of the old regime and freed themselves from domination by the economic power wielders of that day. As pointed out earlier, decisions were then being made, not by some autocrat, but by groups of people chosen *for* their abilities and *by* the mass of ordinary people. Certain rights and freedoms were guaranteed. Politics and economics were separated, and economics was where it belonged—in the hands of small players. No more trading monopolies. No more guild control over manufacturing activities. The era of political/economic absolutism had ended. Guess what? Economic absolutism is back—brought to you by people who talk the talk—but fail to walk the walk—of American revolutionary ideals.

Today, few doubt that the economic system we live with in this new century will be some form of market economy. But, as Korten and many others see it, it needs to be a market economy in which "investment is about creating and renewing productive capacity to meet future needs," not one dominated by finance capitalism, where "investment is about making money… [and] …the inflation of financial assets."[83] **The economy of the future must serve social needs wherever it functions, must respect inherent biospheric limits—and must take the long view.** It seems unlikely that present eco-

nomic forces will move in this direction unless compelled to do so. Fortunately, that help is available. There is growing clarity about the social and ecological imperatives, not only by people outside the business community, but also by at least some people within it. Both groups have put forth proposals that could facilitate, and be part of, the needed transformation. We examine some of these in **Part IV**.

Notes

[1] Polanyi, 1944, p. 163. Polanyi supports his contention with references to:

   Mair, L.P., 1934, *An African People in the Twentieth Century.*

   Loeb, E.M., 1936, "The Distribution and Function of Money in Early Society," in *Essays in Anthropology.*

   Herskovits, M.J., 1940, *The Economic Life of Primitive Peoples.*

In those unusual cases in which food sources have permanently disappeared, the results have not been pretty. We know, for example, that several decades after losing their traditional hunting grounds, the culture of the Ik people of northern Uganda turned very ugly. Social cooperation (even among husbands, wives, and their children) no longer existed, and on their way to an early death everyone became a hateful, self–centered survivalist (Turnbull, 1972).

[2] See, for example, Cameron, 1997, pp. 157, 161–62.

[3] Cameron, 1997, p. 212.

[4] In the beginning, some rights were selective. At first, for example, only free, property–owning males could vote. We also recall that various founders of the United States (including Washington and Jefferson) owned slaves, and that slavery remained legal in the U.S. until 1865. In fact, the right of former slaves to vote was not guaranteed until 1870. Women did not have the right to vote until 1920 and are still not guaranteed rights equal to men under the U.S. Constitution.

[5] Heilbroner, 1997.

[6] Cameron, 1997, p. 213.

[7] Kuznets, 1966, p. 9.

[8] "Whitney, Ely," BCD98, 1997.

[9] Heilbroner, 1972, p. 126.

[10] All quotes are from Stewart, 2000, Chapter 16. Check: http://www4.tpg.com.au/users/jes999/.

[11] Smith, 1937, pp. 709–10, as quoted in Heilbroner, 1992, p. 44.

[12] Morris, 1996a.

[13] Justice Louis Brandeis in Liggett v. Lee, 1933, 288, U.S. 517 as quoted in Morris, 1996a.

[14] Cameron, 1997, p. 213.

[15] Grossman and Adams, 1996, p. 378.

[16] Morris, 1996a.

[17] Greenleaf, 1968, p. 265.

[18] Greenleaf, 1968, p. 136.

[19] Heilbroner, 1972, p. 229 and Greenleaf, 1968, p. 265.

[20] Grossman and Adams, 1996, pp. 383–85.

[21] A 21 November 1864, letter to Col. William F. Elkins, quoted in Shaw, 1950, p. 40.

[22] Beitzinger, 1960, pp. 115–116, quoted in Morris, 1996a.

[23] Cleveland, 1888, pp. 773–4, quoted in Morris, 1996a.

[24] United States vs. Bethlehem Steel Corporation et al., 1958, 168 Fed. Supp. 576, quoted in Greenleaf, 1968, p. 207.

[25] Heilbroner, 1972, p. 255.

[26] Mead, 1998, p. 97.

[27] *Statistical Abstract of the United States*, 1997, p. 487.

[28] *Statistical Abstract of the United States*, 1997, pp. 333, 337.

[29] The figures are from Greider, 1997, p. 492.

[30] *Statistical Abstract of the United States*, 1997, p. 333.

[31] For the fascinating story of how this was accomplished in Canada, see McQuaig, 1998.

[32] Reported in "The Remaking of New Zealand: Part 1," Canadian Broadcasting Company, *Ideas*, 26 October 1995.

[33] Derived from *Statistical Abstract of the United States,* 1997, pp. 340, 487.

[34] Stevenson, 2001a, and Francis, 2001.

[35] Stevenson, 2001b.

[36] The economists' statement, which appeared in an advertisement in the *New York Times* on 10 February 2003 was read on 11 February 2003 at:
http://www.epinet.org/stmt/2003/statement_signed.pdf

[37] Reingold and Grover, 1999.

[38] Anderson, et al., 1999, "Annual Reports on Executive Pay," *Business Week.*

[39] Soros, 1998, pp. 205–06.

[40] Mumford, *Technics and Human Development*, p. 276, as quoted in Bahro, 1994.

41 GATT data from *General Agreement on Tariffs and Trade*, BCD 98, 1997.

42 Greenhouse, 1999a.

43 Thurow, 1996, p. 26.

44 Cleary, 1997.

45 From a November 1998 talk by David C. Korten, "Life After Capitalism." Check: http://iisd.ca/pcdf/1998/capitalism.htm.

46 "Public Perspectives on Corporate Responsibility," a National Angus Reid/ Southam News Poll, 29 March 1996. Read at: http://www.angusreid.com/pressrel/corpresp.html.

47 United Nations Conference on Trade and Development (UNCTAD), 1997, p. 1.

48 United Nations Conference on Trade and Development (UNCTAD), 1997, p. 3, Table 2.

49 Greider, 1997, p. 123.

50 Derived from U.S. Department of Labor database information—reference series ID numbers EES30000060 and CUUR0000AA0.

51 From Wolff's book *Top Heavy*, as quoted in Stille, 2001.

52 Quoted in Holmes, 2000.

53 Wolff, 1995a, Figure 4. Author's [Wolff's] computations from the 1993 and 1989 *Survey of Consumer Finances*; Kennickell and Starr–McCluer, 1994.

54 Greider, 1997, p. 309, quoting figures from Wolff, 1995b.

55 Holmes, 2000.

56 Johnston, 2000.

57 Bretton Woods conference, BCD98, 1997.

58 Dillon, 1997, p. 91.

59 Korten, 1999, p. 58.

60 The numerical data is from *The Nation*, 9 May 1994, p. 624, quoted in Dillon, 1997, p. 21.

61 Chossudovsky, 1998. Michel Chossudovsky is Professor of Economics at the University of Ottawa.

62 Chossudovsky, 1998.

63 Soros, 1998, pp. xxvii, xxix.

64 The quotes are from a November 1998 talk by David C. Korten, "Life After Capitalism." Check: http://iisd.ca/pcdf/1998/capitalism.htm.

65 Dillon, 1997, p. 2.

66 "Swift Way to Move Money," *Business Times*, 28 September 1997.

67 "Remote Banking Standards: Style or Substance," an Infosys Technologies white paper. Read at:
http://www.bankaway.com/white_papers/remote.html.

68 Greider, 1997, p. 243.

69 Two examples: an article that appeared in the 1 September 1997 issue of *Barron's,* "The Long Boom," and the Glassman and Hassett book *Dow 36,000: The New Strategy for Profiting from the Coming Rise in the Stock Market,* September 1999.

70 As quoted in Rifkin, 2000, p. 39. (The original report is Brobeck, 1997.)

71 *Statistical Abstract of the United States*, 1997, p. 514, Table 782.

72 *Statistical Abstract of the United States*, 1997, p. 520, Table 800.

73 United Nations Conference on Trade and Development (UNCTAD), 1997.

74 McMurtry, 1998. Read at http://www.ratical.com/corporations/MAIcorpPlan.html.

75 "Joint NGO Statement on the Multilateral Agreement on Investment to the Organization for Economic Cooperation and Development," 12 February 1998. Read at http://users.mildura.net.au/mwight/durbin01.htm.

76 Henderson, 1998.

77 Edmund L. Andrews, "Bush Angers Europe by Eroding Pact on Warming," *The New York Times*, 1 April 2001.

78 Anthony Lewis, "The Feeling of a Coup," *The New York Times*, 31 March 2001.

79 "Energy Secretary Backs Domestic Drilling, Warns of Energy Crunch," CNN.com, 2 April 2001.

80 Anthony Lewis. "The Feeling of a Coup," *The New York Times*, 31 March 2001.

81 Egan, 2001.

82 Stephens, 2002.

83 Quotes from Korten, 1999, pp. 59, 73.

Biospheric Context

The last of the Earth–bound contextual realities we will look at is the global life system—the biosphere. It occupies a thin, almost spherical layer at the surface of the Earth, extending somewhat below and somewhat above the surface. It is partially coextensive with four other "spheres": the Earth's crust, or *lithosphere*; the *hydrosphere*, which includes oceans, lakes, rivers, aquifers, and atmospheric water; the gaseous *atmosphere*; and the human *sociosphere*. As we might expect, physical interactions take place between all five of these realms of activity. The biospheric holon—the biosphere as global life–system—influences its biological and physical components, and it is, in turn, influenced by everything physical and biological that goes on within it.

Let's begin with a look at some key relationships between biosphere, atmosphere, hydrosphere, and lithosphere—as well as at relationships within the biosphere. We'll then move on to the relationship between the human sociosphere and these other spheres.

Neglecting water vapor, the air we breathe consists of about 78 percent nitrogen, 21 percent oxygen, 1 percent argon, 0.036 percent carbon dioxide, and small concentrations of many other gases. It turns out that these proportions were established by biological activity and continue to be regulated by it. For example, just below the ocean's surface live vast numbers of microscopic phytoplankton, which capture the sun's energy. In the process, they draw carbon dioxide from the air, use the carbon to make tiny calcium carbonate

(chalk) shells, and release oxygen back into the atmosphere. When the plankton die, their chalky skeletons fall to the ocean bottom and form sediments in which a large amount of carbon is locked up, or *sequestered.* Terrestrial plant life also pulls carbon dioxide from the air and puts back oxygen, but the carbon sequestered in wood and other plant fiber is held there only temporarily. When vegetation burns or is decomposed by microorganisms, its carbon returns to the atmosphere. At various times in our evolutionary past, sediment–covered forests effectively sequestered their carbon for millions of years. Depending on conditions, the trapped vegetation became coal, oil, or natural gas. As we know, when we take these fossil fuels from the ground and burn them, the carbon goes back into the atmosphere as CO_2.

If the percentage of oxygen was to rise much above 21 percent, large amounts of the Earth's vegetation would be at risk of catching fire. As it turns out, animal life helps to keep this from happening. Animals remove oxygen directly from the atmosphere and use it in many internal biological processes. Animals also remove oxygen indirectly. As mammals digest food in their intestines, considerable methane is generated. This "intestinal gas" is released into the atmosphere, and much of the methane is eventually oxidized by atmospheric oxygen in a series of complex chemical reactions, reducing the amount of oxygen in the atmosphere by 2,000 megatons annually.[1]

Hydrospheric phenomena, such as clouds and rain, also have biospheric connections. Not only is water essential to life, but phytoplankton, in addition to absorbing CO_2 and releasing O_2, also release sulphurous gases. These gases rise in the atmosphere, and where temperature and water vapor concentration permit, they cause the water vapor to form cloud droplets. The clouds, in turn, reflect large amounts of sunlight back into space and help maintain a constant planetary temperature. Atmospheric winds move some of the ocean–borne clouds to continental landmasses, where they deposit moisture in the form of rain or snow. Winds also disperse pollen, the seeds of many plants, and the spores of bacteria, algae, and fungi.

In some lithospheric interactions, biology is unimportant. Rain, wind, changes of temperature, and running water work together to break down exposed rock. And streams and rivers carry minerals to the sea. In other interactions, biology is all. For example, the Earth's chalk deposits and limestone would not exist if dying plankton had not formed those calcium–rich sediments on the ocean floor. Today, this and other rock–creating processes continue. Microscopic *diatoms* in the ocean produce silica–based rock by turning the silicon dioxide, which rivers deliver to the sea, into silica–based shells. When the diatoms die, these shells (like the chalk shells) fall to the ocean floor. Through the movement of the lithosphere's tectonic plates, the resulting silica sediments may someday turn into rock.

Life on land also affects the lithosphere. Bacteria ingest minerals and in doing so sometimes create concentrated veins of ore. Bacterial colonies are also the indirect cause of the attractive patterns we see in marble. Fungi and lichen extract minerals from rock by secreting acids that attack it. And plant/lithosphere interactions produce soil.

Within the biosphere itself, there are countless strong relationships between species. Some of these are food–based and adversarial. Although plants can get by with sun, water, minerals and CO_2, animals must eat plants or other animals to survive. There are also many mutually beneficial relationships. Scientists now realize that organisms often evolve *symbiotically* (codependently) with other organisms. Flowers and insects provide an obvious example: Flowers provide food for insects, and insects pollinate flowers. There are many others:

- Lichens are organisms that incorporate both a fungus and a photosynthesizing alga in a symbiotic relationship. They aid each other, and the combined organism is able to survive in situations where neither component organism could survive by itself.
- Some plant species produce galls when attacked by insects. These galls provide shelter and food for the insects, while protecting the rest of the plant from attack.

- Mycorrhizal fungi live in or around the roots of most plants. The plants produce sugars, which the fungi need; the fungi, in turn, produce chemicals the plants need.
- Animals eat seed–carrying fruits and other vegetation. Those seeds not destroyed by chewing and digestion are conveniently deposited by the animal on the ground, in a distant place, encased in fertilizer—to the benefit of the plant species.
- Nitrogen–fixing bacteria such as rhizobium have a symbiotic relationship with leguminous plants, adding soluble nitrogen compounds to the soil and boosting soil fertility.
- Small fish eat the parasites that cling to larger fish. Birds pick insects from the backs of large mammals.
- Bacteria in the guts of termites turn cellulose into termite nutrition, while the termite provides food and housing for the bacteria.

Late in evolution, humans came on the scene. Initially, this changed the Earth very little. Before humans invented agriculture, the total world population was only five or ten million people. Thus, for many tens of thousands of years, humanity's low–population, low–technology sociosphere had little impact on the lithosphere, hydrosphere, atmosphere, or biosphere. About 10,000 years ago, when humans started to practice agriculture, the population began to grow. And roughly 200 years ago, the situation began to change in major ways. World population by then had reached one billion people, powerful technologies were starting to come into use, and economic activity was increasing rapidly. By 1930, world population had reached two billion, and since then, the combination of another billion people every decade or two, the implementation of modern technologies, and unprecedented levels of economic growth have resulted in major sociosphere impacts on the other four spheres.[2] We look next at some of the most troubling of these impacts, and at their consequences for human beings and other living things at the beginning of this new millennium.

THE FOOD SITUATION

As a world society we face many problems: global warming, deforestation, loss of biodiversity, pollution of air and water, and resource depletion—and we will look at each of these. But according to the Worldwatch Institute, the problem that seems most likely to cause severe disruption to the lives of people in the twenty-first century is the world food problem.[3] World population is now 6.3 billion, and by 2050 it is expected to reach 8.9 billion.[4] The experts feel that sometime between now and then, humanity will experience a serious food crunch as the escalating demand for food meets a decreasing ability to produce it.

The forthcoming decrease in production results directly from humanity's tendency to ignore the sustainable limits of nature's bounty. Our Earthly environment is currently experiencing thinning soils, falling aquifers, collapsing fisheries, and expanding deserts. One source reports that since World War II, overgrazing, deforestation, and agricultural activities have caused at least moderate soil degradation on 1.2 billion hectares of the world's vegetated land—an area almost as large as China and India combined.[5] Another expert tells us: "Overuse now threatens to turn to desert two-fifths of Africa's nondesert land, one-third of Asia's, and one fifth of Latin America's."[6] Grain yields—after undergoing dramatic increases during the 1960s, '70s, and '80s—are now rising at a much slower rate. Fisheries, too, are in big trouble. Fish is the source of 16 percent of people's animal protein,[7] but according to the United Nations Food and Agriculture Organization (FAO), eleven of the world's fifteen major fishing areas and 69 percent of the world's major fish species are in serious decline. Not only have Atlantic cod stocks collapsed, but bluefin tuna stocks in the western Atlantic dropped by more than 80 percent between 1970 and 1993. And between 1970 and 1992, catches of silver hake, haddock, and cape hake decreased by 67 percent.[8] The global annual harvest of oceanic fish has leveled off at roughly 85 million metric tonnes per year, with that level being maintained only because the decline in catches of highly desirable species is being compensated for by increased catches of less–desir-

able ones. The one positive development in this picture is the growth of aquaculture, which now supplies 27 per cent of the seafood consumed worldwide, having risen from 7 million tonnes in 1984 to 35 million tonnes in 2002.[9]

At the same time that food supply is threatened, world population continues to grow, and the demand for grain, meat, and fish accelerates. Already, world population is rising faster than the world grain harvest is increasing, causing a decline in the amount of grain per person.[10] At the same time, the standard of living is rising in several developing countries. For the first time, people in these countries can afford—and want—more meat and fish. This aggravates the grain situation. To provide the animal protein, grain that people once consumed directly is diverted to livestock production and aquaculture. Each kilogram of poultry or aquaculture–raised fish requires 2 kilograms of grain or its equivalent in other vegetable matter. Each kilogram of pork requires 4 kilograms of grain. And each kilogram of beef produced by feedlot feeding requires 7 kilograms of grain.[11] The effect is already evident in China. Two-thirds of the increase in that country's grain consumption during the 1990s can be attributed to the increased consumption of meat and fish.[12] A recent assessment of China's future food needs indicated it was likely that "by 2025 China would need to import 175 million tons of grain. This quantity, which approaches current world grain exports of 200 million tons, could overwhelm the capacity of exporting countries."[13]

RESOURCE EXTRACTION

Each global holon—lithosphere, hydrosphere, atmosphere, and biosphere—has certain intrinsic characteristics and endowments that make it what it is. Yet, for many people these endowments are *resources*, to be extracted from their holonic homes at humanity's pleasure and used for human purposes. This sort of behavior has consequences, but the consequences are not always seen in advance. Sadly, even when they are seen, they are often ignored.

Fresh water, that essential for all living things, is an example. According to one estimate, 500 million people live in countries critically short of water, and by 2025 that figure is expected increase to 3

billion.[14] During the last half of the twentieth century, worldwide water use more than tripled.[15] This increase was uneven, leading to various unfortunate consequences. The Colorado River in the U.S. now disappears before it reaches the Gulf of California. China's Yellow River runs dry during part of each year. Sudan and Egypt use almost all of the Nile's water. So much of the Ganges's water is used to irrigate northern India that little is left when it crosses the Bangladesh border. In addition, aquifers are falling rapidly in parts of the United States, Saudi Arabia, China, and India.[16] Since 70 percent of water drawn from rivers or pumped from aquifers is used for irrigation[17] and nearly half of the world's grain is produced on irrigated land,[18] this creates serious implications for world food supplies. The situation is complicated by the fact that when water is in short supply, battles arise between city dwellers and agriculture. City dwellers generally win; food production generally loses.

Those of us living in high–consumption industrial societies must share responsibility for massively depleting the mineral resources of the lithosphere and for allowing this depletion to happen in quite outrageous fashion. As I write this, the U.S. 1872 General Mining Act is still in effect. It allows the purchase of mineral–bearing govern-ment land for $5 an acre or less, does not require any royalties to be paid on the minerals mined, and does not require that the land be reclaimed after production ceases.[19] In 1994, under the provisions of this law, one company paid $5,190 for a 790–hectare parcel of land in Nevada, containing an estimated $10 billion worth of gold.[20] The taxpayers of major energy–producing countries, such as Canada and the U.S., also subsidize oil and gas extraction to the tune of $18 billion a year in the U.S. and $6 billion in Canada.[21] Aside from the ethical question of whether society as a whole should subsidize these resource–extraction industries, there is the ethical question of fairness to future generations. How much should we leave in the ground for them? Since they are not here to represent themselves, isn't it up to us to look out for their interests? Shouldn't we ask ourselves what rate of extraction for each mineral and fossil fuel represents justice for the generations to come?

Those biosphere inhabitants called trees are another "resource" that is in trouble. Janet Abramovitz reports "almost half the forests that once covered the Earth are gone." She also reports that the demand for wood has doubled since 1950, paper use has increased by a factor of five, and by 2010, paper use is expected to increase by another factor of two.[22] The FAO estimates that half of the wood cut each year is used as fuelwood or for charcoal, most of it in the less–industrialized nations.[23] Fast–growing species of trees are often used for fuelwood and for making paper, and might legitimately qualify as a crop, if properly managed and replanted. On the other hand, logs from old–growth forests—both northern and tropical—are strongly preferred for industrial timber and represent a one–time extraction. In the thirty years from 1960 to 1990, the world demand for timber and the need for more agricultural land resulted in the destruction of one-fifth of all tropical rain forests.[24]

HUMANITY'S WASTES

It's no news that modern industrial processes produce large quantities of noxious waste. It's also no news that industry has for years dumped these chemicals (legally and illegally) into those great waste sinks known as the atmosphere, lithosphere, and hydrosphere. The pulp and paper industry alone is said to dump 950,000 tons of organochlorine effluents (including dioxins) into waterways and 100,000 tons of sulphur dioxide into the air—annually.[25] Sulphur dioxide and nitrogen oxide effluents from power plants and vehicles cause tree–damaging acid rain and human respiratory problems. The release of refrigeration and industrial–solvent chlorofluorocarbons into the atmosphere has put a hole in the upper atmosphere's ozone layer. Some fish caught in the Great Lakes are too toxic to eat, and Beluga whales in the St. Lawrence River are getting tumors.

As depressing as all this seems at times, there is good news too. In response to the ozone–layer crisis, the nations of the world came together and agreed on quite drastic remedial action. National legislation has reduced the level of pollutants emitted by automobiles. And scrubber technologies have reduced power plant sulphur dioxide emissions. Some promising new approaches will be discussed in **Part**

IV—including smart redesign of industrial processes and the growing realization that one company's waste can often be another's feedstock.

GLOBAL WARMING

Scientific doubts about whether global warming is a real phenomenon and a significant concern have now disappeared. For a while, discrepancies between satellite and ground–level temperature data clouded the issue, but in 1998, it was shown that the satellite data had not been corrected to account for the gradual decay of the satellite orbits. When this was done, satellite data showed the "same broad warming trend" as the terrestrial data.[26] Using seven different climate models and 235 independent predictions, a 2001 report from the UN–sponsored Intergovernmental Panel on Climate Change predicted that by 2100, the global temperature would increase by 1.4 to 5.8 degrees Celsius (2.5 to 10.4 degrees Fahrenheit).[27]

Through the late 1980s and early 1990s, the trillion–dollar–a–year fossil fuel industry fought the concept of global warming. Industry solidarity was broken in the late 1990s when two of the largest petroleum firms, British Petroleum and Royal Dutch Shell, acknowledged global warming as a real and serious threat.[28] By then, the world's insurance companies had reached the same conclusion. When climates warm, the number of major storms and the level of storm violence increase. During the decade of the 1980s, weather–related insurance claims totaled $17 billion. Then, in the eight years between 1990 and the end of 1997, claims rocketed to $66 billion. With one voice, a very concerned insurance industry urged a reduction in carbon emissions.[29]

A dramatic rise in global temperature occurred during 1998, which heightened concerns that global warming might be a nonlinear phenomenon—one starting with a slow, gradual temperature rise but at some point suddenly switching to a much hotter regime. The fourteen warmest years since 1860 all occurred in the last quarter of the twentieth century, with each previous record for warmest year typically being broken by a few hundredths of a degree. In 1998, however, the average global temperature during the first eight

months climbed a dramatic four-tenths of a degree above that of 1997, the hottest prior year.[30] Also fueling concern about rapid climate shift is research on ancient ice cores, which indicates that large, rapid shifts have occurred before. During the last 70,000 years, the Earth's climate has undergone several massive shifts involving temperature changes as great as 10 degrees Celsius and occurring in as short a time as ten years.[31] The atmospheric concentration of the primary greenhouse gas, CO_2, is now more than 30 percent higher than it was before the onset of the industrial revolution[32] and the highest it has been in 160,000 years.[33] In the past when CO_2 levels have gotten even close to that level (the Eemian interglacial period 135,000 years ago, for example), a rapid temperature rise has occurred.[34]

Paradoxically, global warming might also lead to a new ice age. As *Time* magazine explained it, "if melting ice caps dilute the salt content of the sea, major ocean currents like the Gulf Stream could slow or even stop, and so would their warming effects on northern regions. More snowfall reflecting more sunlight back into space could actually cause a net cooling."[35]

In 1996, the global emission of carbon from fossil fuel combustion was 6.2 billion tons, nearly four times what it was in 1950.[36] The industrial nations are the primary source of this increase, having contributed 76 percent of total carbon emissions during this period.[37] The goal of the industrial nations that signed the 1992 U.N. Framework Convention on Climate Change was, at that time, to reduce their respective country's carbon emissions to 1990 levels by the year 2000. This did not happen. In 1996, U.S. emissions were 8.8 percent above the 1990 level, Australia's emissions were 9.6 percent above, and Japan's were 12.5 percent above.[38] Another U.N. climate change conference was held in Kyoto in 1997. There, new targets were set. The 2008–2012 target for the European Union was 8 percent below 1990 levels, the U.S. 7 percent below, and Canada and Japan 6 percent below. In 1999, however, the U.S. Energy Information Administration projected that U.S. carbon emissions in the year 2000 would exceed 1990 levels by 18 percent, in 2010 by 33 percent, and in 2020

by 47 percent.[39] This is not a pretty picture when you consider that the official scientific panel advising the 1992 climate change conference concluded that to stabilize CO_2 levels, emissions must eventually be reduced to 60 or 80 percent *below* 1990 levels.[40]

The American and Canadian positions on the climate–change issue deteriorated significantly during 2000 and 2001. The first major backtracking occurred in November 2000 at another U.N. climate conference, in The Hague. The focus of the Europeans and most of the rest of the delegates was, not surprisingly, on reducing greenhouse gas emissions. The focus of the U.S. and Canadian negotiators, however, was not on actual reductions, but on getting credit for forests and farmland as CO_2 sinks—despite the fact that they would be only temporary sinks. The conference foundered on this issue, and no agreement was reached. Then in March 2001, President Bush announced that the U.S. would not implement the Kyoto protocol, because it would be too harmful to the American economy. European leaders met this announcement with outrage. "Nobody should be relieved from his responsibility for climate control," said German Chancellor Gerhard Schroeder. "It is not acceptable that national economic worries mean that the world cannot act against a global threat," said Svend Auken, Danish Minister of Energy and Environment. "It would indicate the arrogance of power if the United States were to discontinue the Kyoto process," said Swedish Environment Minister, Kjell Larsson.[41] It was in this vein that the rest of the world responded to Bush's decision. Even in the U.S., there was outrage. *Time* magazine (hardly a voice of unfounded environmental concern) responded with an issue featuring a special report on global warming that stated: "Except for nuclear war or a collision with an asteroid, no force has more potential to damage our planet's web of life than global warming…. Humanity embarked unknowingly on a dangerous experiment with the climate of our planet. Now that we know what we're doing, it would be utterly foolish to continue."[42]

With the U.S. choosing not to participate, 178 other countries met in Bonn, Germany in July of 2001 and agreed to implement Kyoto. The 38 industrial countries that signed the accord agreed to

reduce average gas emissions to 5.2 percent below 1990 levels by 2012. Developing countries were exempted from controls.[43] In refusing to participate, President Bush gave as a reason China's exemption from mandatory controls. In fact, even though China had made no binding commitment to do so, since the mid-1990s it has reduced its CO_2 emissions by 17 percent. The April 2001 U.S. government report that presented this information also noted that China's GDP rose by 36 percent during the same period.[44]

Neither Canada nor Russia were among those who signed the Kyoto accord at the Bonn meeting. In 2002, however, both countries promised to do so, and in December of that year Canada became the 100th country to ratify the treaty. Back in the late 1990s, the lack of action on the part of North American leaders seemed rooted in a lack of political will. With the global fossil fuel industry doing about $1 trillion worth of business a year and with manufacturing, transportation, and home heating dependent on fossil fuels, politicians were treading water and hoping the problem would somehow solve itself or go away. It didn't, and it won't. And now the true motivations of the politicians are becoming clearer. The business community has attempted to paint those calling for CO_2 reduction as "doomsdayers." But as Maurice Strong—Undersecretary of the UN and Secretary–General of the 1992 Rio Conference on Environment and Development—has pointed out, "The doomsdayers are not those who are saying that these things may happen, because they've got science behind them. The doomsdayers are those who say that the economy will be wrecked if we do something."[45]

In the contest between long–term global well–being and the short–term well–being of American business and finance, President Bush made his choice crystal clear. His and other governments could take plenty of measures to reduce CO_2 emissions: cut fossil fuel subsidies; set higher efficiency standards for vehicles and appliances; promote the use of renewable energy; cogenerate electricity and heat; create more public transportation; improve the efficiency of industrial and agricultural processes; and tax carbon emissions. Instead, he has

focused on increased production of fossil fuels and on building more fossil fuel and nuclear electrical–generating plants.[46]

Tax policy is an especially powerful tool, and several European countries are already employing it. Governments must levy taxes to raise money, but they have a lot of leeway about what to tax. Personal income, merchandise sales, and property are the usual favorites, but by using a little creativity, governments can raise money and implement social policy at the same time. A tax on carbon emissions, for example, raises the user price of fossil fuels. Markets being markets, this puts pressure on users to buy less. Homeowners might do it by installing insulation. Manufacturers might do it by improving process efficiency. To soften the impact of the tax, governments can make it revenue–neutral by reducing other taxes. That way, government income remains the same and the overall societal tax burden remains the same, but users have a greater incentive to reduce carbon emissions.

Denmark, Finland, Netherlands, Norway, and Sweden have all adopted carbon taxes in one form or other, and in the Netherlands, Sweden, and Denmark, the proceeds go to reduce income taxes. Poland and Costa Rica also have carbon taxes, albeit small ones. Both countries use the proceeds for reforestation; Poland also uses some of it to improve energy efficiency.[47] In **Part IV**, we'll look at other approaches with the potential to reduce CO_2 emissions.

THE ECOLOGICAL FOOTPRINT

How severe is our impact on resources and the environment? Does it exceed sustainability? By how much? Who is causing the problem? A new indicator sheds light on all these questions. In a study commissioned for the Rio+5 Forum, held in Rio de Janeiro five years after the big 1992 Rio environment conference,[48] the *ecological footprint* is defined as "the biologically productive area required to continuously provide resource supplies and [to] absorb wastes of a particular population given prevailing technology."[49] The report states that Earth's sustainable per–capita allotment of biologically productive land is 0.25 hectares of arable land, 0.6 hectares of pasture, and 0.6 hectares of forest. To that, we can add 0.5 hectares of productive sea,

but we must also subtract at least 12 percent from the total to preserve biodiversity. This gives us a maximum allowable ecological footprint per person of 1.7 hectares, or 4.2 acres. That is each person's sustainable "fair share" of the available biologically productive space. The report concluded that the average per–capita footprint world wide is 2.3 hectares—about 35 percent larger than is sustainable. When we look at individual nations, the differences are dramatic. In this comparison, the industrial nations do not come out well. Americans have the largest footprints: 10.3 hectares, or 6 times sustainability. Australia came in second with 9.0 hectares, and Canada third with 7.7. In contrast, China's per–capita footprint is only 1.2 hectares and India's is 0.8. Of the fifty-two large countries assessed in this report, only 10 had per–capita footprints smaller than 1.7 hectares. Though this indicator isn't perfect (no indicator is), it provides us with at least a rough indication of "people's contribution to global ecological decline."[50]

SPECIES PROBLEMS

The destruction of forests also represents the destruction of habitat for many species of plants and animals. So does the growth of highway systems, cities, suburbs, and modern agriculture. Habitat loss has been identified as the most significant cause of species loss, and most authorities agree that the current rate of species loss is substantial. That said, actual loss statistics are problematical. Estimates of the total number of species range from as low as 4 million to as high as 100 million. To date, only 1.8 million species of plants, animals, and other organisms have been identified and catalogued. Of these, roughly 450,000 are beetles, 50,000 are vertebrates, and nearly 24,000 of the vertebrates are fish. Much of the human interest in species decline has focused on vertebrates. This makes sense, because they are at the top of the food chain, and if an ecosystem is supporting its vertebrate populations, it is likely to be supporting its bacteria, fungi, plants, and insects as well.[51] Unfortunately, in areas with high pollution, even soil organisms are not doing well.[52]

For some years the Geneva–based World Conservation Union (IUNC) has been keeping and updating the *IUNC Red List of Threat-*

ened Species. Of the 4,763 species of mammals surveyed in 2002, the Red List considers 24 percent to be threatened—where "threatened" is defined as "critically endangered," "endangered" or "vulnerable" to extinction. Of the 9,946 species of birds surveyed, 12 percent are threatened, and of the 7,970 species of reptiles surveyed, 25 percent are.[53] Biologist Edward O. Wilson is particularly concerned about the *rate* of species extinction: "The average life of a species is on the order of a million years, and we are drastically shortening that lifetime. We are destroying species at somewhere between a hundred times and a thousand times faster than species could be created…if we left the natural environment alone."[54] Earlier I mentioned that since the first emergence of life on Earth, there have been five mass species extinctions. Many biologists refer to what is happening today as *the sixth extinction.*

Causes of species decline other than habitat destruction include overhunting/overfishing, chemical pollution, and the invasion of ecosystems by exotic (dominating, aggressive) species. After habitat destruction, the next most serious problem is thought to be this introduction of exotic species.[55] A few recent examples include the migration of African killer bees into Latin America and the U.S., with the African bees taking over wherever they go; zebra mussels in the Great Lakes, taking over food sources and pushing out other species; the choking of wetlands by the purple lustrife plant; and the migration of the Asian tiger mosquito from Japan to the U.S.—a mosquito that draws blood indiscriminately from mammals, birds, turtles and snakes and can spread some nasty diseases.

If any of us are still unsure why human beings should care about species decline, John Tuxill and Chris Bright have touched on a few of the more obvious reasons:

> *Biodiversity underpins our health care systems; some 25 percent of drugs prescribed in the United States include chemical compounds derived from wild organisms, and billions of people worldwide rely on plant– and animal–based traditional medicine for their primary health care. Biodiversity provides a wealth of genes essential for maintaining the vigor of our crops and livestock. It provides*

pollination services, mostly in the form of insects, without which we could not feed ourselves. Frogs, fish, and birds provide natural pest control; mussels and other aquatic organisms cleanse our water supplies; plants and microorganisms create our soils.[56]

There is also the specter of all we *don't* understand. Contemporary science has only begun to grasp all the complex and essential connections between life forms, systems, and natural forces, so it's entirely possible that one of the species eliminated in the sixth extinction could be *homo sapiens*. We are, for example, just beginning to understand the catastrophic shifts that can occur in ecosystems when they are stressed beyond the limits of their resilience. An article in *Nature* discusses the shifts between alternate stable states that can occur in lakes (which can go from clear to turbid), in grasslands (which can shift to woodlands in some cases and to deserts in others), in coral reefs (which can be destroyed by algae), and in oceans (which can undergo a variety of shifts).[57]

EXACERBATING INFLUENCES

Several characteristics of the present human situation tend to worsen the impact of the sociosphere on the other spheres. These include high human population, high–impact technologies, the philosophy of consumerism, and the nonresponsiveness of global economic forces to societal concerns.

In pre-agricultural times, when only 5 or 10 million people lived on Earth and used only primitive tools, human beings—no matter what they did—could not cause significant problems for biosphere, atmosphere, lithosphere, or hydrosphere. But when you multiply that number of people by a thousand and equip them with modern agricultural machinery, factories, motorized earthmoving equipment, automobiles, trucks, ships, and planes, it's a different story.

Today, about 2 billion of the world's people could be said to have a high–consumption lifestyle, and in some countries, the level of that consumption is astonishing. Consider these recent figures compiled by Ervin Laszlo:

With 4.1 percent of the world's population, the United States alone consumes 25% of the world's energy production…. The

average American burns 5 tons of fossil fuel per year—in con-trast to 0.8 tons for the average Chinese and even the relatively modest 2.9 tons of the average German. It is estimated that in the 80–plus years of the expected lifespan of a child born to a middle–class family in the United States, he or she will consume 800,000 kilowatts of electrical energy. In addition, he or she will also consume 2,500,000 liters of water; 21,000 tons of gasoline; 220,000 kilos of steel; the wood of 1,000 trees, and will generate 60 tons of municipal waste. At these rates the average American child will produce twice the environmental load of a Swedish child, 3 times that of an Italian, 13 times that of a Brazilian, 35 times that of an Indian, and 280 times that of a Haitian.[58]

Can the U.S. and other industrial nations maintain their current level of consumption? Can that level of consumption be extended to the other 4.3 billion people who share the planet with us today and to the 2.6 billion who will be coming along in the next fifty years? Can all 8.9 billion people have ecological footprints six times the sustainable size? Clearly not. Yet, fundamental morality calls upon us to see that everyone on Earth enjoys the basic economic, political, cultural, and civil rights advocated by the UN General Assembly back in 1948 and proclaimed in its *Universal Declaration of Human Rights.* Among those rights is "the right to a standard of living adequate for…health and well–being…including food, clothing, housing, and medical care…." Today, we need to be rethinking the whole situation and figuring out how we can establish a just, equitable, and *sustainable* world society. Fortunately, some people are doing just that. Unfortunately, economic growth and consumer hedonism maintain their hold in the industrial nations, and transnational corporations attempt to export both to the rest of the world. You don't have to be a rocket scientist or Mensa member to see the eventual consequences of this.

This brings us again to the lack of societal concern shown by publicly held corporations and major financial institutions. Large transnational enterprises are engines of global transformation. Unfortunately, it is profit and share price that guide their activities today, and this is producing a type of transformation that is neither opti-

mally beneficial for the people of the world nor sustainable in the long run. It does not have to remain this way, and in **Part IV** we discuss a broadened, more socially relevant corporate agenda.

Notes

[1] Lovelock, 1979, p. 73.

[2] Population figures are from the "Trends in World Population" article in BCD98, 1997.

[3] Brown, 1995, p. 5.

[4] "Humanity's Slowing Growth," *New York Times*, March 17, 2003.

[5] Henderson, 1996, p. 20. Data from World Resources Institute, 1993.

[6] Salamon, 1994, p. 117.

[7] McGinn, 1999, p. 80.

[8] Fish stock decline information from McGinn, 1998, pp. 60–61.

[9] The production figures are derived from the graph on page 11 of the cultural-trends_1408.pdf document entitled "Johannesburg Summit 2002 — Global Challenge Global Opportunity" downloaded from: http://www.johannesburgsummit.org on August 14, 2002.

[10] Brown, 1994, p. 186, Figure 10–6.

[11] Brown, 1995, p. 15, 17.

[12] Brown, 1998, p. 15.

[13] Brown, 1999, p. 128. Source of Brown's information: MEDEA Group, 1997.

[14] Mitchell, 2001.

[15] Postel, 1996, p. 45.

[16] Brown, 1998, pp. 6–7.

[17] Brown, 1998, pp. 5–6.

[18] Brown and Mitchell, 1998, p. 169.

[19] Young and Sachs, 1995, p. 81.

[20] Roodman, 1997, p. 136.

[21] Flavin and Dunn, 1998, p. 117.

[22] Abramovitz, 1998, p. 21.

[23] Abramovitz, 1998, p. 24.

[24] Destruction figure from Abramovitz, 1998, p. 22.

[25] Kane, 1996, p. 161.

[26] Flavin, 1998, p. 12, refers to the August 1998 article in the British journal *Nature* by Frank Wentz and Matthias Shabel.

[27] *Time* staff, 2001, p. 19–21.

[28] Flavin, 1998, p. 16.

[29] Brown and Mitchell, 1998, pp. 184–85.

[30] Flavin, 1998, p. 11.

[31] Gelbspan, 1997, p. 30.

[32] Based on a measured value of 0.027 percentage CO_2 in the mid-1700s, and 0.036 percentage in 1996.

[33] Brown and Flavin, 1999, p. 4.

[34] Flavin, 1998, p. 12.

[35] *Time* staff, 2001, p. 23.

[36] Flavin and Dunn, 1998, p. 113.

[37] Flavin and Dunn, 1998, p. 114.

[38] Flavin and Dunn, 1998, pp. 114–15.

[39] Data from Figure 118 of EIA's *Annual Energy Outlook 1999* document. Read at http://www.eia.doe.gov/oiaf/aeo99/images/fig118.jpg, on 11FEB99.

[40] Flavin, 1998, p. 14.

[41] Quotes from "Europe Warns Bush of Global Warming," the Associated Press, 29 March 2001.

[42] Quotes from *Time* staff, 2001, pp. 16, 23.

[43] Revkin, 2001.

[44] The April, 2001 report by researchers at the Lawrence Berkeley National Laboratory was discussed in Eckholm, 2001.

[45] Maurice Strong, quote from a CBC Newsworld interview with Evan Soloman on 10 June 2000.

[46] See Kahn, 2001.

[47] Flavin and Dunn, 1998, p. 118.

[48] The Rio+5 Forum was a meeting held in Rio de Janeiro in 1997—five years after the United Nations Conference on Environment and Development held there in 1992—to evaluate progress since the earlier meeting.

[49] Wackernagel, et al, 1997.

[50] All data and quotes from Wackernagel et al, 1997.

[51] Tuxill and Bright, 1998, p. 42.

[52] CBC Radio *Ideas*, 1999, Episode 1.

53 Data from the 2002 *IUNC Red List of Threatened Species*, read on 17 December 2002 at http://www.redlist.org/info/tables/table1.html.

54 CBC Radio *Ideas*, 1999, Episode 1.

55 Bright, 1996, p. 96.

56 Tuxill and Bright, 1998, p. 42.

57 Scheffer et al., 2001.

58 Laszlo, 2001, pp. 41–42.

Part III

Personal Reality

Having surveyed some of the nested contexts in which our lives are embedded, we now turn to the personal. Here in Part III, we consider the question of what it is to be a human being on this planet at the beginning of the twenty-first century. We review some insights based on deep understanding about our inner psychological/spiritual reality and address some of the tough issues: inner development; identity; developing ethical sensibility; and creating a life characterized by meaning, purpose, and significance. The first of the matters of consequence covered in this part of the book concerns the mental equipment that evolution gave us and some of its more troublesome limitations.

Self–Knowledge and Other Bad News

For most people the term *self–knowledge* elicits an upbeat, feel–good aura. *Know thyself.* Yes, what a wonderful thought! Yet, actually coming to know oneself brings a multitude of surprises—many of them tinged with unpleasantness. I have heard more than one long–term meditator voice the dark secret: "Self–knowledge is almost always bad news." It isn't really bad news, of course. Self-knowledge is wonderful news. It frees us from ignorance and delusion, dissolves fears, and allows us to live our lives focused, awake, and free to do what the wisdom within urges us to do. But it is often unpleasant news. Insights into general mind functioning and into our own unskillful mental habits and behavior can be upsetting: "Wow, was I wrong about that." "How could I have been so blind all these years?"… And so forth.

Let's begin with a major piece of bad news that is probably no news to you: The human brain/mind system that evolution came up with is not ideally suited for twenty-first–century living.

EVOLUTION'S LEGACY
Using its slow, plodding, trial–and–error methods, evolution produced a human brain/mind suited to the small–group, low–technology, risk–filled situation that existed before human beings developed agriculture. Unfortunately, while human circumstances have changed drastically since then, the design of our brain/mind system has not.

The human brain actually consists of three brains nested within each other, sort of like Russian dolls, each having been developed during a different evolutionary period. The innermost brain, sometimes called the *brain stem* or the reptilian brain, is located at the top of the spinal column and is the primitive core of the human brain. Designed by evolution to guide the behavior of reptiles, it is the most ancient of the three. It consists of the *medulla oblongata*, the *pons*, and the *reticular formation*. In humans, it controls basic bodily functions, such as heartbeat, breathing, swallowing, sneezing, and blood pressure. While we sleep, the reticular formation monitors sensory data and arouses the rest of the brain when it detects something it deems dangerous such as an unfamiliar noise or skin sensation.

The *limbic system* (consisting of *thalamus*, *fornix*, *hippocampus*, *hypothalamus*, and *amygdala*) is an add–on brain that evolved to help mammals survive and reproduce. Wrapped around the brain stem, it is the seat of our emotions—strong reactive emotions, such as fear, lust, anger, and jealousy, as well as subtler emotions, such as maternal feelings and those that define our moods. The limbic system also plays a major role in memory.

Mammals also have a third brain: a *neocortex,* located atop and around the limbic system. Relative to body size, cats have a small cortex, chimpanzees have one of medium size, and humans have a very large one. The human neocortex is our thinking brain, the seat of many higher–level functions, such as speech, planning, decision–making, visualization, and the intellectual control of our emotional life. The three nested brains are interconnected in complex ways, and twentieth–century neurological and psychological research has told us much about how the whole integrated system works.

This cobbled–up brain/mind system creates for each person a mental model of reality that contains some serious distortions and outright lies. In the difficult circumstances of primitive living, some of these lies were actually white lies that helped our ancestors survive. In present circumstances, however, they can get in our way—even to the point of threatening our survival. The list of unhelpful characteristics is a long one:

1.   Reactive emotions and emotion–driven actions helped our ancestors survive and reproduce in primitive circumstances. Today, emotional reactivity often leads to inappropriate behavior and pointless stress.

2.   Individuals make decisions, but evolution hid the underlying process from our view. Without deeper investigation, it seems a mysterious "I" decides—seemingly with total freedom. The reality is much more complex.

3.   This mysterious "I" is also associated with another set of problems: identity problems. We tend to associate the primal self–sense with the body and with mind contents, but other identities are valid as well—and in some cases highly desirable.

4.   We create psychological blind spots and lie to ourselves about uncomfortable realities.

5.   We find it difficult to internalize the reality of our own eventual death.

6.   We have difficulty conceptualizing magnitudes that are vastly different from those we deal with in everyday life. We can't intuitively grasp the very large or the very small.

7.   Our interests and concerns focus on people and situations that are nearby in time, space, and relationship to us. As separation in time and space increase, our level of concern diminishes.

8.   We notice sudden changes, but not gradual changes.

9.   We tend to ignore person–environment connections, unless they are perceptually obvious.

10.   Evolution did not clue us into the fact that existence involves the interpenetration of two types of reality: (a) an absolute, noumenal, enduring, carrier– or medium–like reality, and (b) a relative, transient, easily changed informational reality. Everyday experience is solely informational, and the informational is normally the sole focus of human interest.

11.   We tend to oversimplify causation. We pick out some dominant element in a situation and call it "The Cause," when in fact there are myriad necessary elements—an entire causal matrix—with roots that go back to the origin of the universe.

12.   Our attention is damnably hard to control. It tends to flit from object to object and tends not to remain where consciousness intention would like it to remain.

Though each of these unhelpful characteristics causes problems from time to time, the first four are perpetual troublemakers.

Strong emotions distort our sense of relative importance and promote inappropriate reactions. It helps if we understand the neurological underpinnings of our emotions. The thalamus acts as a relay station for raw sensory input data. It sends this data both to the neocortex for detailed (but relatively slow) processing and directly to the amygdala, where it is evaluated in a crude but more immediate way. Psychologist Daniel Goleman has described this second process. The amygdala challenges "every situation, every perception, but with but one kind of question in mind, the most primitive: 'Is this something I hate? That hurts me? Something I fear?' If so—if the moment at hand somehow draws a 'Yes'—the amygdala reacts instantaneously, like a neural tripwire, telegraphing a message of crisis to all parts of the brain."[1]

Some of these crisis messages cause physical things to happen, such as the release of fight–or–flight hormones, the tightening of muscles, and the release of brain chemicals that heighten alertness. At the same time, a subjective message is sent to the global workspace: a *feeling* is presented to consciousness—say, of fear, anger, hatred, or jealousy—as determined by the amygdala's rough–and–ready analysis of the sensory data. Sometimes, a powerful emotion leads to immediate action. The person acts before the more comprehensive and sophisticated, but slower, cortical evaluation process has been completed. At times, this kind of immediate, reactive behavior might save an endangered life; at other times, it results in great harm and profound regret. A mark of the emotional intelligence that Goleman talks about is the ability to delay acting until the cooled–out second opinion from the frontal lobes of the cortex has reached the global workspace. Unfortunately, some people treat emotions as action imperatives and react on impulse in situation after situation. In reality, emotional feelings are simply messages from the limbic brain

to the subjective global workspace—to be ignored or acted upon as other brain processes (intellect and intuition) dictate.

Fear, in particular, is highly controlling and difficult to deal with. It was a helpful motivator when vision detected an approaching tiger, and in that situation immediate action made perfect sense. But in our very different world, the experience of fear often leads to inappropriate behavior—or immobilizes us, preventing appropriate action. For one thing, we're not good at assessing risk. The deaths of 3000 people in the September 11 attack triggered an immobilizing wave of fear that swept across America while a dozen times that many deaths each year in automobile accidents does not. We are fear-prone beings, and fear is sometimes used by others to get what they want. The criminal points a gun at us, threatens us with death, and gets our money. Some men threaten their wives with abuse or abandonment and get their way. The media carry stories that create fear, and the size of their audience increases. Some political regimes exaggerate risk, demonize an enemy, and use other fear-provoking techniques to get people to agree with the regime's program of action. Our emotional vulnerability—a combination of fear, confusion, and the hope of relief from fear—allowed President Bush's administration to implement an agenda that greatly increased Executive power, reduced civil liberties, and appears to have killed as many civilians in Afghanistan as were killed in the 9/11 attack.[2] And then there is Homeland Security's color-coded terrorism alert system. It keeps Americans in a fearful state, but does it substantially reduce the threat of terrorism?

There are times when we need to deal with the tiger—when we need to take physical steps to remove a fear-producing stimulus. But sometimes the magnitude of our fear is overblown, and the appropriate way to deal with it is to dissipate it through a rational assessment of the risks involved and by learning how to deal effectively with fearful feelings. Other reactive emotions such as hatred, anger, lust, and jealousy also generate uncomfortable mental states and can lead to inappropriate actions. This is especially likely to happen if we treat the feelings as action imperatives and ignore those supplemental messages from intellect and intuition.

Another feature of our evolutionary legacy is that we are unaware of how we make decisions. We're under the illusion that some "I," some core of personhood, somehow knows and decides. In actuality, decision–making is a largely unconscious process in which a constantly shifting hierarchy of internalized values interacts with a constantly shifting set of perceived circumstances and retrieved memories. Some values, such as survival and reproduction, are hardwired. Other values, and their position in the value hierarchy, are the products of life experience and the influences we have been exposed to. At any given moment, our decisions are made by the combined action of:

1. The brain–mind process currently in charge
2. The hierarchy of value priorities that exists at that moment
3. The perceived nature of the situation calling for a decision
4. Memories of similar or related situations

Regarding item one, above, there are three distinct brain–mind processes, each having its own hierarchy of values:

- The instinctive/reactive process: Located in the earliest parts of our brain to evolve; the structures of the brain stem and limbic system and their change–resistant programming
- The intellectual process: Typically centered in the left hemisphere of the neocortex
- The intuitive process: Less clearly understood, but generally associated with the right, nonverbal hemisphere

These processes and their values work together to make our decisions and to control our behavior in the same way a computer's hardware and software work together to make the computer's decisions and to control its outputs. We can look at the three brain–mind processes as the hardware of our behavioral control system. And the internalized values that each process utilizes constitute a key part of the software.

While each of us has many values, individual values differ in their power to influence our decisions. Depending on circumstances, one value will take priority over another. Eating supper at 6:00 P.M. may be one of your values, but it is not apt to be the controlling value

if your house happens to be on fire at that hour. Values are arranged in a constantly shifting hierarchy of priority. People always do what they think is best, and that "best" is determined by how their hierarchy of internalized values interacts with the brain/mind's assessment of past, present, and anticipated future circumstances.

Some values, such as bodily survival, territoriality, and sexual reproduction, appear to be hardwired into the instinctive/reactive process. And the intuitive process may come preprogrammed with certain ethical values—the Golden Rule, the incest taboo, and other values of conscience, for example.[3] But the neocortex–based intellectual and intuitive processes use a hierarchy of learned, internalized, *inherently changeable* values to evaluate situations, make decisions, and initiate behaviors. One or more of these brain processes, together with its hierarchy of values, is always in charge of our lives.

Roger Sperry commented on this situation and some of its broader implications:

> *Human values, in addition to their commonly recognized significance from a personal, religious, or philosophic standpoint, can also be viewed objectively as universal determinants in all human decision making. All decisions boil down to a choice among alternatives of what is most valued, for whatever reasons, and are determined by the particular value system that prevails. Human value priorities, viewed thus in objective control–system theory, stand out as the most strategically powerful causal control now shaping world events. More than any other causal system with which science now concerns itself, it is variables in human value systems that will determine the future.*[4]

If we don't like the values we have internalized to date or the particular mental process that is calling the shots, then we must change things. By being selective about the influences we expose ourselves to and the mental habits we develop, we can influence the mix and relative priority of our internalized values—as well as which of the three brain–mind processes is in control.[5]

Our sense of personhood—our sense of separation from the cosmos, the biosphere, other life forms, and other people—distorts

reality, because we are, in fact, intimately linked to it all. When under threat in primitive circumstances, the illusion of being an independent person increased the likelihood of personal and species survival. In reality, however, we are not separate independent beings; we are nodes of universal process. We utilize the sun's energy, exchange gases via the atmosphere, take in nutritious chemicals, produce wastes, and are linked in numerous ways to other beings and contextual systems. More fundamental still, persons are simply informational modulations of the primal carrier: Being, Spirit, Energy–Awareness. Like the ocean and its waves, humanity is the primal One in billions of spatiotemporal forms. Unfortunately, our sense of vision constantly reinforces the illusion of separateness. We *seem* separate. But we are not.

We have a tendency to lie to ourselves. If you ask a person to list their personal values in order of relative importance, you are likely to get a list with some pretty impressive stuff on it. Yet if we look dispassionately at that person's behavior, it might soon become apparent that their deep–down, internalized, operational values are not the same as their professed values—or at least do not have the stated priority. We think we know ourselves, when in fact we don't.

Much of the "bad news" that attends the development of self–knowledge involves the discovery of how we have been deluding ourselves via the classic psychological defense mechanisms of denial, rationalization, projection, and repression. Ken Wilber has called this structure of deceptions and myths a "false self," and notes that the aim of psychotherapy is "to uproot these false scripts and replace them with a more realistic interpretation of yourself…so that the false self can give way to the actual self." He goes on to say, "Myths cause symptoms; expose the myths to evidence, and the symptoms go away. The idea is, *think* differently and you will start to *feel* differently."[6]

Gurdjieff pointed out the difficulty of doing this:

> *To speak the truth is the most difficult thing in the world; and one must study a great deal and for a long time in order to speak the truth. The wish alone is not enough. To speak the truth one*

must know what the truth is and what a lie is, and first of all in oneself. And nobody wants to know that.[7]

While all of the items on our list of unhelpful characteristics can be troublesome at times, most of them can be transcended or at least lessened through various psychological/spiritual practices. MATTER OF CONSEQUENCE 10, **Developing Deep Understanding**, discusses several techniques that have proven helpful.

Notes

[1] Goleman, 1995, p. 16.

[2] The information on Afghan and 9/11 deaths is from the analysis of news reports done by Professor Marc W. Herold of the University of New Hampshire; read 15 December 2002 at http://www.cursor.org/stories/heroldon911.htm. An informative article on responses to 9/11 is Chapman and Harris, 2002, which is also online at http://www.csicop.org/si/2002-09/9-11.html. The larger question of what Americans fear and the evaluation of relative risk is addressed in two recent books: *RISK: A Practical Guide for Deciding What's Really Safe and What's Really Dangerous in the World Around You* (Ropeik and Gray, 2002). And *The Culture of Fear: Why Americans are Afraid of the Wrong Things* (Glassner, 1999).

[3] Lumsden and Wilson, 1981, p. 85, note: "Incest taboos are a cultural universal; all of the hundreds of societies that have been studied ethnographically permit or even encourage marriages between first cousins but forbid it between siblings and half–siblings."

[4] Sperry, 1977, p. 237.

[5] These topics are dealt with at some length in *Toward Wisdom* (Macdonald, 2001a [1996a 1993]).

[6] All Wilber quotes from Wilber, 1996, p. 184.

[7] Gurdjieff quote from MCR, 1995.

Freedom, Responsibility, and Ethical Sensibility

Freedom and responsibility, rights and duties, ethics and morality—all lie at the heart of interpersonal relationships and person–context relationships. Despite the importance of these topics, a good deal of conceptual fog surrounds them. The following attempts to cut through some of that fog.

FREEDOM AND RESPONSIBILITY

"Freedom is possibility," wrote existentialist Hazel Barnes.[1] But possibility has limits. Objective limits to possibility can be physical, technological, or economic. It takes a certain physique to play pro football; without it, that career is not a possibility. Telephone communication to any point on Earth is objectively possible today, but it wasn't possible until communication technology became sufficiently advanced.[2] Planes fly daily between New York and Paris, but to make the trip you need the price of a ticket.

There are also subjective limits to possibility. Some choices that are objectively possible may not be *psychologically* possible. One psychological barrier to freedom is ignorance: not knowing what the objective possibilities are. A second involves a variety of inner constraints that rule out certain courses of action. Among those are strongly felt fears, needs, and compulsive desires. Sometimes, it is possible to eliminate an objective limit to freedom. If I save diligently, I can eventually buy a plane ticket to Paris. But much of the time the most effective way to increase our range of possibility is

to eliminate subjective limits. Doing this involves outer exploration (reducing the ignorance) and inner transformation (getting rid of inner constraints and limits). This, as I've noted, is also the path leading to deep understanding: Reduce ignorance through intellectual investigation and direct experience, and reduce inner constraints through processes of psychological/spiritual development.

We seek freedom for different reasons. For some, freedom is an end. To such people, freedom means abandoning all constraints, responsibilities, and commitments. It is an immature view of freedom, and in the long run is not personally or socially satisfactory. For others, freedom is a means. It is the vehicle that takes them to *significant commitment*—commitment of their time, energy, and attention to some thing or things that light up their life and fill them with joy. As Nietzsche put it, "Not free *from* what, but free *for* what." William James went a step further: "Bondage to the highest is identical with true freedom."[3] The more psychologically and spiritually developed a person is, the freer of psychological restraints they will be and the more likely to make significant commitments.

We often refer to commitments that have a compulsory air about them as *duties* or *responsibilities*. Many of these concern holonic relationships. If we are employed, we have certain responsibilities to the employer, and the employer has certain responsibilities to us. So it is with family, neighbors, various levels of government, and others.

Arthur Koestler said:

> *In a well–balanced hierarchy, the individual retains his character as a social holon, a part–whole, who* qua *whole, enjoys autonomy within the limits of the restraints imposed by the limits of his community…. An ideal society of this kind could be said to possess "hierarchic awareness," where every holon on every level is conscious both of its rights as a whole and its duties as a part.*[4]

Maslow defined the big problems as being "to make the Good Person" and "to make the Good Society," and went on to say: "They need each other, they are sine qua non to each other."[5]

It is interesting that as our psychological/spiritual development progresses and our understanding deepens, our "responsibilities" and

"duties" become less onerous. For one thing, we are more selective about making commitments. But beyond that, we increasingly see their necessity. We need institutions, and institutions need us. We need other people, and other people need us. By making sensible commitments and accepting appropriate responsibilities, we not only meet our own needs, we also get the satisfaction of knowing that we are contributing to the general well–being.

ETHICAL SENSIBILITY

Many people consider ethics to be a strictly human invention. In support of this position they point to the competition for resources in the natural world, to the food chain and the fact that living beings eat other living beings. Much does go on in forest, field, and ocean that wouldn't be acceptable in contemporary human society. Yet, if we look at things from a holonic perspective, we see that ethics has an objective basis and that the primal ethic—holonic relationship—exists at every level in the hierarchy of natural systems. It is a built–in aspect of relative, informational reality. Ervin Laszlo put it this way: "Humanistic values, discovered in the systems perspective of man and nature, are not arbitrary goals but natural norms, encoded into every natural system."[6] And it is worth repeating Ken Wilber's words: "…every holon has not only its agency as a whole, it also has to fit with its COMMUNIONS as part of other wholes. If it fails at either—if it fails at agency or communion—it is simply erased. It ceases to be."[7] Ethics with consequences, no less.

Compartmentalized modern science has, for the most part, ignored the larger systemic picture. The single–discipline myopia that characterizes much scientific research has reinforced the erroneous view that nature is value–free. In the larger picture, it is anything but. The values are there in the systemic relationships; it's just that many scientists and the rest of us have not been educated to see them.

Abraham Maslow's work sheds light on the nature of the needed education—the sort of intellectual, psychological, and spiritual development that leads to deep understanding, to wisdom. Maslow studied people who had a high level of psychological development, "self–actualizing people" in his terminology. He studied the way these

people perceived the world and the differences between their perceptions and those of most other people. He noted that for self–actualizing people (and others during self–actualizing moments), facts were value–laden; they had a certain "oughtness" and called for certain actions.

In Maslow's words:

> *When anything is clear enough or certain enough, true enough, real enough, beyond the point of doubt, then that something raises within itself its own requiredness, its own demand–character, its own suitabilities. It "calls for" certain kinds of action rather than others. If we define ethics, morals, and values as guides to action, then the easiest and best guides to the most decisive actions are very facty facts; the more facty they are, the better guides to action they are.*[8]

We cannot, however, sense the oughtness of facts if we approach reality with anything less than a fully receptive, fully open mind:

> *If we wish to permit the facts to tell us their oughtness, we must learn to listen to them in a very specific way, which can be called Taoistic—silently, hushed, quietly, fully listening, noninterfering, receptive, patient, respectful of the matter–in–hand, courteous to the matter–in–hand.*[9]

The realization that facts, when deeply understood, can lead to right action is exciting. This approach facilitates ethically sound personal decision–making, and it also works on a societal scale. In both cases, if we see situations clearly enough, we know what to do. As we've seen, tens of millions of people in North America and elsewhere are now coming to understand themselves and their contextual reality more deeply. In the process, they are also seeing the inherent oughtness and requiredness in global situations, and are responding with specific actions.

Moral education is a lifelong process. Early in life, most of us were taught that there are some things we were supposed to do and some things we should never do. At age two, I was chastised when I hit my playmates. A few years later, I was prodded into memorizing

the Ten Commandments. Perhaps this is the way the process must start. But most people eventually have a problem buying into someone else's list of dos and don'ts. We seem to need to find out for ourselves. Children go through periods when they "test the limits" of acceptable behavior. They break the rules and look to see what happens. We adults too do this, with adultery being a favorite grownup test. In addressing the problem of ethics, most religions came up with lists of dos and don'ts. Philosophers who addressed the problem tended to adopt key principles and to then build schemata around them for deciding right from wrong. Neither has worked very well. Lists, as I say, are not taken very seriously. And of the interesting approaches suggested by philosophers, none has grabbed the intellectual imagination of the world and come into universal use.

There is, however, an approach that does work. It involves growing up—developing psychologically and spiritually. Everywhere on the spectrum of growth, we find strong links between inner development and personal morality. It exists at the far end of growth among those self–actualizing people, who sense ethical imperatives in the situations around them. It also exists at the near end of growth, where young children struggle to tame their out–of–control emotions. Those who can't deal effectively with their impulses have a moral as well as a psychological problem. The same is true of those who have little sense of empathy and caring. And, as Goleman put it, "If there are two moral stances that our times call for, they are precisely these, self–restraint and compassion."[10]

Caring is a key quality that develops as we mature psychologically and spiritually. Milton Mayeroff has said, "Caring has a way of ordering activities and values around itself; it becomes primary, and other activities and values become secondary."[11] Caring is, in fact, one of those magical invisible hands that coordinates and guides. When we care—be it about a person, a set of ideas, a cause, or some other heartfelt passion—good things happen, and the details almost take care of themselves.

Although many people ignore organized religions' lists of dos and don'ts, that doesn't mean those lists convey nothing of value.

Judaism is a religion rooted in rules of behavior, and over the millennia those rules have given Jews a measure of ethical clarity. The *Torah* records the Ten Commandments and other elements of Mosaic Law. Over many centuries, this basic foundation was augmented by oral laws and interpretations, which in the third century CE, were codified in the *Mishnah*. Later, the Mishnah, together with rabbinical commentaries concerning it, became the even more extensive compilation of Jewish law known as the *Talmud*. The Talmud, with its 2.5 million words, is a daunting work. Yet, contemporary scholars continue to mine it for the considerable gold it contains. One of them is Larry Kahaner, who drew from it a wealth of ethical advice for business—advice that makes perfect sense today and is highly relevant to the corporate–behavior issues raised in MATTER OF CONSEQUENCE 6, **Economic Context**.

Among the examples of Jewish business ethics that Kahaner discusses in *Values, Prosperity, and the Talmud* is the decision by Aaron Feurstein, owner of the Malden Mills textile mill in Lawrence, Massachusetts, to rebuild the mill after it burned in 1995. Feurstein took seriously the Talmud's admonition to serve your workers and your community as well as make a profit, and instead of closing the plant and collecting a $300 million fire insurance payment, he chose to rebuild. During the three–month rebuilding period, he kept all of his 3,000 workers on the payroll and paid their medical benefits.[12]

In Judaism, the essential social role of business is not only mandated by sacred writings; it is recognized and honored by the culture. Yes, make money. And serve society at the same time. It is this attitude of social responsibility that the general corporate world needs to adopt, and the Talmudic teachings deserve consideration as elements in a transformed corporate ethic.

Buddhism has many lists, but most have a developmental as well as an ethical focus. The Eight–Fold Path is an example. Buddhists are encouraged to develop:

1.	Right view	In part, seeing the impermanence of the informational world

2.	Right aspiration	In part, aspiration toward benevolence and kindness
3.	Right speech	Avoiding lying, slander, gossip and abusive words,
4.	Right action	In part, not killing and not stealing
5.	Right livelihood	Supporting oneself in ways that do not harm oneself or others
6.	Right effort	Organizing one's energy in the service of inner development
7.	Right mindfulness	Attentive observation of mental activity
8.	Right concentration	Steadiness of mind, allowing calm contemplation

The Six Perfections of Tibetan Buddhism also represent a mixture of ethical stances and developmental goals:

2. Generosity
3. Virtuous conduct
4. Patience
5. Focused energy
6. Meditative concentration
7. Discriminating awareness born of wisdom

The advance of Western society in recent centuries has been paralleled by the gradual evolution of ethical sensibility. Though slavery, autocratic rule, male domination, rape, and pillage have not disappeared completely, they no longer are acceptable to the great majority of people in Western democracies. And the process continues. We are today on the threshold of further advances in ethical understanding. A new ecological ethic is emerging, and with it increased calls for a drastic broadening of corporate ethics to accommodate social and ecological concerns. What it will take to bring these changes into existence is the same thing that brought past ethical changes into existence: increased psychological/spiritual

development—the development of deeper, more comprehensive understanding by increasing numbers of people.

Notes

[1] Barnes, 1959.

[2] Telephone communication to literally any point on Earth was first made possible by the Motorola Iridium system and then with slightly reduced coverage by the Globalstar system. The enabling technology involves wireless phones and multiple low–level satellites. Though both systems were technological successes, the movement toward financial success has been slow. Still, Globalstar reported 10.1 million minutes of usage in the third quarter of 2002.

[3] Both quotes from MCR, 1995. Emphasis in the Nietzsche quote is mine.

[4] Koestler, 1967, pp. 246–47.

[5] Maslow, 1971, p. 19.

[6] Laszlo, 1972b, pp. 117–18.

[7] Wilber, 1996, p. 22.

[8] Maslow, 1971, p. 120.

[9] Maslow, 1971, p. 124.

[10] Goleman, 1995, p. xii.

[11] Mayeroff, 1990, p. 65.

[12] Kahaner, 2003.

Developing Deep Understanding

When you examine lives that are deeply satisfying and meaningful—say, the lives of Maslow's fully developed people or the lives of many core cultural creatives—those lives almost always include a commitment to three things:

- Psychological/spiritual development
- The ongoing acquisition of intellectual knowledge
- Significant doing

The first two are the very activities that lead to deep understanding and wise comprehension, and they are discussed here. The third concerns our contribution to the process around us, and it is the topic of MATTER OF CONSEQUENCE 11, **Significant Doing**.

Creating an optimal life for oneself is a lifelong task that involves progressive development in all three areas. The "doing" component is likely to change rather drastically as we move through the different times and stages of life, and as our understanding becomes deeper and more comprehensive. Growing/doing is an iterative process, with inner development and outer activity feeding back on each other. Growing and learning lead to higher–level doing, and significant doing teaches us new truths and deepens our understanding. Ideally, the process continues in an upward spiral throughout our lives. At any point, however, **the quality of our doing can only reflect the quality of our understanding**.

Just what is the quality of our understanding? Although Paul Ray's research indicates that 50 million Americans are attracted to

"integral" values, as Ken Wilber has pointed out, this is not the same as possessing fully developed integral consciousness. Wilber referred to "the extensive research" of Graves, Beck, and Cowan, and identified three stages, or "waves," of transrational thinking, which he calls early, middle, and late vision–logic. While most of Paul Ray's cultural creatives appear to be riding the early "sensitive–self" wave, Wilber says that only 1 percent of the population has gone beyond this stage to middle "integrative" thinking and 0.1 percent to late "holistic" thinking.[1] Thus, it seems clear that, although millions of people are now pointed in the right direction, a much smaller number have developed their understanding to the degree needed for the most effective kinds of doing.

One of the objectives of deepening our understanding is, as Roberta Schrankler put it, to move "beyond illusions." It is to develop a level of comprehensive clarity that allows us to see beyond the culture–created veil of half–truths, distortions, and outright lies that have so completely permeated our lives that we assume they are *truth* and *the way things must be*. "The way a person thinks is always circumscribed by the culture/history in which that person's life is immersed," she notes, "but with the important exception that the spiritual experience—the moment of transcendence—can transport the person out of the culture to the basic matrix of life."[2]

High–quality doing and high–quality understanding are often associated with the term *wisdom*. Wisdom, as I have come to understand it, is multifaceted. Because it is complex, people tend to develop the various aspects of wisdom to different degrees, which results in many varieties or "flavors" of wise.[3] In all its varieties, however, wisdom is an interpretive and evaluative cognitive activity. It is not about facts, per se, it is about the context–linked meaning of facts—the significance of facts and their implications. It is about seeing what *is* from illuminating perspectives.

Let's take a brief look at three variations on the wisdom theme: the *practical* or *life–centered* emphasis; the *big picture*, *existential* emphasis; and the *deep understanding* emphasis.

Life–centered wisdom is an information–processing modality in which everyday situations are evaluated from multiple perspectives, multiple contextual points of view. Common evaluative contexts include the pragmatic, *Will this work? What are the consequences? Does this fit with my goals? Is this part of the problem or part of the solution? Does this represent excellence? Is action needed or not needed?*—plus many others, including a variety of ethics–, morality–, and justice–related contexts.

Big picture, existential wisdom is a variety of wisdom that Eastern spiritual practices help to develop. Rational evaluation still plays a role in this form of wisdom, but because the goal is the development of insight into both the informational aspect of reality (form, appearance) and the noninformational aspect (Being, Spirit, Energy– Awareness), rationality alone is not enough. Eastern practices develop and harness the psychological modalities of intuition and identification in ways that allow the eternal/transient, Brahman/ maya, carrier/information nature of reality to be more clearly seen and more deeply internalized than is possible through rational investigation alone.

The **deep understanding** variety of wisdom combines the development of broadly based intellectual understanding (the humanities *plus* the sciences *plus* economics) with a high level of psychological/spiritual development. Here, too, mind–quieting, attentiveness–fostering Eastern practices are used to develop self– knowledge and a broadening of sense–of–self identification.

EMOTIONAL AND INTUITIONAL DEVELOPMENT

The most difficult aspect of the quest for deep understanding is the acquisition of self–knowledge and the development of our emotional and intuitional mental processes. This is difficult because it requires us to face and transcend evolution's legacy—that assortment of reality–distorting mental deficiencies discussed in MATTER OF CONSEQUENCE 8, **Self–Knowledge and Other Bad News**.

Where to begin? The process of psychological/spiritual development adheres to a certain natural order, and it is necessary to deal with first things first. The literature on this subject is a rich one, and the writings of people like Jean Piaget, Abraham Maslow, and Ken

Wilber have shed much light on how inner development happens. All three of these writers agree that there are distinct stages of development and you can't magically jump from an early stage to a late one. Maslow, near the end of his life, and Wilber, from his earliest writings, looked at the psychological and the spiritual simply as locations on a single spectrum of emotional, intellectual, and intuitive development. What had traditionally been considered "psychological" referred to the earlier stages of the process, and what had been considered "spiritual" referred to the later ones. The corrective for early–stage deficiencies was a variety of "psychological" therapies; the corrective for later–stage deficiencies was a variety of "spiritual" practices.

In the most recent, most highly elaborated version of Ken Wilber's spectrum of consciousness, development of the self–sense is seen to progress from *material self* to *bodyego* to *persona* (membership–self) to *mature ego* to *centaur* (existential, integrated self)—then to transpersonal stages, which he labels *psychic self*, *subtle self* (soul), *pure self* (Witness), and *nondual* (Spirit).[4] As we move along this developmental spectrum, much changes. Wilber wrote: "Different stages of conscious growth present a different view of the world. The world looks different—is different—at each stage. As new cognitive capacities unfold and evolve, the Kosmos looks at itself with different eyes and it sees quite different things."[5]

The developmental starting point is our emotional life. Daniel Goleman, in his book *Emotional Intelligence*, pointed out that childhood and adolescence are the preferred windows of opportunity for learning basic emotion–handling skills. He also made the case that these skills are essential: "People with well–developed emotional skills are…more likely to be content and effective in their lives, mastering the habits of mind that foster their own productivity; people who cannot marshal some control over their emotional life fight inner battles that sabotage their ability for focused work and clear thought."[6]

Goleman's list of skills includes self–control (including patience and the ability to defer gratification), empathy, zeal, persistence, and

the ability to motivate oneself. Goleman devotes part of his book to proposals for introducing training in these matters into the educational system, and I touch on some of his ideas in MATTER OF CONSEQUENCE 14**, The Year 2050 Vision**. He also makes it clear that one of the greatest gifts that parents can give their children is to help them acquire these basic emotional skills.

For those of us whose childhood is long past, hope remains. Through increased attentiveness to what is going on in our minds, we can avoid getting into reactive emotional states and benefit in many other ways. If we think back to our childhoods, most of us can recall the refrain "Pay attention!" being delivered by parents and teachers in a scolding tone. Kids have trouble paying attention, but so do we adults. A friend of mine once said, "When I think back on all the things that have gone wrong in my life, each was the result of not paying close enough attention."

The truth is, the more attentive we are, the less we screw up, the more clearly we come to know ourselves, the more at peace we are, and the better able we are to live the kind of life we want to live. As I have pointed out elsewhere,[7] reactive emotional states always begin with a single impulse—of fear, anger, jealousy, lust, etc. If we are attentive enough to see the impulse when it first arises, it is possible to avoid going down the path of events that result in a *state* of fear, anger, jealousy, lust, etc. It is simple—at least in principle. We just note the impulse has occurred (perhaps recalling that it is a one–blip message from the amygdala to the global workspace) and then let it go. What often happens, however, is we allow the impulse to trigger discursive thinking about the situation, which in turn triggers more impulses, which then triggers more thinking, etc. This looping feedback continues until we find ourselves in a high–adrenaline, very upset, emotional STATE. We can do nothing to prevent the appearance of the initial impulse; the amygdala kicks out impulses whenever it decides to. Our point of leverage and control lies in consciously noting the impulse. If we notice it when it first arises, we can make a conscious choice not to turn it into an emotional state.

Attentiveness (or *mindfulness,* as it is often called) is another of those invisible hands—one that can greatly facilitate our psychological/spiritual development and increase our enjoyment of life. For one thing, attentiveness helps us to develop that other key element of emotional intelligence: empathy. It is only by paying very close attention to people in a caring, highly observant way that we can come to know them in all their richness and subtlety. For another, attentiveness is the direct path to knowing ourselves. If we learn to watch our own mind contents and processes in a caring but detached fashion—rather than being lost in the melodrama of our lives as we usually are—we get helpful insight after helpful insight.

How can we develop heightened attention? The Indian spiritual teacher J. Krishnamurti told us to *just do it*. That *intention* is certainly helpful, but for most people the intention alone is not enough. With our brain wired the way it is and lifelong patterns of inattention already in place, Krishnamurti's advice to just do it is asking too much. Fortunately, like an athletic or musical skill, the skill of heightened attentiveness can be developed gradually through repeated practice. Hatha yoga, tai chi, and the various martial arts all require sustained attention and thus help develop it. A meditative practice centered on attentiveness that I find useful goes by the names *mindfulness*, *vipassana*, and *insight meditation*.

The way mindfulness meditation is normally taught, you first develop attentional steadiness or concentration by spending time paying attention to physical sensations, especially those that arise in connection with breathing. You are given the option of paying attention either to the sensations created by the breath as it enters and leaves the nostrils, or to the sensations associated with the rising and falling of the abdomen. Because the body always breathes and these breath–associated sensations are relatively subtle, they make good objects of attention. Once you are able to watch breath sensations continuously for modest periods without your attention wandering, you then widen the focus of attention to include other mental objects—physical sensations, feelings, sounds, incipient thoughts—and ultimately, whatever arises in the mind.

How often does one do this practice and for how long each time? Robert de Ropp, author of *The Master Game*, put it simply: "*Enter the silence as often as possible; remain there for as long as possible.*"[8] (Emphasis his.) The specifics depend largely on how eager a person is to get on with their own inner development. Established practices typically involve one or two forty-five–minute periods a day, and many practitioners annually attend one or more intensive retreats of seven to ten days duration. The practice is normally done in a sitting posture in a quiet place, but it can be done anywhere, in any posture. Any forced wait can be turned into a meditation period—sitting in your car at a red light, standing in line at the supermarket or bank, sitting in the dentist's waiting room.

"The medium of spirituality is *intuition*, the integrating function of the right cerebral hemisphere," observed philosopher Rudolph Bahro. "In decisive moments of our lives, it is from here that our experience of the world must come, if we are to experience ourselves unified with the whole. If the left hemisphere, dominated by analytical reason and its cultural externalisations, continually takes charge, the intuitive mode of integration into the world–whole will be subordinate and underdeveloped."[9] How do we avoid this undesirable left–hemisphere domination? According to many people, it is through the regular practice of meditation. Philip Goldberg and Frances Vaughan have said that they consider meditation to be the single most powerful means of increasing intuition.[10] Ken Wilber cites research indicating that meditation is the only proven way to move our psychological/spiritual development beyond the "sensitive self" stage to the "integrative" and "holistic" stages. He noted, "Less than 2 percent of the adult population scores at Jane Loevinger's highest two stages of self development (autonomous and integrated)," and went on to say, "*No practice (including psychotherapy, holotropic breathwork, or NLP) has been shown to substantially increase that percentage.* With one exception: studies have shown that consistent meditation practice over a several–year period increases that percentage from 2 percent to an astonishing 38 percent…."[11] (Emphasis his.)

Neurological research is starting to tell us why meditation is such a powerful tool. Tenzin Gyatso (the current Dalai Lama) wrote in the New York Times about research by Dr. Richard Davidson of the University of Wisconsin that explored the effect of mindfulness meditation on brain function. In the Dalai Lama's words: "mindfulness meditation strengthens the neurological circuits that calm a part of the brain that acts as a trigger for fear and anger." Some of Dr. Davidson's research involved people who worked in highly stressful jobs. Regarding this, the Dalai Lama said: "These people—non-Buddhists—were taught mindfulness, a state of alertness in which the mind does not get caught up in thoughts or sensations, but lets them come and go much like watching a river flow by. After eight weeks, Dr. Davidson found that in these people, the parts of their brains that help to form positive emotions became increasingly active." The Dalai Lama went on to say, "It's worth noting that these methods are not just useful, but inexpensive. You don't need a drug or an injection. You don't have to become a Buddhist or adopt any particular religious faith. Everybody has the potential to lead a peaceful, meaningful life."[12]

Mindfulness meditation quiets the mind, and a quiet mind opens the door to the subconscious. It turns out we can't pay attention and think discursively at the same time. So, as we work on paying continuous attention and as our ability to do it gradually develops, the level of discursive thinking diminishes and our minds quiet down. In turn, this mental silence facilitates communication between conscious and subconscious mental processes. Things that our subconscious may have been trying to tell us start bubbling up into consciousness. We start to see some of those lies we've been telling ourselves and to find new meanings in old data.

Improved creativity is another benefit of quieting the mind. Under quiet mind conditions, the intuitive process's creative Muse is able to communicate effectively with the intellect and the global workspace, and the number of Aha! and Eureka! experiences goes up. This is not too surprising when we think of the number of writers and artists who find solitude essential for significant work. Another

plus: when the mind is quiet, we sometimes undergo insightful shifts of perspective. We suddenly apply a new interpretive framework to the same old facts and see things in a dramatically different way.

The spiritual traditions rooted in the perennial philosophy hold that existence involves a monistic, enduring, unchanging, *absolute* reality and a dualistic, ephemeral, constantly changing *relative* reality. Evolution crafted the human cognitive system to deal with relative (informational) reality, because in this arena the drama of survival and reproduction play out. We can assume human mentality was not designed to allow us to understand absolute reality with ease, because such understanding provided no survival or reproduction payoff. Now, in our present circumstances, we want to understand the deeper truth—ABSOLUTE truth. Because we are attempting to use the human cognitive system for something other than its intended purpose, this deep understanding is difficult—but not impossible.

Meditative practices are tools that give us some hope of seeing through the relative to the absolute. In mindfulness meditation, we are, for the most part, still paying attention to the relative. But because we are more detached from mental information than before we began to practice meditation, gradually, bit by bit, insight by insight, we begin to see more deeply into the nature of mind and mental processes. We begin to see the impersonal nature of the brain's churning out of information. There is no "I" doing it. It just happens mechanically, automatically.

We also discover that the arising informational stuff has no in-herent power. With practice, we learn that when we are able to *accept* the present informational reality, rather than trying to get rid of it, we can experience the emergence of even physical discomfort and heavy emotions, such as fear and anger, without suffering. We come to see that **it is our reaction to presently existing mental information** that binds us and disturbs us. Pleasant or unpleasant mind content has no power, as long as we remain detached and simply watch it arise and disappear on its own. It is when we cling to the pleasant, wanting it to continue, or when we push away the unpleasant, want-ing it to disappear, that we suffer and lose sight of our innate equa-

nimity and freedom.[13] Mindfulness practice gives us many insights we need in order to understand how trapped we usually are in this relative realm.

John Stewart has pointed out that practices like mindfulness meditation could also help release humanity from an evolutionary trap. As mentioned early in this book, we human beings are the new evolutionary players, the new producers of complexity, the new agents of Energy/Being/Spirit. Humanity's evolutionary future will be determined much more by human analysis and choice than by the evolutionary mechanisms of the past. That said, human choices are today largely determined by a matrix of wants and desires which came out of that past. Satisfying personal wants is humanity's central preoccupation, and very little attention is given to the long–term adaptation of our species to changing circumstances. Stewart sees this as a barrier to humanity's "pursuit of evolutionary success." He feels that spiritual practices which allow us to detach from these wants are our best hope of getting past this barrier. They free us to "align our internal reward and motivation system with evolutionary goals."[14]

When the mind–watching effort is pursued for an extended period—as in one–week or ten–day retreats—the mind can become *very* quiet. At such times, one may become aware that even though little is happening in the mind informationally, intense awareness is still present. As I once put it: "A moment may come…when awareness becomes aware of awareness—when the observing faculty becomes aware of itself as an entity separate in some sense from the show and different in nature. At such moments, it becomes clear that awareness is inherently still and unchanging and that all motion, all change, resides in the informational show."[15] At such moments, we cognitively touch the absolute.

Such moments can also trigger profound insights into who "I" really am. Each of us has an unequivocal feeling of basic existence, a "self" sense, an "I am" sense. But to what does this sense refer? What or who is the truest, the deepest "me?" And why should we care? As noted in the previous reference to Ken Wilber's "spectrum of consciousness," our sense of self shifts and broadens as we

develop psychologically and spiritually. One reason we should care is because this broadening is intimately linked with our moral development.

As Wilber has noted:

> *If you identify only with you, you will treat others narcissistically. If you identify with your friends and family, you will treat them with care. If you identify with your nation, you will treat your countrymen as compatriots. If you identify with all human beings, you will strive to treat all people fairly and compassionately, regardless of race, sex, color, or creed. If your identity expands to embrace the Kosmos, you will treat all sentient beings with respect and kindness, for they are all perfect manifestations of the same radiant Self, which is your very own Self as well.*[16]

Narrow identifications that include only person, family, and clan had survival value back in hunter–gatherer times. Today, however, with billions of people impacting the planet and with ethnic groups possessing modern armaments, narrow identifications have become part of the problem. Now, the broader identifications—identification with all humanity, life itself, the cosmic process, and cosmic ground—have survival value. And these identifications can open the door to some new and very exciting personal purposes.

Those who have developed attentiveness/mindfulness to a fairly advanced degree sometimes move on to *nondual* practices, which specifically promote cognizance of the absolute and identification with it. Ken Wilber describes his "favorite meditation on nondual awareness"—and one of mine—in chapter twelve of his book *The Eye of Spirit*, entitled "Always Ready: The Brilliant Clarity of Ever–Present Awareness."[17] Another nondual practice, Tibetan Buddhism's Dzogchen, is covered in a growing body of contemporary English–language literature. As with Wilber's meditation, the aim of Dzogchen practice is to relax, to just BE, to become cognizant of Spirit (the ever–present absolute aspect of mind, the ever–present absolute aspect of everything), and to realize that your deepest, truest self is nothing other than this primal sentient/active Oneness.

Other practices with a similar aim are found in Taoism, Advaita Vedanta, Zen Buddhism, and Christian mysticism.[18] Among these is a practice found in both Advaita Vedanta and Christian mysticism in which one pays attention to the primal sense of existing, the self–sense, the "I am" feeling. The object is to find out where that sense is rooted, to what it is connected. The observed associations constantly change—first this feeling, then that, then this perception, then that thought. No association is constant, so all are rejected. Eventually, the practitioner's perspective shifts from mind content to the ground of mind. There is a sudden epiphany, a Eureka experience, a satori moment, as the realization hits that awareness itself, sentience, the ground of all mental experience, is the one constant factor. This universal quality, present in every mind, is mind's only unchanging aspect—and in that moment is seen to be the fundamental "I," the primal self.[19] Regarding this realization process, Wilber has said, "Spirit slumbers in nature, begins to awaken in mind, and finally recognizes itself as Spirit in the transpersonal domains—but it is the same Spirit present throughout the entire sequence: the ground, path, and fruition of the whole display."[20]

One final point: I mentioned our "innate equanimity." I also mentioned that, "awareness is inherently still and unchanging" and that "all motion, all change, resides in the informational show." A quiet mind brings inner peace, but identification with awareness, Spirit, the ground of mind, takes us even further—to a profound, unshakable happiness. When we have seen, profoundly and deeply, that we are equanimous subjectivity itself, then we can pull back at any time from our lost–in–the–show informational existence. We can simply BE, totally happy, totally at peace, identified with the ocean of Spirit, and undisturbed by its informational waves. Most people who find this option don't abandon everyday life. Instead, they bring to it a new perspective. These people have come to understand that they *really are* Being, they *really are* Spirit, and that playing the Existence Game with skill and understanding *is* what existence in relative reality is all about.

INTELLECTUAL DEVELOPMENT

The second essential for deep understanding is the acquisition of relevant intellectual knowledge. For those of us educated in the modern era, the question of relevancy comes down to, "What holes in my intellectual knowledge do I most need to fill?" While many scientists and engineers lack knowledge of the humanities, many "well–educated" people with a humanities orientation lack scientific knowledge. Neither situation is satisfactory. Coming to grips with the major scientific, social, and economic issues that bear on the present world situation requires that we become holistic knowers. We need a deep and comprehensive understanding of the context in which humanity's problems are set: knowledge of the systemic nature of the cosmos, the evolutionary process in its most general sense, Earthly life, consciousness, human cultures, economic systems, and some of the more important principles, laws, and regularities that underlie functioning in all these areas. To this list we could also add: the workings of the human brain/mind system and techniques for dealing with it; ethics and techniques for changing ethical perspectives; probability as a decision–making tool; the techniques of conflict resolution and consensus building; the sciences of energy, complexity, and information; and ongoing news about what people are doing to solve the problems the world faces.

As psychologist Robert Ornstein and biologist Paul Erlich put it, "We need to be 'literate' in entirely new disciplines."[21] Fortunately, this does not mean that we need to be experts in them. What is very much needed—and what we already have in some of these areas—are books, videos, audio cassettes, multimedia CD–ROMs, and other resources that can help people grasp a discipline's key ideas with a reasonable expenditure of time and effort. We also need more works of the kind you are presently reading—high–relevancy, cross–disciplinary maps of reality that, by pulling together material from a multitude of disciplines, can help us see and understand some of the important links between them.

As indicated in MATTER OF CONSEQUENCE 14, **The Year 2050 Vision**, it seems likely that some time later this century, education for deep

understanding will become a societal priority. In the meantime, those of us who are interested in going down this path will need to be self–motivated and self–directed. MATTER OF CONSEQUENCE 15, **Doing What Needs To Be Done**, discusses ways and means of educating ourselves and initiating change as well as some hurdles we're likely to encounter and results we're likely to realize. Finally, the appendices at the back of the book contain references to books, periodicals, organizations, and Internet resources that might prove helpful in this effort.

Notes

1 Introduction to Volume 7 of Ken Wilber's *Collected Works* (Wilber, 2000a). The Introduction has been available on line. Check:
http://www.integralage.org/docs/WilberV7.pdf.

2 Roberta Schrankler, personal communication.

3 For more of my thoughts about wisdom, see *Toward Wisdom*, especially Chapter 1 (Macdonald, 2001a [1996a 1993]), and *Getting a Life*, especially the introduction (Macdonald, 2001b [1995a]). The first selection is at http://www.cop.com/twch01.html; the second is at http://www.cop.com/glintro.html. For a variety of views, visit the *Wisdom Page* at http://www.cop.com/wisdompg.html.

4 Wilber, 2000c, p. 197.

5 Wilber, 1996, p. 57.

6 Goleman, 1995, p. 36.

7 Macdonald, 2001a [1996a 1993], Chapter 6.

8 de Ropp, 1968, p. 71.

9 Bahro, 1994, p. 71.

10 Goldberg, 1983, p. 179–80.

11 The quote is from Wilber's online announcement of the formation of Integral Institute, read on 24 October 2000 at http://wilber.shambhala.com/html/books/formation_int_inst.cfm/xid,8287/yid,9296268. He also makes this point in Wilber, 2000d, p. 138, and goes into more detail in the second edition of *The Eye of Spirit* (part of Wilber, 2000a.)

12 Gyatso, Tenzin, 2003.

13 This, of course, is one of Buddhism's basic messages.

14 John Stewart's insightful article, "The Evolutionary Significance of Spiritual Development," is online at http://ww4.tpg.com.au/users/jes999/EvSpirit.htm.

[15] Macdonald, 2001a [1996a 1993], p. 89.

[16] Wilber, 2000c, p. 116.

[17] As noted in the introduction to volume seven of Ken Wilber's *Collected Works* (Wilber, 2000a), which has been available on line. Check at: http://www.integralage.org/docs/WilberV7.pdf.

[18] For information about meditation–related resources, including books on meditative practice, check out APPENDIX B.

[19] A personal experience with this process is described in Chapter 9 of *Toward Wisdom* (Macdonald, 2001a [1996a 1993]) and can be read online at http://mattersofconsequence.com/twch9.html. The Advaita Vedanta variation of the practice is discussed in Nisargadatta, 1986. The Christian variation is discussed in *The Book of Privy Counseling* section of Johnston, 1973, pp. 149–88.

[20] Wilber, 1996, p. 246.

[21] Ornstein and Erlich, 1990, p. 12.

Significant Doing

From the perspective of the cosmos, human lives are *inherently* significant. For one thing, each life—including each human life—is an experiment being run by the cosmic process. These experiments are the means by which evolution moves along its trend lines toward more interesting and more complex informational structures and functions, more sophisticated minds, and new ways of promoting cooperation. For another, the very fact that we *perceive* is significant. We live in a yin/yang, receptive/active universe. In running its countless experiments, the universal process actualizes mental potentials as well as physical ones, and this gives us reason to believe that mentality and physicality are equally important. If part of the cosmic purpose involves Spirit/Being appreciating itself and its informational creations, then doing things is not the sole source of meaning. The tiny baby absorbed in watching the colors above its crib and the old person with memory gone but still able to taste food and look out the window are both involved in realizing that purpose. Their sentience alone gives their lives meaning.

That said, through the right kinds of doing our lives can acquire additional significance. Each of us wants our life to matter, to be of consequence, to send out ripples of cause and effect that will leave a positive residue after we die. Why? My suspicion is that at some deep level we realize we are agents of the cosmic process and feel subtle promptings to work in harmony with universal and societal trends toward physical, mental, and ethical betterment.

Everyone fears being a zero—living a life devoid of significance. The good news is, no one is a zero. By virtue of having lived, each of us has forever changed the universe. Just as our present actions are rooted in past happenings, every new action creates ripples in the causal matrix of happenings—ripples that have future consequences. As Hannah Arendt put it: "Action has no end. The process of a single deed can quite literally endure throughout time…."[1] Each person's life is part of the causal matrix, and however it is lived, each plays a role in determining the future.

The bad news is, negative ripples and negative consequences characterize many lives. A large number of highly intelligent, highly capable people are engaged in socially and ecologically harmful activities. They are effective doers, but they are doing hurtful things. Their lives are significant, but in a negative sense. These people are doing more harm than good, leaving communal/holonic damage as their legacies.

What is my legacy and yours? Which aspects of our lives are part of the problem? (For each of us, there are some.) Which aspects are part of the solution? Where does the balance lie between the two? What are the things we need to change? What do we do first? There are no universal answers here; each of us must assess our own situation and take our own next steps. It can be helpful to consider the impact and significance of our lives from various perspectives—those of close relatives, one's employer, the personal egoic self, human society, other Earthly life, and the universal process. From each perspective we can ask: "What roles does my life play? What functions does it serve? What value does it have? What is its meaning, its purpose?"

PERSONAL PURPOSE

The essential task is to establish and bring into the foreground of our lives a personal vision, and then to keep refining that vision as we move toward it and actualize parts of it.

As psychologist Jean Baker Miller put it:

> *Personal creativity is a continuous process of bringing forth a changing vision of oneself, and of oneself in relation to the world.*

Out of this creation each person determines her/his next step and is motivated to take that next step. This vision must undergo repeated change and re-creation. Through childhood and adulthood, too, there are inevitable physical changes as one grows and then ages. These demand a change in one's relation to the world. Further, there are the continuous psychological changes that lead to more experience, more perceptions, more emotions, and more thought. It is necessary to integrate all these things into a coherent and constantly enlarging conception of one's life.... It is never exactly the same as anyone else's, and it is never the same as the one made yesterday.[2]

Do we create our life purpose or discover it? The existentialists maintain that we create it through a lifelong series of personal choices. "Man is nothing else but what he makes of himself," said Sartre.[3] For people like psychologist Marion Milner, it was a matter of discovery: "I began to have an idea of my life, not as the slow shaping of achievement to fit my preconceived purposes, but as the gradual discovery and growth of a purpose which I did not know."[4]

For others, like Nikos Kazantzakis, it was not clearly creation or discovery: "The important thing was that I should find (should create) a purpose congruent with my own self, and thus, by following it, reel out my particular desires and abilities to the furthest possible limit. For then, at last, I would be collaborating harmoniously with the totality of the universe."[5]

For Dag Hammarskjold, too, it was both: You choose, but you first have to find the right thing to choose:

At every moment you choose yourself. But do you choose your self? Body and soul contain a thousand possibilities out of which you can build many I's. But in only one of them is there a congruence of the elector and the elected. Only one—which you will never find until you have excluded all those superficial and fleeting possibilities of being and doing with which you toy, out of curiosity or wonder or greed, and which hinder you from casting anchor in the experience of the mystery of life and the consciousness of the talent entrusted to you which is your I.[6]

Irving Layton, on his eighty-fifth birthday, was direct: "Either find yourself a purpose in living or give yourself one. I give myself one; I write poetry." Maslow, not surprisingly, felt that getting to know yourself was the place to start: "The more [a person] knows about his own nature, his deep wishes, his temperament, his constitution, what he seeks and yearns for and what really satisfies him, the more effortless, automatic, and epiphenomenal become his value choices."[7]

Eleanor Roosevelt, too, felt that self–knowledge was the starting place:

> *Somewhere along the line of development, we discover what we really are, and then we make our real decision for which we are responsible. Make that decision primarily for yourself, because you can never really live anyone else's life, not even your own child's. The influence you exert is through your own life and what you become yourself.*[8]

My own feeling is that if we pursue the path of deep understanding and keep asking the right questions (What worthwhile thing requires me for its fulfillment? What creative work requires me for its actualization?), opportunities for meaningful activity and significance–filled lives eventually reveal themselves to us. The core cultural creatives among us are already committed to that path. They may not have found their ultimate "higher purpose," but they are growing toward it. If they keep growing, it will appear.

THE CONSCIOUSLY LIVED LIFE

A life vision is like an invisible hand helping us to navigate through life. The mixture of enthusiasm and intellectual clarity that Joseph Campbell called *bliss* signals that we are pursuing the *right* vision. "Follow your bliss," Campbell advised his students at Sarah Lawrence College. Along the same line, Barbara Sher referred to a study of people who considered themselves happy. These people "had only two things in common," she said, "They knew exactly what they wanted and they felt they were moving toward getting it."[9] Whether we call it happiness, bliss, or something else, this feeling helps us know when our life is on track.

Living your personal purpose, actualizing your vision, following your bliss—however we choose to put it—is crucially important for your mental health and may also be a factor in physical health. In their book *Remarkable Recovery: What Extraordinary Healings Tell Us About Getting Well and Staying Well*, Caryle Hirshberg and Marc Ian Barash report that a number of people who had remarkable recoveries from terminal illness felt that *starting to do what they really wanted to do* was a significant factor in their recovery.[10]

Enthusiasm is both an interesting phenomenon and an essential part of effective living. Emerson called it "the mother of effort" and said, "Every great and commanding moment in the annals of the world is the triumph of some enthusiasm." Samuel Smiles called it "the sustaining power of all great action."[11]

Arthur Koestler quoted Louis Pasteur:

> *The Greeks understood the mysterious power of the hidden side of things. They bequeathed to us one of the most beautiful words in our language—the word 'enthusiasm'—*EN THEOS—*a god within. The grandeur of human actions is measured by the inspiration from which they spring. Happy is he who bears a god within, and who obeys it. The ideals of art, of science, are lighted by reflection from the infinite.*[12]

Enthusiasm is a manifestation of primal aliveness, a manifesting of Spirit in human action, an inspiriting of our lives. Enthusiasm is Being's response to an appropriate engagement with life activity. When interests, skills, and circumstances come together in the right way, enthusiasm arises—and in an optimally running life, it can be present nearly all the time.

Another indicator of compatibility between person and task is the frequent arising of the state of high enjoyment and optimal experience that Mihaly Csikszentmihalyi calls *flow*. Flow occurs when we become involved in a challenging task—one in which skill and challenge are closely matched. The near match forces us to concentrate, and this concentration removes from awareness the worries and frustrations of everyday life as well as concern about the self. It can also alter our sense of time, sometimes speeding it up, sometimes

slowing it down. The activity may present both physical and mental challenges, such as mountain climbing, tennis, dance, or surgery; or it may be a primarily mental activity, like playing chess, editing a tape or film, or writing a computer program. When the challenge exceeds our level of skill, anxiety tends to arise. When skill exceeds challenge, boredom tends to arise. Life situations that allow us to escalate the challenge as we develop greater skill make it possible to maintain the flow experience over time. The mountain climber chooses progressively more difficult ascents. The artist and writer choose progressively more difficult artistic challenges.

Pursuing a vision requires courage. Modern culture has indoctrinated us with the idea that there is success and there is failure, and the worst of all horrors is to fail. Consequently, fear of failure keeps many people from attempting to actualize their dreams. Creativity expert Doug Hall has written about this: "People often tell me they have an idea or a vision, but they don't know where to start. I ask them what they've tried and what dead ends they've encountered. Almost invariably, the answer is zero, zilch, nada. I look at them with wonder. Columbus never would have discovered America if he'd sat in Spain and just thought. By taking action you discover, learn, and gain control over your fears."[13]

The concept of *life experiment* can help us get past the fear of failure. In science, there are successes, but no real failures. The result of each experiment—however it turns out—is increased knowledge. The universe, too, runs experiments. Biological evolution is all about trial and error experiments that actually improve things only a tiny percentage of the time. If we can get comfortable with the idea of moving forward toward our goals through a series of life experiments, then the great bugaboo of FAILURE lifts from us. To move forward, we run an experiment. If we get the results we hoped for, great. If we don't, we have at least learned more about what doesn't work—and that makes us better able to design our next experiment and the ones after that. Regardless of its outcome, each experiment is a valid and necessary act. It is part of an effective success–finding strategy. The only real failure is not to experiment.

Whatever our approach, actualizing a life vision requires persistence. Helen Keller once said, "We can do anything we want to do if we stick to it long enough."[14] Fortunately, the sense that our chosen purpose is the right purpose helps us to sustain the effort, even during those long stretches when the goal seems very distant. Doug Hall put it well: "If you choose causes you're convinced are right, you'll have courage. You'll have an impact, and you'll leave a mark. Most of all, you'll have a life of quality."[15]

Another issue is the allocation of personal resources. If we want to actualize a personal vision, we must invest time, energy, and often money into doing it. Yet, all sorts of demands compete for those same resources. If we are serious about saying YES to a focused vision, then we will probably need to say no, at times, to other appeals. It's all part of the puzzle of creating a life. Hall refers to inappropriate yes's as "energy leakages" and points out, "Saying no doesn't mean you're a slackard; it means you have a sense of mission, values, and personal responsibility." There isn't enough time and energy to do it all; each of us must set priorities and be ready to say no to people who ask you "either to go unreasonably out of your way or to join him or her in something that doesn't feel right to do."[16]

Finally, a consciously lived life involves adopting a helpful perspective on death. As mentioned in MATTER OF CONSEQUENCE 8, **Self–Knowledge and Other Bad News**, one of the nasty little tricks evolution played on us was to make it difficult for us to internalize the reality of our own eventual death. If, however, we can manage to make our own deaths real enough, early enough in our lives, it can make a significant difference in how we use the time that remains.

Carlos Castaneda's writings from the 1970s helped me to do this:

> *Ask death's advice and drop the cursed pettiness that belongs to men that live their lives as if death will never tap them.*
>
> *I wanted to convince you that you must make every act count since you are going to be here for only a short while….*
>
> *Focus your attention on the link between you and your death, without remorse or sadness or worrying. Focus your attention on*

the fact that you don't have time and let your acts flow accordingly.[17]

Although the personality is apparently not immortal, immortality does exist in two very real senses—each associated with one of the two realities discussed in MATTER OF CONSEQUENCE 1: the absolute reality of Spirit/Being/Energy–Awareness, and the relative reality of information. Regarding the first, just as "energy cannot be created or destroyed," our energy–linked, truest, deepest nature cannot be created or destroyed, because WE ARE THAT—we are that absolute reality.

Regarding the second reality, it's hard to disagree with Jack Mendelsohn who said:

> *I have something to live and die for: not a personal survival in which I cannot believe, but a present and lasting immortality of influence in which I can believe…. Everyone is immortal since whatever men do lives on "somewhere, somehow, somewhen." The evil men do is as immortal as the good. There is an immortality of the ignoble as well as the noble, of the brutish as well as the sublime, of selfishness as well as generosity, of stupidity as well as wisdom. Immortality is complete…. We are the living immortality of those who came before us. In like manner, those who come after us will be the harvest of the wisdom and folly we ourselves are sowing. To let this reality permeate and drench the consciousness is to introduce ourselves to a grand conception of immortality which makes yearnings for some form of personal afterlife seem meager indeed. So long as there is an ongoing stream of humanity, I have life. This is my immortality. I am a renewed and renewing link in the chain of humanity. My memory and particularity are personal, transitory, finite; my substance is boundless and infinite.*[18]

It seems likely that this is as close as we humans come to informational immortality—and reason enough to get it right.

Notes

1 Arendt, 1958.

2 Miller, 1976, pp. 111–12.

3 Sartre, 1957, p. 15.

4 Marion Milner wrote this in *A Life of One's Own,* under the pseudonym Joanna Field. Field, 1981, p. 89.

5 Kazantzakis, 1966.

6 Hammarskjöld, 1966, p. 38.

7 Maslow, 1971, p. 111.

8 MCR, 1995.

9 Sher, 1994, p. 2.

10 Hirshberg and Barash, 1995, pp. 197, 221, 251, 302.

11 Both quotes from MCR, 1995.

12 Koestler, 1967, p. 220.

13 Hall, 1998.

14 MCR, 1995.

15 Hall, 1998.

16 Quotes from Hall, 1998.

17 Castaneda, 1972, pp. 56, 107, 112.

18 Mendelsohn, 1966, pp. 181–82.

Part IV

The Future

Given the reality described in **Parts I**, **II**, and **III**, where do we go from here? Where *must* we go from here? Discussions about predicting the future and creating the future provide background for considering the vision of a year 2050 world worth creating. That world is characterized by economic equity, physical sustainability, vibrant local cultures, an electronically facilitated world culture, and sufficient time in people's lives to pursue a full, rich life of the mind. The closing MATTER OF CONSEQUENCE 15, **Doing What Needs To Be Done**, focuses on our personal relationship with the task of actualizing the vision.

The Art of Predicting the Future

We human beings are biologically and culturally wired to predict. We raise questions about the future, answer them as best we can, and then act on those answers. Much of this predicting involves the immediate future, and even today, some of it involves life and death issues. In ages past, we needed to predict the behavior of wild animals. Today, we need to predict such things as the behavior of wild drivers and the effect of road conditions on our own driving. I predict that the car approaching the intersection ahead will stop at the stop sign. I predict that the car I am trying to pass will allow me to do so. I predict that I can go fifty on this snowy road without sliding off. If my predictions are wrong, I'm in trouble.

We also want to know about the more distant future. In the past, humans relied on astrologers, crystal gazers, tossers of bones, and surveyors of entrails for help with this. Some still do. Today, however, most people who would like to see into the future rely on (a) trend detection and extrapolation, (b) scenario creation and monitoring, and (c) reality modeling.

TREND DETECTION AND EXTRAPOLATION

Because the Earthly contexts in which our lives are embedded are systems and because systems (by definition) have a certain stability, things tend to remain the same from moment to moment. This is also true of those gradual changes we call *trends*. If a system exhibits a trend, then that trend is likely to persist for at least a while. There are,

for example, investors who monitor market swings and do better than chance by betting that when the market has been rising, it will continue to rise, and when it has been falling, it will continue to fall.

Other trends are less obvious, and detecting them requires collecting and analyzing a lot of data. This sort of activity has been the starting point for the books by John Naisbitt, Alvin Toffler, Faith Popcorn, and other futurists who focus on societal trends and where they might lead. Trend extrapolation has value for the medium term—say, the next five or ten years—but doesn't work well for long–term predicting. In the long run, unanticipated events always seem to occur that upset the trend's progression by changing the characteristics of the system itself. Kenneth Boulding called these *system breaks*. Sometimes, the event is the introduction of a new technology. At other times, it is a shift in tastes, desires, perceptions, or values. (We all know how quickly human minds can change.) More rarely, it is a catastrophe. We can easily imagine high–impact events that would modify all sorts of trends: an economic collapse, an asteroid impact, nuclear terrorism, a drug that switched off the aging gene, a new disease having no cure, etc. Boulding noted that system breaks are virtually impossible to detect in advance and that they are even difficult to detect for some time after they have happened. That is because, in the short run, it is impossible to distinguish the beginning of a new long–term trend from a strictly temporary fluctuation.[1]

SCENARIO CREATION AND MONITORING

Oil prices provide an interesting example of how trend–based prediction can fail. During the 1950s, '60s, and early '70s, oil prices remained relatively constant. Then, in 1973, a group of men from oil–producing countries sat around a table and decided to sell less oil. That doesn't seem earthshaking, yet it produced a genuine system break by changing one of the key elements in the world economic system. Prices abruptly rose, and shockwaves rippled through the economy for more than a decade afterward. Those who had placed their faith in trends (governments, consumers, and almost the entire oil industry) were unprepared for the sudden turn of events. One company was not surprised: Royal Dutch Shell. In thinking about the

future during the early 1970s, the firm had envisioned several possible futures, several different *scenarios*. One of these assumed that past trends would continue. But another was based on the idea that the oil–exporting countries would some day get together and restrict the amount of oil they were willing to sell. Associated with each scenario was a carefully thought–out corporate action plan. So, in 1973, when other oil companies were caught off guard and floundered for a while, Royal Dutch Shell was able to respond immediately.[2]

Scenario creation can be a more helpful planning tool than trend extrapolation, but there are limits to the number of scenarios for which an individual or organization can reasonably plan. It requires sorting out a few plausible scenarios from the countless possible ones, which is sometimes difficult. The Y2K problem is an example. Some people were sure nothing significant would happen in the wee hours of January 1, 2000, and after. Others maintained that a mega-disaster was certain. Because of the lack of hard data, no one knew what would really happen. Given the extreme range of uncertainty, author Bruce Webster included eleven scenarios in his *Y2K Survival Guide*. They ranged from a level–zero, no–impact, "just kidding" scenario to a level–ten, "end of the world as we know it" scenario. For each scenario, he included his "highly subjective and tentative" assessment of the probability of occurrence, a recovery time estimate, and probable impacts on business, infrastructure, economy, society, government, education, health/fitness, home/hearth, food/supplies, work, money/law, and family/community. He also included "tracking clues"—indicators to watch for during 1999 that might point to a particular scenario being *the* scenario—and "wild cards," unrelated events that "could help this scenario come to pass."[3]

Regarding humanity's future, many scenarios were put forth during the 1990s. A particularly negative one appeared in a 1994 *Atlantic Monthly* article by Robert D. Kaplan—"The Coming Anarchy: How Scarcity, Crime, Overpopulation, Tribalism, and Disease Are Rapidly Destroying the Social Fabric of Our Planet." Kaplan's scenario for the first decades of the twenty-first century was: "Nations break up under the tidal flow of refugees from environmental and

social disaster. As borders crumble, another type of boundary is erected—a wall of disease. Wars are fought over scarce resources, especially water, and war itself becomes continuous with crime, as armed bands of stateless marauders clash with the private security forces of the elites."[4]

A 1992 World Future Society project called "World 2000" came up with a more positive, if largely trend–based, scenario.[5] The thirty-three–member project team of "scholars, change agents, business executives, public officials, and others from diverse backgrounds" engaged in a dialogue about the future. Their discussions led to the identification of nine major trends, or "supertrends," and the creation of a "central scenario" based on those trends. These nine super trends and their expected status at mid-twenty-first century are:

1. World population continues to increase, leveling off at 10 to 14 billion by mid-century.

2. Industrial output continues to increase, reaching five to ten times 1992 levels by mid-century.

3. The information technology revolution and "wiring of the globe" continues, and at mid-century forms "the central nervous system for a planetary society."

4. The "high–tech revolution" continues, with "breakthroughs in all fields."

5. The trend toward global integration continues, and at mid-century we see "a universal system of open trade, a global banking system and common currency, and some form of world governance."

6. Paradoxically, there is a simultaneous trend toward subcultural and ethnic diversity.

7. There is movement toward a universal standard of freedom and human rights, with freedom becoming the "accepted norm" and "authoritarian systems being the exception" at mid-century.

8. Problems remain at mid-century: "Disgruntled individuals, groups, and nations resort to a variety of crimes, terrorism,

limited wars, and possibly even nuclear strikes, and…major new diseases…continually appear."

9. There is increasing interest in "quality of life, community, self–fulfillment, art, spirituality, and other higher–order values that transcend material needs."

Though the project team felt that these trends might advance as indicated, they noted five serious impediments to the forward movement of the more positive, more transformational ones—five "critical issues blocking the passage ahead." They cited the difficulty of:

1. Actually achieving the global order
2. Actually achieving sustainability
3. Reconciling incompatible economic interests
4. Managing the extremely complex world that will exist by mid-century
5. Closing the gap in wealth between the developed and lesser–developed countries

Whatever our reaction to a particular scenario, the processes of scenario creation and scenario analysis make us think—and this can only be helpful. For one thing, contemplating a variety of scenarios can make us better long–term predictors. It widens our worldview and makes us more sensitive to chance events down the road that might favor one scenario over another. For another, it can motivate us. If one scenario seems clearly better than the rest, it might entice us to help create that kind of future.

One reason scenario creation has been used less extensively than it has is our very human desire for the future to turn out the way we want it to. Like other kinds of unpleasantness, we'd rather not entertain upsetting, shocking, or "unthinkable" scenarios as realistic possibilities. This seems especially true when our particular field of interest is under scrutiny. Inventors seem blind to the negative consequences of their inventions. Economists and business people play down the possibility of a serious economic collapse. And so forth.

REALITY MODELING

Each of us creates and continuously refines our own mental model of reality. As we go through life, we constantly refer to it and depend on it. It helps us make decisions, and it strongly influences our assumptions about the future. Kevin Kelly has linked intelligence with being a good predictor, and this ties in with my own impression that smart people create better mental models of reality. Still, intellectual intelligence is only part of it. To see reality clearly, that kind of intelligence must be coupled with a relative absence of psychological blinders and blind spots. We must be able to face the uncomfortable, to think the unthinkable, and to incorporate into our model of how things work an appreciation of the circumstances under which negative scenarios might arise.

Unfortunately, all mental models of reality are limited in scope and detail. At best, they grossly oversimplify an extremely complex reality. Computer models have the potential to mirror reality more completely and accurately. Today, a host of such models exist. Some are used to predict weather and climate. Some look for patterns in financial market dealings and predict good times to buy or sell. Home–computer simulation "games," such as *SimEarth* and *SimCity*, are simplified models of functioning planets and cities, which—despite the simplification—can help us acquire a better feel for the world around us. (Someone once commented that every newly elected city councilor should be reqired to spend a week working with *SimCity* before taking office.)

Computer simulations provide a rapid, sophisticated way of exploring scenarios, and as we might expect, the military has been using computer simulations for some time. In fact, software capable of simulating a war between Iraq and Kuwait was up and running before the Gulf War actually took place. After Iraq invaded Kuwait, the simulator allowed the military to quickly test many battle scenarios, and it is credited with showing that a successful U.S. air attack would minimize U.S. ground casualties.[6] (We're not told if the model estimated Iraqi civilian casualties—a matter of some

significance to the Iraqis and, we would hope, to U.S. decision–makers as well.)

The eye–opening 1972 book *The Limits to Growth* and its 1992 successor *Beyond the Limits* were based on a computer model that mirrored key processes within global systems and the interactions between those processes. In his book *Out of Control*, Kevin Kelly explains:

> The Limits to Growth *model is woven out of an impressive web of "stocks" and "flows." Stocks (money, oil, food, capital, etc.) flow into certain nodes (representing general processes such as farming), where they trigger outflows of other stocks. For instance money, land, fertilizer, and labor flow into farms to trigger an outflow of raw food. Food, oil, and other stocks flow into factories to produce fertilizer, to complete one feedback loop. A spaghetti maze of loops, subloops, and crossloops constitute the entire world. The leverage each loop has upon the others is adjustable and determined by ratios found in real–world data: how much food is produced per hectare per kilo of fertilizer and water, generating how much pollution and waste. As is true in all complex systems, the impact of a single adjustment cannot be calculated beforehand; it must be played out in the whole system to be measured.*[7]

Kelly felt that the strengths of this model include its relatively modest complexity, the use of feedback loops, and the fact that it runs scenarios. He identified as weaknesses the relative narrowness of those scenarios, some wrong built–in fixed assumptions, and several other things. The larger point here is that none of the reality–simulation models developed to date represent more than the barest start in the field. Much better models are needed—models that mirror reality more comprehensively and accurately, that accommodate a wider range of scenarios, and that can "learn" and change as real–world circumstances change.

PROBLEMS WITH PREDICTING

There are problems associated with prediction and with some of the people who hold themselves out as predictors.

Those who predict often have hidden agendas. We have seen it in the stock market reports on the nightly news. By the late

1990s, some investors felt that stock prices had risen well above the level that economic fundamentals could justify, yet stock prices kept rising. Financial commentators were fully aware that maintaining a bull market under those conditions depended on maintaining investor confidence. They knew the moment a large number of investors stopped believing the market would continue to rise the party would be over. To avoid undermining this essential confidence, commentators were careful to make frequent positive predictions, to avoid negative ones, to always accentuate the positive, and to couch negative news in euphemistic terms. The rare "out of the loop" commentator who dared to refer to the Emperor's naked condition was branded a "doomsayer" and dismissed by the mainstream voices.

Futurists can also have hidden agendas. Many earn their living as consultants to corporations or governments and, consciously or unconsciously, look at the future through pro-technology and pro-business eyes. Andrew Kimbrell, director of the International Center for Technology Assessment, calls these people "the tomorrow makers," because they dominate our view of the future. "We are accustomed to letting them decide everything. We become spectators of our own future. It constricts our imagination about what's possible in our lives. They just say this is the future, get ready. And in some ways that makes it come true."[8]

As Kimbrell indicates, **predictions, in themselves, can influence the future**. Jay Walljasper put it this way: "Predictions have power. They create expectations, deliver warnings, and command us to embrace certain things at the expense of others."[9] Alvin Toffler once referred to George Orwell's *1984* and Aldous Huxley's *Animal Farm* as examples of the power of prediction to influence people. He pointed out that these writers had created an "image of the future [that] was essentially a linear projection of classical industrial society" and in doing so had "projected an industrial future so bleak and regimented that they helped contribute to the pressures against it."[10] *The Limits to Growth* was another "wake up" book, and two or three decades from now we will look back and realize that there have been quite a few others.

Those who predict often rely on unbalanced data. Toffler and Walljasper both pointed out the imbalance in the types of data available to futurists. According to Toffler, "Our existing statistical database…overemphasizes economic data and underemphasizes or even ignores critical social, cultural, psychological, or political variables that are typically harder to measure."[11] In Walljasper's view, "Futurists—at least those regularly invoked by business executives and the media—still try to envision what's ahead through a very narrow lens. They generally ignore social and cultural factors, preferring instead to concoct scenarios based primarily on technological and economic trends."[12]

The unreliability of long–term prediction correlates with the number of causal influences. Halley's comet will return to the inner solar system in the year 2061.[13] That is a reliable prediction concerning a far–future event, but it is reliable because its veracity depends on little more than Newton's laws of motion. With societies and economies, the situation is very different. As we've seen, each person's decisions arise from countless causal influences—many of which are unique to that individual. And there are billions of people. Societal institutions attempt to constrain and guide personal attitudes, values, and behavior—but these attempts are only partially successful, and they simplify causal complexity only to a degree.

The truth is, where human society is concerned, we cannot reliably predict the distant future. No one can. But is this kind of predicting such a wonderful thing, anyway? Don't you find a certain passivity about it, a certain helpless quality? There is an alternative. Instead of helplessly trying to figure out what is going to happen to us, we can turn our energy, attention, and knowledge toward creating the kind of future we want. The remainder of this book explores that possibility.

Notes

[1] Boulding, 1995a, p. 12.

[2] The oil price example is from Schwartz, 1991.

3 Webster, 1999, pp. 330–51.

4 Kaplan, 1994.

5 Described in William E. Halal's "World 2000" article, read at http:// gwis2.circ.gwu.edu/~halal/world2.html. An earlier version of the article appeared in *Futures: The Journal of Forecasting and Planning*, January/February 1993. Check: http://home.gwu.edu/~halal/Research/World_2000.pdf.

6 Kelly, 1994, pp. 431–35.

7 Kelly, 1994, p. 443.

8 Quoted in Walljasper, 1998, p. 47.

9 Walljasper, 1998, p. 46.

10 Toffler, 1985, p. 195.

11 Toffler, 1985, p. 199–200.

12 Walljasper, 1998, p. 46.

13 From the Comet Halley website at the University of Arizona: http://seds.lpl.arizona.edu/nineplanets/nineplanets/halley.html read on 25 March 1999.

The Art of Creating the Future

Human beings have created a substantially different reality before, and many people believe we are in the process of doing it again. In his book *Macroshift*, Ervin Laszlo refers to times of great transformation as *macroshifts*. He notes three of these in humanity's past: the shift from small–group to large–group living, which Gwynne Dyer also referred to; the arrival of iron technology, which gave rise to the Greco–Roman civilization, Christianity, and medieval theism; and the shift from theism to modernism, which I discussed in the introduction.

Laszlo contends that we are today in the midst of another macroshift, a transition from "national industrial societies toward a globally interdependent, yet locally diverse, world." Laszlo considers the present macroshift to have four phases:

> **The Build Up, 1860–1960.** *Innovations in "hard" technologies (tools, machines, operational systems) create significant changes in the way people live and work….*
>
> **Globalization, 1960 to the Present**. *Hard technology innovations irreversibly transform social and environmental relations and bring about, successively,*
>
> - *a higher level of resource production*
> - *faster growth in the population*
> - *growing societal complexity, and*
> - *a growing impact on the natural environment.*

The Decisive Epoch, 2001–2010. *New conditions in society and the environment stress the dominant social order. They place in question the established values, worldviews, ethics, and aspirations. Society enters a period of ferment, approximating the chaos that comes about when complex systems reach the limits of their stability.*

Laszlo presents two scenarios for the fourth stage (**2020 and Beyond**) of the present macroshift: a *doomsday scenario* and a *breakthrough scenario.*

In the **Doomsday Scenario:**

People's values, worldviews, ethics, and ambitions prove to be resistant to change; the leading institutions are too rigid to perform timely transformation. Social and cultural complexity coupled with a degenerating environment create unmanageable stresses; the social order is exposed to a series of crises. After a period of instability, uncertainty, and growing discontent, conflict degenerates into violence and the established order breaks down.

In the **Breakthrough Scenario:**

The mindset of a critical mass of people evolves in time. The values and behaviors suggested by the new consciousness shifts the dominant culture into a new and more adapted mode. As the new culture takes hold, an integrated world system emerges, capable of launching development aimed at ensuring access to the necessities of life for all people in every part of the world.

Laszlo considers our behavior in the present 2001–2010 "decisive epoch" to be crucial: "It is the flexibility and creativity of the people that creates that subtle but all–important 'fluctuation' that decides which of the available evolutionary paths the macroshift will…follow."[1] Elsewhere he noted: "The critical factor is the mindset of people in the early twenty-first century: the way the mainstream populations internalize the new conditions of human existence in their thinking, their priorities, and their behavior."[2]

In the year 2050, my granddaughters will be in their late fifties and early sixties. I would like their quality of life and sense of personal fulfillment to equal or exceed that of North Americans who are

in their fifties and sixties today, but with a much lower level of material consumption. Justice for the developing world, on the other hand, will require *increased* consumption there. For all this to come about, we must transform present modes of personal, social, and economic functioning into modes suited to a sustainable and more equitable world. One way of approaching this task follows.

First, to the degree possible, understand ourselves, our contextual reality, the world problematique, and the various issues and forces involved. That is what **Parts I**, **II**, and **III** of this book are about. More detail on the topics covered can be found in the books, reports, articles, Internet sites, and organizations listed in the appendices and the bibliography.

Second, envision a workable solution. To go back to Maslow for a moment, "When anything is clear enough, or certain enough, true enough, real enough, beyond the point of doubt, then that something raises within itself its own requiredness, its own demand character, its own suitabilities. It 'calls for' certain kinds of action rather than others."[3] Out of a deep understanding of the world problematique comes clarity about the called–for action. In understanding the problem deeply, we see the elements of its solution. I found ample evidence of this in the materials I read while researching this book. Author after author not only saw the problem similarly, but came to similar conclusions about what must change. And author after author shared the view that change is possible.

For Maureen Malloy, humanity's hope lies in the current broadening and deepening of our understanding: "Fundamental social change occurs when a community, society, or civilization begins to view itself and the world in fundamentally different ways."[4] For William Greider, "The global system…is at the dawn of social invention. Some people…see the outlines of a different future, even a different kind of capitalism. Those people are the new citizens of the world."[5] For economist Hazel Henderson, "We are talking of nothing less than reinventing ourselves, reframing our perceptions, reshaping our beliefs and behavior, composting our knowledge, restructuring our institutions and recycling our societies. This is not an impossibly tall order. Rather, it is routine in the repertoire of human behavior.

Indeed, such systemic social change is the stuff of all human history."[6] Paul Ray laid out the requirements for getting on with the transformative process: "Precisely what we need are good theories to focus our attention, a good set of ideals to guide our action, and good visions of the future to mobilize our energies."[7]

Vision creation involves pulling all the deeply seen "called for" elements into a coherent vision of a satisfactory society. In MATTER OF CONSEQUENCE 14, **The Year 2050 Vision**, I attempt that. Elements suggested by others, together with those that have come out of my own sense of requiredness, are integrated into a vision that seems to me both appropriate to Earthly realities and attainable, once sufficient personal, social, and political understanding has been developed.

Third, create a process for actualizing the vision. Just as the envisioned society is dramatically different from twenty-first century industrial society, so is the process of creating it going to be different from industrial–era ways of bringing about change. A new set of transformative principles and approaches must be applied. Let's look at three of the more important ones.

PRINCIPLES AND APPROACHES FOR THE TRANSFORMATIVE PROCESS

To create a world society that works for everyone, we face two categories of creative challenge: *content* challenges and *process* challenges. The content challenges deal with the nut–and–bolt specifics of a transformed society—inventing new institutions and procedures. The process challenges concern the way we approach the content challenges—the principles, mindsets, approaches, tools, and strategies we bring to the task of creating the new content and getting it adopted.

Traditional ways of thinking about societal transformation and traditional social–change strategies will play some part in the efforts to come, but their limitations are becoming increasingly apparent. They have not, after all, succeeded in bringing about the kind of transformation that cultural creatives, this book's author, and probably you, would like to see. An optimum process has yet to be invented, but there is growing clarity about some of its essential ele-

ments. For your consideration and possible creative use, the remainder of this chapter discusses some of those elements.

The Principle of High Social Synergy

Anthropologist Ruth Benedict studied many cultures, and coined the term *social synergy* to identify the degree to which a particular culture shares benefits among its members. She encountered some societies with "high social synergy, where their institutions ensure mutual advantage from their undertakings." She found others "with low social synergy where the advantage of one individual becomes a victory over another and the majority who are not victorious must shift as they can." Benedict noted that some economic orders were funnel–like, in that everything was channeled toward the richest persons. Others were siphon–like, "where wealth is constantly channeled away from the point of greatest concentration—from any point of concentration—and spread throughout the community."[8]

Today's industrial societies fall somewhere between these extremes, with Scandinavia, the Netherlands, and Japan being somewhat closer to the high–synergy, all–win end of the spectrum and with the U.S. closer to the low–synergy, win–lose end. Income equality/inequality is one indicator of this. In the United States the income of the richest 20 percent of households is 13.8 times that of the poorest 20 percent. The comparable figure for all the industrial (OECD) nations taken together is a much lower 5 times. In Norway it is just 3.8 times. Many people on the transformational leading edge advocate raising the synergy level of our U.S. and Canadian societies—making them less funnel–like and more siphon–like—while simultaneously applying this philosophy to our economic and political interactions with other nations and peoples. The challenge of bringing high social synergy to the entire world is immense. Today, the poorest 20 percent of the world's people (some 1.2 billion) earn less than a dollar a day. When we compare industrial nation incomes to the incomes of these people we are talking income ratios greater than 100 to 1.[9]

A Cooperative Search for Optimum Solutions

Time is running out for the head–butting, win–lose, "our power against your power" ways of changing things. A shared search for optimum solutions will increasingly replace it. This new approach calls for setting aside ideologies and preconceptions, joining others in an attempt to deeply understand the human situation and its transformational implications, and crafting maximum–benefit responses.

Kenneth Boulding had this to say about the power game:

> *There is power to create, power to prevent, and power to destroy…. Radicals and revolutionaries tend to know what they don't like, and hence are prepared to operate mainly with threat. This, however, easily becomes destructive. There is a strong case to be made for the principle that enrichment, in the widest sense of enrichment of human life, comes from the rise of nonthreat organizers in society, either through exchange and the market, or through integrative structures that are relaxed and tolerant, gentle and liberal.*[10]

Paul Ray noted: "Historically, most movements that talk about 'restoring values' tend to be intolerant, irrational, reactionary, and Traditionalist: all the things that Cultural Creatives and Integral Culture are not."[11] Cultural creatives are drawn to the "cooperative search for optimum solutions" approach and are helping to widen its application. They know that adopting an "I am smart and right, and you are dumb and wrong" approach—or any other confrontational approach—leads to polarization, ill will, resistance, and noncommunication. Instead, they are trying to find nonthreatening ways of helping people to understand what is going on in this crazy world and to recognize the calls for action that come out of that understanding. Young people, too, are turning toward cooperation. A recent survey suggests that young people in their late teens and early 20s tend to value "team over self, duties over rights, honor over feeling, action over words. Much the opposite of boomers at the same age, millennials feel more of an urge to homogenize, to celebrate ties that bind rather than differences that splinter."[12]

Fortunately, as Ray and others have pointed out, people of all political and religious persuasions are disenchanted with aspects of modernism. Almost no one swallows the whole enchilada any more. This results in a surprising amount of common ground between traditionals, moderns, and cultural creatives—and some potential bridges between the groups. For example: at least 84 percent in each of the three groups "want to rebuild neighborhoods/communities." Of the cultural creatives, 85 percent see "nature as sacred"—but so do 72 percent of the moderns and 65 percent of the traditionals. Some 79 percent of the cultural creatives "believe in voluntary simplicity," but so do more than half of the moderns and 65 percent of the traditionals. And only 11 percent of the traditionals, 12 percent of the cultural creatives, and 36 percent of the moderns feel "success is high priority."[13] Is this not a strong indication that a *majority* of citizens are ready to move beyond consumerism and the current global economic agenda to something more sensible?

Solutions with high, broadly spread benefits and with low social/ecological costs are the transformative goal. Gains are shared and maximized. Losses at the personal level are shared and minimized. And since we are talking about a transformation that will take decades to bring about, it can include planned gradualism. Some essential changes will be inherently painful and disruptive. But if we start making them soon, we can introduce them gradually enough to keep the level of pain and disruption tolerable.

One final thought: I don't mean to imply that, as we attempt to transform today's world into tomorrow's, the Gandhian approach of peaceful but firm insistence on right action will never be needed. At times it will be. I'm simply predicting that a communal search for solutions will play a much more significant role than ever before in transcending problems and impasses.

The Integral Approach

The next decade or two will be a time for great social and economic creativity. It will include process invention (inventing new ways of bringing about change), solution invention (inventing specific all–win or minimum–loss solutions), and meme creation (inventing new

aspects of the inner, cultural, intersubjective side of society). Ideas will emerge and be tried. Some of these will survive, be replicated, and form part of the transformed reality. A number of exciting possibilities are already on the table and form part of the vision outlined in the next matter of consequence, **The Year 2050 Vision**.

Of particular interest is the *integral approach* to transformation. This refers to application of the theoretical work of Gebser, Wilber, Combs, and others to practical, real world problems. Traditional situation–analysis and problem–solving strategies focus almost exclusively on the physical. These may work well in the physics or chemistry lab, but where people are involved, they are rarely satisfactory. In medicine, for example, we know that a person's attitudes, beliefs, and emotional states strongly influence the healing process. Wilber's four–quadrant model of reality[14] puts the mental side of reality on an equal footing with the physical, and requires that both the subjective state of individuals (mind) and the intersubjective state of society (culture) be taken into account. In the introduction to volume eight of his *Collected Works* as well as in *A Theory of Everything*, Wilber discusses current applications of the integral approach to medicine, business, education, consciousness studies, socially engaged spirituality, ecology, minority outreach, and economic development.[15] He goes into the example of UNICEF at some length. In helping UNICEF to understand the failure of some of its past programs, its consultant pointed out that, despite the organization's people–oriented mandate, many of UNICEF's programs had focused primarily on the exterior, physical aspect of situations and had tended to ignore some significant interior, subjective, and intersubjective considerations.

The integral approach takes seriously the mental–physical nature of reality and applies that perspective to real–world situations. In the years to come, an integral analysis of difficult problems coupled with an integral approach to solving them is likely to become the transformational approach of choice.

TRANSFORMATIONAL TOOLS AND AIDS

In addition to the principles and approaches just mentioned, several tools and aids will play important roles in moving us from the world of today into that saner world of tomorrow.

Nongovernmental Organizations

Much of the twenty-first century's transformative activity will take place within the many local, regional, and international nongovernmental organizations (NGOs and INGOs). Elise Boulding has referred to the growth of the INGO movement as "one of the most striking phenomena of the twentieth century," and the numbers back her up. In 1909, there were 176 international nongovernmental organizations; in 1985, there were 18,000; and in 1994, there were over 36,000.[16] Add to this sizable INGO figure the millions of local and regional NGOs.

Recently, this socially active, nonprofit sector has begun to refer to itself as the *civil society* and to the organizations that make it up as *civil organizations* and *civil associations.* This part of world society represents a well–funded and highly influential third sector that supplements, complements, and provides grass–roots guidance to governments and the private–sector economy. It comprises a huge number of organizations that focus on the well–being of people and the planet. They include churches and church–related organizations, youth groups, service clubs, professional organizations, environmental action groups, relief organizations, human rights organizations, and on and on. The U.S. alone currently has more than 1,140,000 nonprofit, third–sector organizations. These groups employ 7 percent of the workforce. Their combined annual revenue totals $621 billion. And their paid staffs are augmented by some 93 million Americans who, in 1995, donated an average of 4.2 hours per week to these organizations.[17]

Though each of these groups operates independently and pursues its own self–chosen agenda, many participate in extensive, electronically facilitated networks. This has enabled literally hundreds of organizations to come together rapidly and to speak with one voice when an issue of common concern surfaces. An example of this is

the anti-MAI statement quoted in MATTER OF CONSEQUENCE 6, **Economic Context**—the one put out jointly by 568 nongovernmental organizations from sixty-eight countries. Highly creative work has been going on within these organizations—much of it far from North America. We need to find out about it, make use of it, and transcend the North American tendency to dismiss approaches and solutions that were not invented here.

Individuals within these organizations and transformation–minded people generally are involved today in the chaotic first stage of the creative process. Whenever human beings address a creative task—say, designing a building, writing a book, or creating a new piece of equipment—the beginning is invariably chaotic. The creator faces many options and has many unanswered questions. Much is up in the air. The only route to a creative resolution is to wade right through the disorder; there is no way around it, no way of avoiding it. We must pay our dues, spend time in the confusion, muck about in it, try this and that. Eventually, clarity comes. Things fall into place. And the way to reach the goal becomes obvious. Creative success comes from realizing that this chaotic stage is an integral part of the overall process, getting comfortable with it, and working through it. Today, NGOs and INGOs are providing a supportive environment for just this kind of exploration and experimentation in the field of social invention.

The Vision of What We Want

Three behavior–coordinating devices, or "invisible hands," are helping us to stay on track as we engage in the transformational process. The first of these is the vision of what we want. If we take a driving trip to visit friends in a town we've never visited, they will probably send us either step–by–step instructions for getting to their house or a map with the suggested route highlighted. The step–by–step instructions are fine if we correctly follow each step, but they stop being helpful if we make a mistake and can't find our way back to where we made the wrong turn. The map, on the other hand, helps us get back on course even if we do get lost. Our vision of a trans-formed society is something like a map. It has that guide–us–from–

anywhere, map–like, beacon–like quality. Even if life circumstances should take us far from the creative path, once we recall the vision, we know in which direction to head.

Personal and Organizational Integrity

The second invisible hand is personal and organizational integrity. If we are honest no matter what and truthful no matter what, others come to trust us. And when we are trusted, we can accomplish more. Also, if we are automatically honest and truthful, we have fewer moral decisions to agonize over and fewer digressions. This reduces the likelihood of getting sidetracked, and saves us time, energy, and episodes of moral anxiety.

A Caring, Empathetic, and Compassionate Attitude

The third invisible hand is a caring, empathetic, compassionate attitude. Recall Milton Mayeroff's comment, "Caring has a way of ordering activities and values around itself; it becomes primary and other activities and values become secondary." Just as the market allocates economic resources, a caring attitude allocates human resources: time, energy, and attention. In both cases, the presence of the invisible hand allows the micro-level details to work themselves out.

Robert Pirsig focused on caring and noted that the result of caring is quality:

> *When one isn't dominated by feelings of separateness from what he's working on, then one can be said to "care" about what he's doing. That is what caring really is, a feeling of identification with what one is doing. When one has this feeling then he also sees the inverse side of caring, quality itself…. Care and Quality are internal and external aspects of the same thing.*[18]

The Dalai Lama has maintained that we need to cultivate a form of caring attitude based on a sense of universal responsibility:

> *The problems we face today—violent conflicts, destruction of nature, poverty, hunger, and so on—are mainly problems created by humans. They can be resolved—but only through human effort, understanding and the development of a sense of brother-*

hood and sisterhood. To do this, we need to cultivate a universal responsibility for one another and for the planet we share, based on a good heart and awareness.[19]

It is easy to feel empathy for friends and to care about them, but changing the world requires cultivating a much broader compassion. We need to feel compassion for all those who have not yet deeply understood the present reality or seen the transformational imperative: compassion for the fundamentalists who want to turn back the calendar, for the corporate CEOs who want another million in salary, for the stockholder–owners of those corporations who care only about maximizing the value of their holdings, and for everyone who bought the consumer dream and now has a fistful of maxed–out credit cards. We're all in this mess together, and we need each other's help to get out of it.

Leadership

An important tool is leadership. It occurs in various helpful forms, and one of the most valuable is what we might call *paradigmatic leadership*. Every culture has highly influential people who are respected for their intelligence, knowledge, wisdom, and analytical acumen. History shows us that when this intellectual leadership group adopts a new paradigm, the majority soon follows. U.S. examples include the adoption of the democratic–government paradigm in the late 1700s and the social–welfare/New Deal paradigm in the early 1930s.

Leadership in politics, business, journalism, and the arts is sometimes part of this intellectual, paradigmatic leadership. Sometimes leadership in these fields comes after the movement begins. Either way, we need enlightened leadership in all of these areas. Also essential is leadership on the transformational frontlines, in a hundred thousand transformational projects.

Fortunately, we are beginning to see learning environments designed to help us develop the heart–and–mind variety of leadership that is needed—programs that help people integrate the psychological/spiritual inner with the society–transforming outer. The Satyana Institute's Leading with Spirit program—"committed to the integration of perennial spiritual wisdom into practical leadership

for social change"—is an example of such a program.[20] (Check http://www.satyana.org.)

Mediators and Facilitators

The mediator/facilitator function provides another important aid to transformation. Though many cultural creatives may have a nonconfrontational style, much of society is still in the confrontational mode. Thus, we need wise people and wisdom–led organizations to help us move from confrontation to a cooperative quest for workable solutions. We need people who, and organizations that, understand the present reality, share the vision, and possess the essential qualities of integrity and compassion. Paul Ray said, "Cooperation and conflict resolution are likely to be elevated to the status of fundamental social principles in Integralism, the way competition and efficiency were elevated by Modernism."[21]

Good Communication

Every aspect of the transformational process requires good communication. Present needs include:

- **Spreading the news**. Those who envision a sustainable, more equitable, more human future need to be made aware that they are not visioning alone; there are tens of millions of us.

- **Getting those who share the vision in touch with each other**. We can do this by publicizing existing avenues of communication and points of connection (organizations, publications, websites, listservs, etc.) and by creating new ones. (See MATTER OF CONSEQUENCE 15, **Doing What Needs To Be Done** and the APPENDICES.)

- **Extending, widening, and deepening the social discussion about key issues**. Gwynne Dyer tells us that conversation about the means and ends of society led to the founding of democratic governments. A similar multilogue is needed today to facilitate the process of social creativity that is needed to get us from where we are to a future that works. The CBC and Vision TV in Canada, PBS in the U.S., and The Wisdom Channel internationally have already taken some steps in this direction. And with countless cable networks needing content

these days, it seems likely that other parts of the television industry will become involved. The Internet, being global and interactive, is a perfect vehicle for socially relevant discussions. Some of the Internet's "news groups" and "listserv" groups already deal with social and environmental issues, and the web offers unlimited potential for creating others. (On the downside, although radio and television reach nearly everyone these days, the Internet does not. Finding ways to broaden Internet access is part of the challenge.) Local discussion and study groups are growing in popularity and provide another vehicle for sharing ideas. And newspapers and magazines are still alive, well, and interested in issues of the day.

A transformed society will embody memes that are very different from those of today's society. So one way of framing the transformative challenge is: 1) create new memes, and 2) disperse them as widely and effectively as possible. The Internet facilitates the process of creating new memes by allowing geographically separated people to put their heads together. It can also help us to spread those memes. Network theory illuminates the meme dispersal process and points us toward more effective ways of going about it. It points out, for example, that the Internet's many physical interconnections and the World Wide Web's many clickable links make both of these networks "small-world" networks in which information can travel from anywhere to anywhere with just a few path-to-path transfers. Network theory also shows us that all links are not equally effective. In his book *The Tipping Point*, Malcolm Gladwell introduces us to two very special kinds of people: *Mavens* who couple great skill at collecting information with a desire to share it, and *Connectors* who have large numbers of acquaintances and enjoy both passing along information and connecting people to other people. On the Internet we not only find these kinds of individuals, but also technologies that empower them. One of these is the Weblog or "Blog"—a web phenomenon that in its "filtered Blog" form focuses not on the direct sharing of text, but on the sharing of *links* to text. Mavens explore for interesting links, label them, and add brief comments. Connectors scan the sites of Mavens, pick up the links they feel are most interesting, and

because their own sites are very popular, are able to spread those links widely.[22]

One caution about communication. During my *New Directions Radio* discussions about issues back in the 1970s, I learned that the medium is *not* the message; the message is the message. Communication without content is meaningless, and the benefits that emerge from any communication process are going to be directly related to the depth of understanding that the participants bring to it.

Philanthropy

Philanthropy can be a powerful aid to social invention. Many people who made big money in the 1990s economy also engaged in finely focused forms of giving. A *Forbes* article, "Radical Philanthropists," focused on the intent of Ebay's Pierre Omidyar and other billionaires under age thirty-five to do socially worthwhile things with their newly found fortunes.[23] Even after the dot-com bust of 2000–2002, many continued these activities.[24] Older billionaires have been giving too. Ted Turner has pledged a gift of $1 billion to the UN.[25] The Bill and Melinda Gates Foundation gave $100 million and pledged another $750 million for child–immunization programs in developing countries. It also pledged $1 billion to the United Negro College Fund for scholarships.[26] The Gates's giving totaled $2.4 billion in 1999 and $5 billion in 2000.[27] George Soros "has committed some $1.5 billion through his network of foundations in nearly three dozen countries. Much of the money has gone to promote democracy or 'open societies.'"[28] During the decade ending in 1997, Soros contributed over $350 million to Russia, "much of it on programs to shore up Russia's scientific community, introduce Internet access, and support education"—and in 1997, he pledged another $300 to $500 million. (In contrast, the 1996 U.S. government's foreign–aid contribution to Russia was $95 million.)[29] Beyond these mega-gifts, the contributions of smaller donors add up. In 2000, Americans donated $152 billion to charitable causes.[30]

Among the things philanthropic giving could fund are:
- Prizes for promising ideas

- Conferences that bring social creators together to brainstorm specific problems
- Support for individual creators while they flesh out their transformational ideas
- Support for the real–world testing of ideas that have the potential of returning significant social benefit

In the past, prizes—offered by governments, corporations, foundations, and individual philanthropists—have at times provided a stimulus to creativity and could again. In the early eighteenth century, Britain was a great sea–going power, but navigational accuracy depended on timekeeping accuracy, and timekeeping accuracy aboard ship was notoriously bad. In 1714, the British government offered a £20,000 prize to the first person who could develop a shipboard timepiece that would pinpoint longitude to within half a degree at the end of a six–week voyage. John Harrison, an English mechanic, created four clocks, the last of which won him the prize.[31] In the twentieth century, prizes stimulated many advances in aviation. Raymond Orteig, a wealthy hotel owner, offered a $25,000 prize to the first person to fly nonstop from New York to Paris. Nine attempts were made; in 1927, Charles Lindbergh succeeded and won the prize. In 1930, a Japanese newspaper presented a $25,000 prize to Clyde Pangborn and Hugh Herndon for the first nonstop flight from Japan to North America. A more recent example is the £50,000 Kremer prize for human–powered flight in a figure eight around a half–mile course (won in 1977) and the £100,000 Kremer prize for the first human–powered plane to cross the English Channel (won in 1979). Still to be awarded is the $10 million prize offered by the X Prize Foundation of St. Louis for the first privately funded and constructed spaceship able to carry three people on a suborbital flight.[32] As I write this, twenty groups are vying for this prize, and several vehicles are in a late stage of development.

The navigation and aviation prizes were tied to quite specific goals. In the case of Nobel Prizes, specific goals are not established in advance. Instead, Nobel Prizes are given "to those who, during the preceding year, shall have conferred the greatest benefit on mankind" in the fields of physics, chemistry, physiology or medicine, literature,

peace, and economics. Evaluation committees review the recent accomplishments of nominated candidates and pass judgment on their significance. Awarded since 1901, Nobel Prizes have been significant motivators of excellence in the fields they cover. Similarly, a "social invention" prize could prove a stimulus to the unprecedented level of social creativity that will be needed in the decades ahead. If Nobel committees are able to judge the "benefit on mankind" of many kinds of accomplishments,[33] a panel of wise and knowledgeable people should be able to judge excellence in the field of social invention.

Personal Commitment

The support of dedicated individuals is, of course, invaluable. Each of us has lived a unique life and has a unique set of understandings, perspectives, attitudes, and skills. Changing the world requires an immense workforce—"an ecology of souls," as futurist Barbara Marx Hubbard once put it. Solution–relevant tasks that fit each person's mix of capabilities are out there, somewhere. And there are special needs and opportunities here for young people. It is their world we are trying to help create, and we need their insights and their energy.

MAINTAINING THE VISION

Concerning our personal goals, we know that keeping the vision in front of us is important. If I want to do anything that takes a lot of effort—say, become an engineer, write a book, or develop deep understanding—I need to keep a vision of the end result in the back of my mind and regularly bring it up front. The same is true when our goal is changing the world. By creating a vision of the future and by keeping that vision before us, the vision gradually becomes reality. Millions of people now share such a vision, and like the ubiquitous yearning for democracy, the essential vision of "what needs to be" seems likely to continue until it is realized.

Patience is also an issue. The social–change situation back in the 1960s was largely political, and many of the things that protestors wanted changed could be changed quickly. A dose of political will and the stroke of a pen were all that was needed to legislate civil rights or to stop a war. The situation today is extremely complex. It

involves a multitude of societal institutions, and the required transformation can't possibly happen overnight. In fact, complete realization of the vision could take much of the next fifty years.

On the bright side, significant portions of the vision are likely to be realized much more quickly. We know that even when progress seems very slow, things sometimes change overnight if a major crisis or other "system break" arises. Thus, it is important for those with a transformational agenda to seriously consider various crisis scenarios and to work out transformation–fostering responses. In times of crisis, people wake up, pay attention, and are far more open to new proposals than at other times. As Lester Thurow put it:

> *Old, well–established social systems usually have to have a visible failure before it is possible for them to adapt to a new environment. Without visible failure most minds are closed most of the time. Failure opens up the windows of the mind to thinking about new ways of doing things. To act after the crisis has arisen, however, usually means that the needed changes are much more painful than they would have been if the new environment had been understood and the necessary adaptations made before the crisis arrived.*[34]

William Greider had similar thoughts:

> *If I am compelled to guess the future, I would estimate that the global system will, indeed, probably experience a series of terrible events—wrenching calamities that are economic or social or environmental in nature—before common sense can prevail. It would be pleasing to believe otherwise, but the global system so dominates and intimidates the present thinking that I expect societies will be taught still more painful lessons before they find the will to act.*[35]

To make the most of these times of crisis, we need to be ready in advance with a clear picture of where we want to go and to have sensible plans for getting there. For that reason, this kind of creative work needs to be done sooner rather than later.

What individuals and organizations can do now is to internalize a positive vision of the future in a deep and profound way, to engage in

social invention, to monitor progress (or its lack), and to act on opportunities to move things forward as they present themselves. It is time to take seriously the words of Peter Kropotkin: "Find out what kind of a world you want to live in, what you are good at, and what to work at to build that world,"[36] and those of Nikos Kazantzakis: "By believing passionately in something which still does not exist, we create it."[37]

Notes

[1] The above quotes are from Laszlo, 2001, pp. 25–27.

[2] Laszlo, 2000, p. 16.

[3] Maslow, 1971, p. 120.

[4] Malloy, 1976, p. 132.

[5] Greider, 1997, p. 415.

[6] Henderson, 1996, p. 152.

[7] Ray, 1996, p. 77.

[8] The quotes in this paragraph are from Benedict, 1970.

[9] The U.S. figure is for the year 2000 and calculated from the data at http://www.census.gov/hhes/income/histinc/h02.html. The OECD figure is from the graph on page 7 of the culturaltrends_1408.pdf document entitled "Johannesburg Summit 2002 — Global Challenge Global Opportunity" downloaded from http://www.johannesburgsummit.org. The world poverty information is from page 6 of that report. The Norwegian figures are year 1997 figures derived from http://www.ssb.no/english/subjects/05/01/incdist/tab-1999-10-05-01.html. The U.S. and Norwegian Web pages were read on 4 August 2002, the OECD document on August 14.

[10] Boulding, 1995b, pp. 74–75.

[11] Ray, 1996, p. 107.

[12] From Neil Howe and William Strauss's book *Millennials Rising*, as quoted in Kakutani, 2002.

[13] The data is from Ray, 1996, "Table 1: Differences in Values Among the Three Subcultures," p. 27. In the discussion, I have substituted Ray's later term "traditionals" for the term "heartlanders" that appears in Table 1.

[14] Wilber presented his four–quadrant worldview both in his scholarly book *Sex, Ecology, Spirituality* (Wilber, 1995) and in his shorter *A Brief History of Everything* (Wilber, 1996).

[15] Wilber, 2000b and Wilber, 2000d. The introduction has been available on line. Check: http://www.integralage.org/docs/WilberV8.html.

[16] The 1909 and 1985 figures are from Boulding, 1990, p. 35. The 1994 figure is from Henderson, 1996, p. 133. The original source of the two more recent figures is the relevant edition of the *Yearbook of International Organizations*.

[17] U.S. third–sector statistics from Rifkin, 2000, p. 244.

[18] Pirsig, 1976.

[19] Dalai Lama XIV, 1990, p. 270.

[20] The quote is from the website: www.satyana.org/html/aboutsatyana.html.

[21] Ray, 1996, p. 75.

[22] In an online article, "The Tipping Blog," author John Hiler relates the Blog phenomenon to Gladwell's observations. Find it at: http://www.microcontentnews.com/articles/tippingblog.htm. Gladwell's book is listed in the Bibliography. So is an excellent, non-technical introduction to network theory: Mark Buchanan's *Nexus: Small Worlds and the Groundbreaking Science of Networks*.

[23] Hardy, 2000, pp. 114–21.

[24] Hafner, 2003.

[25] Associated Press, 14 January 1998, "Turner and His Foil, Gates, Top List of Most Generous Philanthropists."

[26] Associated Press, 2 December 1998, "Bill Gates Donating $100 Million for Child Immunizations." Also, Reuters, 24 November 1999, "Gates Fund Gives $750 Million for Child Vaccines."

[27] Greenwald, 2001, p. 49.

[28] Associated Press, 20 October 1997, "Soros: Financier–Turned–Philanthropist Attracts Controversy with Money."

[29] Associated Press, 20 October 1997, "Soros Giving Up to $500 Million in Aid to Russia."

[30] Lewin, 2001.

[31] BCD98, 1997, "Chronometer" and "Harrison, John" articles.

[32] Aviation prize information from the websites: www.xprize.org and www.exn.ca.

[33] Information on the Nobel Prizes from the "Nobel Prize" article in BCD98, 1997.

[34] Thurow, 1996, p. 12.

[35] Greider, 1997, p. 473.

[36] Peter Kropotkin, as quoted in *Somewhere Else*, Chicago: Swallow, 1974.

[37] Kazantzakis, 1966.

The Year 2050 Vision

Today, you and I and the other relatively well–off people in the industrial world can choose one of three life strategies:

1. We can put our heads in the sand, forget the looming global problems, and pretend that the world as it is today is heading for a bright, beautiful future.
2. We can see the situation as hopeless, give up any thought of trying to change things, and wallow in negativity.
3. We can envision a world worth inhabiting and work to create it.

If we choose the last of these, we might, in the end, fail to create that world. That's life. It is the reality of existence in *maya*, in this constantly changing informational realm that we (as Spirit in personal form) inhabit from birth to death. But if intentional blindness, passivity, negativity, pessimism, or cynicism keep us from even trying, failure is all but guaranteed. The vision presented here is not some product of aerie–faerie optimism; it is hard–nosed, we–have–no–other–option realism. Millions of people already share the transformative mindset, much positive activity is already under way, and a multitude of promising ideas are already on the table. All this convinces me that the goal of turning the vision into reality is a *realistic* goal.

Early in this book I drew on the perspectives of the perennial philosophy, Spinoza, Ken Wilber, Ervin Laszlo, and others in making the case that informational reality at every level has an outer, physical,

objective side and an inner, mental, subjective side. With regard to the human commonwealth, society is the physical system, and culture is the shared world of mentality and mental products that underlies that system and provides most of its guidance. The two are different in nature, but are at the same time intimately related. The first section of **The Year 2050 Vision**—PHYSICAL SUSTAINABILITY AND UNIVERSAL PROVISIONING—focuses primarily on the outer, physical aspect of the vision: the right–hand *exterior–individual* and *exterior–collective* quadrants in Ken Wilber's insightful mapping of reality. The second section—A FULL, RICH LIFE OF THE MIND—focuses primarily on the inner, mental aspect: the left–hand *interior–individual* and *interior–collective* quadrants.[1]

Throughout this chapter, text that expresses the vision itself is formatted like the overview below. Related commentary is in regular type. The short overview of the vision goes like this:

> At the beginning of the twenty-first century, an appreciation of humanity's cosmic and global context is already spreading and deepening. Many millions of people recognize the need for large–scale change in several spheres of human activity. During the century's early decades, these people and their organizations craft a gradual transition from the high–consumption world of the twentieth century to a physically sustainable, economically functional, and politically stable world in which everyone has a standard of living adequate for health and well–being. By mid-century, this transition is well on its way to completion. In the industrial nations, although physical consumption has gone down during this transition, the quality of life has actually improved. That is because the new, outer, societal reality is accompanied by an inner, cultural reality characterized by vibrant local and global communities, lifelong learning, psychological/spiritual development, personal and societal creativity, and other manifestations of a full, rich, life of the mind.

As indicated in MATTER OF CONSEQUENCE 13, **The Art of Creating the Future**, the vision articulated in this matter of consequence is both personal and universal. People all over the world are seeing deeply into the present reality, sensing the need for similar changes, and envisioning a similar end result. Consider, for instance, the elo-

quent and comprehensive statement that came out of a 1995 conference in India:

> *Development must assure the satisfaction of the minimum basic needs for food, habitat, health, education and employment, and the human quest for inner peace and self–realization. This can only be achieved if we can cultivate need–based as against desire–based lifestyles, which are not superficial or self–indulgent and are nondestructive of the environment and other cultures. These must be frugal in means and rich in ends and not beyond the reach of increasing numbers of citizens. While being equitable, development must not sacrifice initiative and excellence but be ecologically responsible, economically viable, cumulative, life enhancing, culture specific, and culturally sensitive.*[2]

Millions of minds are beginning to envision a saner world, and the demand for change is in the air.

PHYSICAL SUSTAINABILITY AND UNIVERSAL PROVISIONING

Although the physical and the mental exist together, in some areas of life the exterior/physical is the major consideration, and in others it is the interior/mental. We begin our detailed consideration of the vision with four of its predominately physical elements: (a) physical sustainability, (b) universal provisioning and economic stability, (c) work and leisure, and (d) political stability.

Physical Sustainability

> To a large extent, the society of mid-twenty-first century is sustainable in that it "meets the needs of the present without compromising the ability of future generations to meet their own needs." It also comes close to meeting economist Herman Daly's three conditions for physical sustainability:[3]
>
> 1. Rates of use of renewable resources do not exceed rates of regeneration
> 2. Rates of use of nonrenewable resources do not exceed the rate at which sustainable renewable substitutes are developed

> 3. Rates of pollution emission do not exceed the assimilative
>   capacity of the environment

Today, the rates of use of many resources exceed sustainable limits. If nothing is done about that, it will have little effect on me personally; I will still live out the rest of my life in comfort. But my grandchildren may not, and certainly their grandchildren won't. If excessive rates of use diminish the resource base beyond a certain point, something akin to Robert Kaplan's ugly scenario will come to pass: Sheer survival will become the concern of the day, barbarism will replace civilization as people compete for the remaining resources, and billions will die. Nearly four hundred years ago, Thomas Hobbes described what life would be like in those circumstances: "No arts; no letters; no society; and which is worst of all, continual fear and danger of violent death; and the life of man, solitary, poor, nasty, brutish, and short." Edward O. Wilson has pointed out that if the human population plummeted, "the rest of life would benefit enormously. The forests would grow back, the whole Earth would green up again, the oceans would teem."[4] Great for other species, but humanity would return to its primitive beginnings.

There are signs that we may come to our senses in time. As a recent *State of the Future* document notes: "Never before has the world opinion been so united on a single goal as it is on achieving sustainable development. Environmental consciousness is pervasive: The concept of sustainability has affected politics and national decision–making everywhere…. Concepts like industrial ecology, ecological engineering, nature–oriented technology, and zero–emissions research are rapidly becoming accepted."[5]

Serious international interest in these matters dates back to 1972, when the United Nations held the Stockholm Conference on the Human Environment and founded the United Nations Environmental Program. In 1983, Norway's Prime Minister Gro Harlem Brundtland was appointed chair of a World Commission on Environment and Development. In 1987, her group delivered its report, *Our Common Future*, which "thrust the concept of 'sustainable development' into the world debate."[6]

Two years later, the UN General Assembly called for a meeting of all nations to deal with the issues raised by the report. The resulting meeting—the United Nations Conference on Environment and Development—was held in 1992 in Rio de Janeiro, Brazil. Called "the largest gathering of heads of state in history,"[7] the Rio conference produced a number of agreements, the most significant of which was *Agenda 21*. It is a forty–chapter, 300–page document, dealing with social and development issues as well as with the environment, and calling for 2,500 specific actions. It has been described as "a comprehensive blueprint for global action into the twenty-first century designed to solve the twin problems of environmental destruction and the necessity for sustainable development."[8] The 120 nations that signed the agreement (including the U.S. and Canada) agreed to develop plans for implementing Agenda 21 in their own countries. The first President Bush signed the agreement, and shortly after taking office in 1993, President Clinton established the President's Council on Sustainable Development. That group articulated some general goals but failed to come up with a national sustainable development action strategy. The UN Sustainable Development Commission oversees, facilitates, and monitors Agenda 21 activities internationally. A special session of the UN General Assembly (Earth Summit +5) was convened in 1997 to review progress on the implementation of Agenda 21 around the world. Progress at that point was mixed; country–by–country results have been posted on the Internet for all to read. (Check http://www.un.org/ esa/earthsummit and click on "Country Profiles.")

A World Summit on Sustainable Development was held in Johannesburg, South Africa in 2002. Attended by representatives from 200 nations, its aim was to speed up the implementation of Agenda 21 by reinvigorating political commitment to sustainable development and by getting governments and other organizations to go beyond generalities to specific, detailed, concrete actions. In this, it was partially successful. The conference ended with a declaration of general promises to reduce the number of people living on less than a dollar a day, reduce the indebtedness of developing countries, fight

HIV-Aids, and carry out the development commitments made at the Doha and Monterrey conferences. In addition, the attending nations made two new, quite specific, commitments. One was to reduce by half the 2.4 billion people who do not now have access to clean drinking water and sanitary sewage disposal, and do this by 2015. The second was to counter the decline of fish stocks by establishing a worldwide system of marine reserves by 2012.

Another major player in the sustainability game is the World Conservation Union (IUCN), mentioned in MATTER OF CONSEQUENCE 7, **Biospheric Context**. Its membership includes seventy-four govern-ments, 105 government agencies, and over 700 NGOs—making available to the IUCN some 8,000 technical, scientific, and policy experts. The organization provides scientific advisory support to the UN, and is credited with originating the term "sustainable develop-ment" back in the 1970s.

The list goes on. I have a 1993 book listing 8,000 "people, pro-jects, and organizations dedicated to a sustainable future."[9] A 1992 publication listed and cross–linked 30,000 participants in the 1992 Rio Earth Summit.[10] A Google™ check of the World Wide Web in May of 2001 located some 19 million web pages containing the word *environment* and 763,000 containing *sustainability*. Two years later, in May of 2003, those numbers had risen to 39.5 million and 2,150,000.[11] Clearly, something massive is happening.

What exists today is mass interest and an increasingly well–organized push for change. In the race to actually change things, however, we are still at the starting line. In many areas, we don't have a clue how to bring about the needed changes. It is going to take a lot of social invention to transform the present growth–requiring, soci-ety–controlling economy into that saner, steady–state, society–con-trolled economy of the future. Yet even now, some pieces of the transformational puzzle are falling into place.

One critical piece is the ever–increasing number of people who have expertise in both economics and environmental issues. Until recently, these were entirely separate realms of human knowledge, and few people had expertise in both fields. The need to bring the

two together led to the establishment of a new academic discipline called *environmental economics* and to the publication of a multitude of books dealing with the economic implications of sustainability. As I write this, Amazon.com lists 4653 books under its "environmental economics" subject heading—almost all having been published in the last ten years.

Recently developed simulation software is another aid to transformation. Adapting the SimCity/SimEarth idea to sustainability, the Sustainable Development Research Institute at the University of British Columbia has developed a web-based game called QUEST. Its first incarnation is Georgia Basin QUEST, a game that can be played online at http://www.basinfutures.net/. The player makes a set of choices, and the results of those choices (decade by decade to the year 2040) are calculated and displayed.

The energy field posts several hopeful signs. In the late 1990s, British Petroleum agreed to commit $1 billion to renewable energy, and Royal Dutch Shell announced it would commit $500 million. Seven percent of Denmark's electrical energy is now wind–generated, and Gardner and Sampat report that "wind power is now economically competitive with fossil fuel–generated electricity." Solar cell cost will need to fall by an additional 50 to 75 percent before solar–generated electricity can compete economically with coal–generated electricity. But "shipments of solar cells doubled between 1994 and 1997 as a result of burgeoning niche markets, such as powering highway signals and water pumps, as well as half a million homes not connected to a grid, where solar power is the most economical source of electricity."[12] According to one source, the total solar cell market was $3 billion in 2000, is expected to rise about 20 percent per year, and 40 percent of the current market involves power production in rural areas.[13] In 2001, domestic installations of solar cells were up 80 percent compared with the previous year, and installations of water-heating solar collectors up 34 percent.[14]

Signs indicate even the powerful WTO will be forced to change its ways. The coming together of "more than 30,000" peaceful demonstrators (and, unfortunately, "100 to 200 self–styled anarchists") in

Seattle in December 1999 brought the WTO into public consciousness and raised awareness about the negative side of the global economy.[15] As *Time* magazine put it, "Americans may never again think the same way about free trade and what it costs."[16] Changed public perception was also the theme of a *New York Times* article: "In the aftermath of the Battle of Seattle, no single objection to the WTO may stand out any better than it has before. But from now on, every objection will be illuminated by the fires of last week."[17] *Newsweek*'s Michael Elliott said: "There is something in the air; a new mood of radical activism of a kind and—perhaps—scale not seen for years. …[A] common sense of alienation among a surprising number of Americans." He went on to say, "One of the most important lessons of Seattle is that there are now two visions of globalization on offer, one led by commerce, one by social activism."[18]

Elizabeth May, executive director of the Sierra Club of Canada, proposed a way to redress the present power imbalance between trade globalization and environmental issues. She noted:

> *Every single time an environmental regulation has been challenged in a trade dispute before the WTO, the environmental regulation has been struck down. When you look at the composition of the trade panel, you realize why. None of the people who sit as judge and jury at the WTO have any knowledge of environmental or health issues; all they know is the doctrine of trade liberalization. …I've met some of these people; they are not evil. They really believe in the mantra that trade liberalization will lead us to a better world. It could, but not the way they're doing it….*
>
> > *We need a global institution as powerful as the WTO that's a world environment organization. We need global standards…. There's no logical reason that you couldn't construct a system where expanding trade and expanding globalization meant that every country had to meet the highest standards of any one else within that trading system.*[19]

John Stewart also advocates newly created forms of global governance. He has warned that the fierce competition inherent in a global economy is putting pressures on national governments, which

will progressively undermine their ability to regulate markets and to continue existing social programs—leading eventually "to the unmanaged markets of the nineteenth century, and the widespread misery, poverty and inequality that they produced." He wrote:

> *Anything a nation does to counter the process will simply make business within the country less competitive. Only global governance can end the competition between national governments that is eroding their ability to correct the deficiencies of the market. …Only the power of global governance can prevent countries from undercutting minimum standards [for wages, working hours, and social security] and continuing the downward spiral into environmental and social disintegration that is being produced by unmanaged global competition. …Just as the misery produced by unmanaged markets in the nineteenth century made the modern welfare state inevitable, the misery produced by unmanaged global markets will make global governance inevitable. The only unanswered question is how much misery will be produced before global governance is established.*[20]

In our quest for a sustainable and more equitable society, we face the issue of how to reduce resource consumption while simultaneously improving the standard of living of the billions of people living in developing countries. It sounds impossible, but it is not. Back in 1969, Buckminster Fuller told us exactly what to do: "We must undertake to increase the performance per pound of the world's resources until they provide all of humanity with a high standard of living."[21] And that is exactly what is starting to happen in a variety of programs with names like *Factor 4*, *Factor 10*, and *The Natural Step*. They turn upside down the conventional idea that doing the environmentally right thing is necessarily costly. If we are smart enough about how we use resources, it is possible to *save* money. The new technical terms for this are *resource efficiency* and *resource productivity*, but it all comes down to Fuller's "doing more with less."

In their 1997 Report to the Club of Rome entitled *Factor 4*, Ernst von Weizsäcker, Amory Lovins, and L. Hunter Lovins presented fifty real–world examples of how to quadruple resource efficiency—that

is, how to get the same results with one-fourth the resources. Let me mention just two. The first concerns automobile efficiency. The average fuel efficiency of U.S.–made cars rose from 13 mpg in 1973 to 27.5 mpg in 1986, but then the rate of improvement slowed dramatically. The mandatory U.S. requirement of 27.5 miles per gallon for cars and 20.7 miles per gallon for minivans, SUVs, and pickup trucks did not change after 1985. Not being forced to improve fuel efficiency further, U.S. automakers stuck with their mid-1980s basic designs. Still, there were some radical changes in the air. The key ones involved a major reduction in weight through the use of carbon fiber or other polymer composites for the body, reducing the aerodynamic drag, and going to hybrid–electric drive systems. (The latter involve an internal combustion engine, electric motors driving the wheels, and a battery of modest size for storing formerly wasted braking energy.) In 1991, GM built a carbon–fiber, ultralight concept car that demonstrated the feasibility of ultralight construction. And the hybrid–electric part of the conceptual package was introduced in a production car in 1997: the Toyota Prius. It got 66 mpg and went about 850 miles on a tank of gas. In the mid-1990s, several experimental "hypercars" brought the two approaches together: hybrid–electric drive with ultralight body. These cars achieved fuel efficiencies of 100 mpg in one case and 202 in another. In 2000, the Honda Insight, a hybrid–electric car with aluminum body and 70 highway mpg, went on sale in the U.S. Other major car manufacturers are said to be working on similar production cars.[22]

The second example is waste reduction in industry. The authors of *Factor 4* say: "The stories of industries that have greatly reduced, or even eliminated, flows of various wasted materials are legion. Many industrial managers now understand that waste is simply a resource out of place—a symptom of bad management that hurts the bottom line."[23] Among the situations discussed is a furniture manufacturer who installed simple batch stills to recycle the two types of organic cleaning solvent used by the plant. The need for newly purchased solvent went down by a factor of four in one case and ten in the other.[24] In the U.S., back in the early 1970s, 3M management sus-

pected that waste reduction would be an all–win activity. They were right. In 1975, the company began a pollution–prevention program, which, by 1996, had eliminated 246,000 tons of air pollutants, 31,000 tons of water pollutants, 494,000 tons of sludge and solid waste, and 3.7 billion gallons of wastewater—and saved the company $810 million.[25]

In the early 1990s, Xerox realized that by focusing on the practice of leasing machines—providing document services rather than selling copiers—it could better control the materials it used and reduce its use of virgin materials. The company's goal is to remanufacture 84 percent of its copiers and recycle 97 percent of materials. By 1997, 28 percent of its machines were remanufactured, which "kept 30,000 tons of material from returned machines out of landfills in 1997 alone."[26]

Europeans are at the cutting edge of the materials–reduction movement. In the early 1990s, Germany saw packaging waste as a major problem, and in 1993, passed legislation making manufacturers responsible for what ultimately happens to each product's packaging materials. The result has been an impressive increase in the recycling of these materials—from 12 percent in 1992 to 86 percent in 1997.[27] Current thinking in Europe is that a factor–four reduction will not be enough to achieve sustainability, and that greater gains are possible. "Within one generation, nations can achieve a ten–fold increase in the efficiency with which they use energy, natural resources, and other materials."[28] That is the position of the Factor 10 Club, an international group of government, industry, and academic leaders concerned about "the unchartered role of human–induced global material flows, and the ecological ramifications of their unchecked growth."[29] Gardner and Sampat report, "Austria has incorporated a 'Factor 10' (90 percent) reduction into its National Environmental Plan, and the Dutch and German governments, along with the Organization for Economic Cooperation and Development (OECD) have expressed interest in pursuing radical reductions."[30] Another approach to sustainability with an anti-waste focus is the Natural

Step. Originated in Sweden, this strategy now has adherents around the world.[31] And consider this Danish program:

> *One way to reduce waste is to redesign industrial economies to emulate nature so that one industry's waste becomes another's raw material, a science that is becoming known as industrial ecology. In the industrial zone of Kalundborg in Denmark, a network of materials and energy exchanges among companies has been formed. It involves a wide variety of linkages: the warm water from cooling a power plant is used by a company with fish farms; sludge from the fish farms is sold to a nearby farmer for fertilizer; the fly ash from a power plant is used as a raw material by a cement manufacturer; and surplus yeast from a pharmaceutical plant producing insulin is fed to pigs by local farmers.… A $60–million investment by participating firms in the transport infrastructure to facilitate the exchange of energy and materials has yielded $120 million in revenues and cost savings.[32]*

As a result of this program, more than 1.3 million tons of waste no longer end up in landfills or the ocean, and some 135,000 tons of carbon and sulfur are kept out of the atmosphere.[33]

Those involved in factor–four, factor–ten, and other resource–efficiency activities expect the phenomenon to spread. In Paul Hawken's words: "Companies that create more elegant ways of doing things, that create material and energy flows that are exponentially more efficient…will set the standards for the rest of the industry. This will be the foot in the door. It's not going to begin with legislation or regulation; it's going to begin with imagination."[34]

Reports of progress on Agenda 21 issues are one indicator of government concern about sustainability. Another is a nation, state, or city's "green plan" statement of intentions. Various political jurisdictions have issued these, and like Agenda 21, they are comprehensive, rather than single–issue, in scope. Described as "long–term environmental strategies that ensure a high quality of life for present and future generations," they will be as effective as the political will behind them turns out to be.[35] Find out more by doing a "green plan" Web search.

The task of bringing ecological accountability to the global economy is a difficult one, yet several key steps have been obvious for years:

1. **Stop subsidizing the resource extraction industries.** A particularly telling example is the fossil fuel industry. As mentioned in MATTER OF CONSEQUENCE 7, **Biospheric Context**, U.S. taxpayers subsidize oil and gas extraction to the tune of $18 billion a year. Canadian taxpayers put out $6 billion.[36] In doing this, we are subsidizing a non-sustainable energy path. It makes no sense. Let's put the money back in our pockets, or use it to put conservation and renewable energy on the fast track.

2. **Reform the tax system in ways that encourage employment and discourage resource use.** Almost 95 percent of world's tax revenues come from taxes on things that benefit society, such as personal and corporate income, retail sales, property, etc.[37] We need to rebalance things, so more government revenue comes from taxes on things that are damaging to society. After years of discussion on how best to accomplish this kind of tax shift, the authors of *Factor 4* came up with an ingenious proposal: introduce a revenue–neutral tax on energy and primary resources that gradually increases over twenty to forty years at the rate of a few percent per year. The objective would be to make the tax burden "so mild that no capital destruction would result and that technological progress in average resource productivity can outweigh the price increase, thus leaving constant the average annual expenditures for energy and resources."[38]

3. **Introduce universal environmental standards for corporations.** ISO 14000—the International Standards Organization standard for environmental management within an organization—is a step in the right direction, but it is not the final answer. ISO 14000 commits a company to create an environmental management plan and adhere to it. But the company spells out the standard of environmental performance, not the

ISO 14000 standard itself.[39] ISO 14000 will help those who want to evaluate a corporation's environmental performance and access its ISO 14000 documents. But we also need absolute standards of environmental behavior that are sustainability focused and internationally accepted.

To bring the above ideas to fruition, breakthrough–level creativity is going to be needed in field after field, to handle challenge after challenge. Part of this will be social creativity; part will be technical.

Among the technical challenges are the needs to:

- Accelerate the development of less–costly photovoltaics, wind turbines, biofuels, and energy–storage techniques
- Think through the transformation of transportation over the next fifty years and help humanity get on the right track now. Developing low–cost, high–efficiency, low–pollution vehicles and restoring languishing public transit systems will no doubt be part of the solution. But reducing the need for transportation by redesigning communities and by substituting communication for transportation could be even more important
- Help save forests in developing countries by inventing cheap, low–energy–consumption techniques for cooking food
- Continue the development of new ways to get more for less in agriculture
- Go further with the approaches described in *Factor 4* and *Natural Capitalism* to get more for less in industry and commerce.[40]

There is another powerful approach to reducing resource use: Simply stop using the resource. Going back to that comment from India, one of our challenges in the coming years will be to "cultivate a need–based as against desire–based" North American lifestyle. How much of our current consumption is desire–based? How much is need–based? Many North Americans are asking questions like these and answering them in interesting and quite personal ways. We'll explore this shortly.

Universal Provisioning and Economic Stability

> The economy has been redesigned to provision the human population rather than to make a few people a lot of money. Stable economic output meets the physical needs of a stable or slowly declining world population in ways that also facilitate the meeting of their psychological and spiritual needs. Changing values, plus the citizenry's ability to control the distribution of wealth gradually, over time, has reduced the disparity in wealth and incomes and has raised the level of social synergy. Quantitatively, except for some remaining catch–up activities in developing countries, the economy is not growing. Qualitatively, it is. There is intensive research and development directed toward developing ever–better ways of meeting human needs and realizing human potential—with ever–smaller inputs of virgin resources and ever–smaller environmental impacts. Agriculture and manufacturing have become highly efficient, providing what is needed with minimum use of energy and virgin resources. Appropriate and necessary trade continues, but there is an emphasis on local/regional self–sufficiency with regard to food and other life basics. Barring dramatic breakthroughs earlier in the century, the world's energy needs at mid-century are largely met by captured solar energy—via the technologies of photovoltaics, biofuels, and wind turbines. Oil reserves, to a much greater extent than before, are being used as feedstock for the materials industry rather than being burned.

Let's start with the issue of economic equality. If we find it hard to imagine a society in which material goods and other benefits are shared in relatively equal fashion, let's remember that here on this continent, as recently as the twentieth century, first–nation societies existed that were run like that.[41] Recent work in network theory sheds light on the issue. Computer modeling of wealth transfer in an economy such as ours reveals an inherent tendency for financial wealth to accumulate unevenly, so that a small percentage of the people end up with a large percentage of the wealth. This appears to occur, not as the result of differences in talent and money-making skill, but because of something intrinsic to wealth itself. Wealthier people are (1) able to invest more than poorer people, (2) are able continue to invest even when some of their investments turn out poorly, and (3) during periods of positive returns they reinvest those returns—

causing their wealth to increase not just incrementally but geometrically.[42] The implications of this are clear. If there is a natural tendency for wealth to migrate in the rich-get-richer "funnel" direction, and we want wealth to be more evenly distributed, then we must design counteracting "siphon" mechanisms into the system itself. What is not yet obvious are the specifics. What steps do we need to take to transform the present mixed–synergy American and Canadian societies into ones that exhibit high synergy? How do we introduce societal mechanisms that equalize wealth and physical well–being more effectively than present mechanisms? How do we create siphon systems rather than funnel systems? And how do we do this globally?

As we face these challenges, several things encourage me. One is the growing disillusionment with high–consumption lifestyles and the demands of today's pressure–cooker working world. Many employees who managed to keep their jobs through periods of downsizing and outsourcing now have workloads that greatly exceed what they used to be. And for almost everyone at the professional and managerial level, a long workweek is expected. Couple long working hours and reduced work satisfaction with a stuff–filled, debt–filled, too–busy domestic life, and no wonder many people are saying, "Enough! This is crazy."

We can trace the current life–simplification trend back to the 1970s, when a 1936 article by Richard Gregg was reprinted in several publications and Duane Elgin began gathering information for his 1981 book *Voluntary Simplicity*. Gregg and Elgin set the philosophical tone for the movement that was to build through the 1980s and '90s. Gregg had said:

> *Voluntary simplicity involves both inner and outer condition. It means singleness of purpose, sincerity and honesty within, as well as avoidance of exterior clutter, of many possessions irrelevant to the chief purpose of life. It means an ordering and guiding of our energy and our desires, a partial restraint in some directions in order to secure greater abundance of life in other directions. It involves a deliberate organization of life for a purpose.*[43]

Elgin noted that "Simplicity of living is being driven both by the push of necessity (the need to find more sustainable ways to live) and by the pull of opportunity (the realistic possibility of finding more satisfying ways to live)." He also said: "I do not view this as a turning away from the industrial era but as a creative attempt to begin the process of moving beyond it. Rather than an attempt to turn back the clock to retrieve the past, this orientation in living implies using all of our skills, ingenuity, and compassion to move into the future constructively."[44]

For Vicki Robin, coauthor of *Your Money or Your Life* and president of the New Road Map Foundation: "The real epiphany came when I became aware of how consumption is the driver behind almost every environmental problem. There is a *demand for something* that is driving that particular environmental problem. If we could adjust our consumption we could take the pedal off the floor, we could decelerate our stress on the environment. And when I made that link, that's when I became very passionate about teaching about consumption and becoming an activist on this issue."[45]

By the mid-1990s, the trend had become a hot topic in the mainstream press, and many new books on the subject were appearing. The '90s media terms for the phenomenon included: *escaping the rat race*, *opting out*, *cashing out*, and *downshifting out of the fast lane.* One 1995 survey of Americans found a strong shift from material to nonmaterial values. Only 21 percent of respondents said, "I would be much more satisfied with my life if I had a nicer car;" 19 percent, "if I had a bigger house or apartment;" and 15 percent, "if I had more nice things in my home." Yet, 66 percent said, "I would be much more satisfied with my life if I were able to spend more time with my family and friends;" 56 percent, "if there was less stress in my life;" and 47 percent, "if I felt like I was doing more to make a difference in my community."[46] Another group that predicts social trends estimated that, by the year 2000, "15 percent of American adults will be living the 'simple life.'"[47] If we're already at 15 percent, things look promising for 2050.

I suspect many of the valued possessions of people at mid-century will be tools of one kind or another, and they will be durable, long–lasting tools. One of them will no doubt be the 2050 version of today's personal computer. By then, its design will have matured and stabilized, so it will no longer be necessary to buy a new one every few years. I see a parallel here with the evolution of bicycle design. In the late 1800s, there were bicycles of all sorts: big wheel in front, big wheel in back, two wheels of nearly the same size. Eventually, the design war subsided. People voted with their wallets for the design that worked best. Since the 1920s, bicycles have been bicycles. Yes, there have been slight variations and design refinements—coaster brakes, hand brakes, multiple sprockets and chain shifters, stronger lighter frames, etc. But after those chaotic first years, bicycle design stabilized. Today, we expect a bicycle to last a lifetime, and in the mid-twenty-first century, it will be the same for most of the important tools in people's lives. There will be a new appreciation of physical materials and their preservation. Most of our important life tools will be products of an extended design evolution, and—like well–made musical instruments and European buildings from centuries past—will be built to last a long, long time.

This disenchantment with piling up possessions could also lead to a societal value shift in which wealth is neither admired nor envied, but looked upon with disdain. The day may come when people consider the possession of wealth to be morally repugnant and in extreme cases obscene. People who held onto their wealth would be seen as missing the purpose of life, totally out of touch with what really matters, selfish, and not people you would like to get close to. That was the case among the Northern Blackfoot that Abraham Maslow studied back in the mid-1930s. It was the practice in that society for those who had worked hard and accumulated much during the year to give it all away at the annual sun dance ceremony. Maslow wrote:

> *I remember my confusion as I came into the society and tried to find out who was the richest man and found out that the rich man had nothing. When I asked the white secretary of the reserve*

who was the richest man, he mentioned a man that none of the Indians had mentioned, that is, the man who had on the books the most stock, the most cattle and horses. When I came back to my Indian informants and asked about Jimmy McHugh, about all his horses, they shrugged with contempt. "He keeps it," they said, and as a consequence hadn't even thought to regard him as wealthy.[48]

Even today there are signs of the coming value shift. Consider the pleasure we get at hearing about acts of gratuitous generosity. We value those acts. We resonate with them. We want this to be the way it is to a much greater extent.

Internationally, I'm encouraged by the multitude of voices calling for appropriate global development and eventual economic equity. The INGO system has become a very large, quite visible hand that is keeping pressure on global players to behave responsibly toward the environment, developing countries, and people everywhere. Public reminders of this have included the 1999 Seattle WTO demonstrations and demonstrations since then at almost every meeting of WTO, World Bank, IMF, and G7/G8 officials. It is heartening to see that the will to implement massive change is already substantial—and bound to increase, as ever more people deepen their understanding of globalization's downside. Yet, pressure from individuals and NGOs is only step one. Inspiring proposals and creative strategies will be needed to actually bring about the needed changes in corporate, financial, WTO, IMF, World Bank, and government behaviors. In this regard, a most helpful resource is *Globalization and Its Discontents* by Joseph Stiglitz, winner of the 2001 Nobel Prize in Economics, chairman of president Clinton's Council of Economic Advisors, and former chief economist for the World Bank. This book presents a clear picture of what has gone wrong with globalization, and makes some sensible suggestions for improvements.

Many positive things are happening in business these days, but they tend to be happening in small– and medium–size firms, not in megacorporations.[49] Still, the opportunity exists for large transnational corporations to do an amazing amount of good in the world,

should they choose to do it. They are powerful economic engines with the long–term capability of provisioning all of humanity with both physical necessities and at least some of the tools needed for a self–actualized inner life. But before that could happen, the corporate modus operandi would need to broaden. Profit and share price could not remain the central focus of corporate activity. Other stakeholder interests—including the environment, the well–being of people in developing nations, and employees in the home country—would have to be included in truly substantial ways. If large transnational corporations decided to broaden their focus and start making all–win, all–stakeholder decisions, they could become the great heroic organizations of human history. In the late 1990s, however, what applause there was for corporate behavior came largely from the third–row orchestra seats in the shareholder concert hall. And in the early 2000s, even the shareholders were sitting on their hands.

While I hold out some hope that, under pressure, megacorporations could undergo such a transformation, David Korten does not. Instead, he envisions a "post–corporate world" in which megacorporations and globalism have been replaced by market economies of Adam Smith's kind: geographically limited and involving numerous small– and medium–size enterprises. Efficiencies of scale would be achieved through networking rather than corporate bigness. Local ownership would be the rule, and there would be much less reliance on trade than at present.[50]

Employment statistics indicate that this movement from big to small is already well underway. In the U.S. during the period 1994–1998, approximately 11.1 million net new jobs were added to the economy. *None* of this net increase came from the large–company (500+ employee) sector of the economy. Large companies downsized during this period and on average let more employees go than they hired. All of those 11.1 million jobs were generated by firms with less than 500 employees, and *60.2 percent of the net new jobs were added by "microbusinesses" with one to four employees.*[51] Over the five years between 1990 and 1995, the largest percentage increase in employment (36.8 percent) was in this one–to four–employee class of business.[52] The

U.S. Small Business Administration has referred to this phenomenon as "the new American evolution." It is not clear how much of this shift was simply a forced response to corporate downsizing and how much represents the actualizing of entrepreneurial dreams or a conscious withdrawal from the rat race. We do know that 60 percent of new businesses start as home–based businesses.[53] We also know that there is a large turnover among small businesses. An estimated 75 percent are terminated within five years, though only one in seven actually fails and leaves unpaid debts.[54]

The above statistics suggest that societal well–being in the coming years will be strongly linked to the health of small businesses. Fortunately, there are moves within both government and the private sector to help increase the small–business success rate. There are, for instance, more than 800 for-profit and non-profit "business incubator" organizations that "nurture young firms, helping them to survive and grow during the startup period." Another example involves the sharing of product and marketing expertise. Doug Hall's Eureka! Ranch is a small business outside Cincinnati that has been hugely successful in helping Fortune 500 companies come up with successful new product ideas. Over the years, Hall and his team developed idea–evaluation principles and procedures that work. Among them is Merwyn Idea Scan, a marketplace simulation computer model that forecasts the probability of success of a new product idea by comparing it with the characteristics of thousands of successful and unsuccessful past ideas. Believing firmly in the importance of small business and concerned about the high termination rate, Hall has undertaken what he calls a "religious–like mission" to help small businesses succeed. He shares his expertise in two books—*Jumpstart Your Business Brain* and *Meaningful Marketing.* And "to help small business owners quantify their learning, reduce their risk, and increase their probability of success," he is personally donating a free Merwyn Idea Scan to everyone buying a copy of *Jumpstart Your Business Brain.*[55]

For Paul Hawken and the other authors of *Natural Capitalism*, the key to creating a sane, humane economy is adequate valuation of all forms of capital that create economic prosperity and constitute

human wealth. Industrial capitalism does not do this. It values financial capital and manufactured capital, and treats them as long–term assets that must be maintained for business to continue. But it fails to value *natural capital* (natural resources, living systems, and ecosystem services) and *human capital* in the same way. These other forms of capital—as necessary for doing business as the first two—are valued only for their immediate usefulness. The authors propose broadening present–day capitalism into a "natural capitalism" that would "guarantee that all forms of capital are as prudently stewarded as money is by the trustees of financial capital." Regarding markets they say: "The goal of natural capitalism is to extend the sound principles of the market to all sources of material value, not just those that by accidents of history were first appropriated into the market system." They consider markets to be a "tool for solving the problems we face," but with the caveat that markets "make a good servant but a bad master and a worse religion."[56] The authors say:

> *To make people better off requires no new theories, and needs only common sense. It is based on the simple proposition that* all *capital be valued. While there may be no "right" way to value a forest, a river, or a child, the wrong way is to give it no value at all. If there are doubts about how to value a seven-hundred–year–old tree, ask how much it would cost to make a new one. Or a new atmosphere, or a new culture.*[57]

With regard to social accountability in the global economy, several interesting developments have occurred. The growth of socially responsible investment funds is one. These funds examine corporations for a variety of socially and ecologically relevant characteristics in addition to the usual economic ones, and include only those companies in their portfolios that meet the fund's criteria for corporate responsibility. These criteria vary from fund to fund, and in many cases simply weed out the most flagrant kinds of corporate misbehavior. Some of these funds have performed well in comparison with standard indices. There is even an index modeled on the S&P 500—The Domini 400 Social Index (DSI), which measures the collective performance of 400 stocks that meet the Domini criteria.[58] Compar

ing average returns over the ten years from 1992 through 2001, the DSI outperformed the S&P 500.[59]

A social accountability standard—SA8000—now complements the ISO 9000 quality and ISO 14000 environmental standards. Based on several International Labor Organization Conventions, SA8000 deals with such issues as child labor, forced labor, health and safety, freedom of association and the right to collective bargaining, discrimination, disciplinary practices, working hours, and compensation. Before certification, auditors from the certifying agency, the Council on Economic Priorities Accreditation Agency, visit each facility.[60]

The UN may also play a social–accountability role. The *New York Times* reports that UN Secretary General Kofi Annan is attempting to make the UN "a more effective force for social and labor standards." In mid-2000, Annan succeeded in getting fifty multinationals to join twelve labor associations and watchdog groups in signing a "global compact that commits them to support human rights, eliminate child labor, allow free trade unions and refrain from polluting the environment wherever they do business." Because the agreement is a "declaration of principles" and does not bind the multinationals to specific actions, only time will tell whether this was a serious move on their part or a public relations exercise.[61] In any event, it seems a worthwhile initial step.

Work also continues on quality–of–life indices. The GDP is not a reliable indicator of quality of life because it lumps together all goods and services transactions without distinguishing between the ones that reflect societal goods and societal bads. Thus, more crime, more divorce, more illness, more pollution, and more hurricanes all boost the GDP because they all result in more goods and services transactions. Various organizations and individuals have been working on indices that more truly reflect quality of life. The United Nations Development Programme (UNDP) came up with the Human Development Index (HDI). The HDI combines a variety of indices, including life expectancy at birth, adult literacy and mean years of schooling, and per capita GDP adjusted to reflect purchasing power. Of the 174 countries represented in the 2000 HDI report,

Canada ranked first, Norway second, and the U.S. third. In the index, Canada's lower purchasing–power ranking in comparison with that of the U.S. was more than compensated for by higher rankings in areas such as longevity and education.[62]

There are things the HDI does not take into account, such as how evenly physical goods and other attributes of well–being are distributed, and the environmental damage encountered in producing them. In the 1980s, Herman Daly and John Cobb developed the Index of Sustainable Economic Welfare (ISEW). The ISEW makes adjustments for unequal distribution of consumption. It takes into account such environmental factors as depletion of nonrenewable resources, loss of farmland, and soil erosion. And it takes into account the value of unpaid household work. Because of its complexity, the ISEW analyses to date have focused on one country at a time over a period of many years. A 1950 to 1988 U.S. analysis "shows a rise in welfare per person in the United States of some 42 percent between 1950 and 1976. But after that, the ISEW began to decline, falling by just over 12 percent by 1988."[63] An ISEW analysis for the U.K. between 1950 and 1996 showed similar results. Per capita welfare rose 67 percent from 1950 to 1975. It declined after that, falling 23 percent by 1996.[64]

The Genuine Progress Indicator, or GPI, grew out of the ISEW and takes even more factors into account. It starts with the same per–capita consumption data as the GDP, but then adds and subtracts the money value of a wide range of factors. Subtracted costs include crime and family breakdown; resource depletion; pollution; long–term environmental damage; defensive expenditures, such as water filters; and the capital cost of major private and public expenditures, such as homes, appliances and roads. Added benefit values include household and volunteer work, and the value of the services provided by the capital costs—homes, appliances, roads, etc. Other factors can be pluses or minuses. If income becomes more widely distributed, the GPI goes up. The same is true of an increase in leisure time. The effect of money borrowed from outside the country depends upon whether it is used for investment (zero effect) or for consumption

(GPI goes down). In the U.S. from 1950 to 1970, the per–capita GPI rose 64 percent. It flattened off between 1970 and 1980, and then dropped 25 percent between 1980 and 1997. Although the per–capita GPI is now back down to what it was in the late 1950s, mainstream economists would have us think that the per–capita GDP rise of 117 percent since 1958 means things have gotten a lot better.[65] **Not.**

Another interesting index of well–being, the Fordham University Index of Social Health (ISH), tracks progress on major social problems. Some components of this sixteen–component index are at the economic end of the socioeconomic spectrum: unemployment, weekly earnings, health–insurance coverage, older people in poverty, etc. Others are at the social end: infant mortality, child abuse, teen suicides, high school dropouts, etc. Interestingly, even though it is less directly determined by economic factors than the ISEW or GPI, the ISH shows a similar downward trend. In the U.S., the ISH rose with the GDP until 1973 and then began to fall. By 1993, it was down 48 percent from its 1973 high. In Canada, the ISH began to decouple from the GDP in 1979, and by 1995, it was down 30 percent.[66]

Economic stability will be needed in the coming decades, and as pointed out in MATTER OF CONSEQUENCE 6, **Economic Context**, speculative finance threatens that. During the closing years of the twentieth century, the U.S. economy boomed, and stock prices soared. Between early 1994 and 1999, the Dow Jones Industrial Average more than tripled.[67] Between early 1995 and early 2000, the high–tech NASDAQ Composite Index rose by a factor of six.[68] Unfortunately, price–to–earnings ratios also soared—an indication that stocks were becoming overpriced. In January 2000, the average price–to–earnings ratio of S&P Composite Index stocks reached a record 44.3. The former peak, 32.6, occurred in September 1929, shortly before the crash.[69] As the century ended, most investors shared a boom psychology, and in early 2000, both the Dow and NASDAQ indices reached all–time highs. The Dow began to decline in late January 2000, and in late March, the NASDAQ "plunged into a sickening tailspin that pushed it from 5,000 to 3,300 in a matter of weeks, leaving some

investors bruised and some broke."[70] Both indices recovered somewhat during the summer of 2000, but markets declined again in the fall as corporations began to report lower–than–expected earnings. Markets continued their decline through 2001 and 2002. In mid-2002 Canadian economist Jeffrey Rubin noted that between 1950 and 1995 the ratio of total U.S. stock valuation to GDP averaged 52 percent, and never exceeded 73 percent. At the market peak in early 2000 that number had reached 200 percent, and in mid-2002 it was still above 100 percent. Rubin considered it likely that stock values would continue to decline until the ratio of equity market capitalization to GDP returned to traditional levels.[71]

Analysts had various takes on the boom of the 1990s. An example of extreme optimism was Glassman and Hassett's book *Dow 36,000*. Published in the fall of 1999, it contended that despite historically high price–to–earnings ratios, stocks were still *under*valued, and the Dow should eventually rise to 36,000. In press at the same time and published a few months later—about the time the NASDAQ hit its spring 2000 decline—was Yale economist Robert J. Shiller's book *Irrational Exuberance*. In it, Shiller took a reasoned look at the history of economic booms and busts, concluded that the late–1990's market was grossly overvalued, and saw trouble ahead. In a move that upset the publisher of *Forbes* magazine,[72] respected *New York Times* business columnist Louis Uchitelle agreed with Shiller, advocated "public recognition of the bubble," and suggested several "remedies." Among them were:

1. **Tighten margin requirements.** "Investors could be required to put up 60 or 70 percent of the purchase price of a stock, instead of the present 50 percent."

2. **Require banks to increase the amount of capital that backs loans made for the purpose of buying stock.**

3. **Institute a transaction tax on all stock trades—a Tobin Tax.**[73] A small transaction tax would have no significant effect on enterprise investing, because that kind of investment is made for the long term. You buy now and sell years later. It would, however, dampen speculative trading in which stocks

are bought today and sold tomorrow. Although Uchitelle didn't specifically suggest it, a Tobin Tax could (as Tobin intended) also be applied to currency exchange transactions. There, it would have a particularly strong dampening effect because speculators typically buy and sell currencies many times per day.

4. **Tax short–term capital gains.** "An old Warren Buffett idea: a 100 percent capital gains tax on stocks held for too short a term, say, less than a year."

5. **Extend "suitability rules."** "These require brokers to check that a customer's investment goals are in line with his income, net worth, and the like. …[They] do not now cover day traders and online investors…."[74]

Why did stocks become so overpriced? One reason, according to some analysts, was simply the very large amount of money available for investment. Take pension funds, for example. In 1995, U.S. pension funds were worth $4 trillion. These funds owned more than one-third of all corporate equities and 40 percent of all corporate bonds.[75] Individual investors have also been investing massively in stocks—many in the hope of quickly building a large nest egg and retiring at fifty-five or younger. According to these analysts, if the pool of money seeking a home in stocks exceeds the total quantity of stocks available at reasonable price–to–earnings ratios, then the price of those stocks will inflate without a corresponding increase in earnings. Shiller highlights other contributing factors:

> *The Internet boom, the rise of online trading, the Republican Congress, and the proposed capital gains tax cut occurred just as the market started its most breathtaking ascent. Other factors— including the rise of defined contribution pension plans, the growth of mutual funds, the decline of inflation, and the expansion of the volume of trade—were clearly associated with events that unfolded since the bottom of the market in 1982.*[76]

Unfortunately, as long as the game itself remains unchanged, irrational exuberance is sure to return. For this reason, part of a rational strategy for moving from our present economy to the new

one requires that we gradually reform, reduce, and possibly eliminate, speculative finance. Initial steps could include the five that Uchitelle suggested, plus limitations on the withdrawal of invested capital. Brakes on the withdrawal of investment from developing countries, coupled with the stabilizing effect of a Tobin Tax on currency transactions, would seem to make events like the 1997 Asian meltdown much less likely. NGOs in many countries, and even parliaments in some, support a Tobin Tax. In 1999, the Canadian House of Commons passed a motion saying, "In the opinion of the House, the government should enact a tax on financial transactions in concert with the international community." And in 2000, a Tobin Tax "came within six votes of being adopted by the European Parliament."[77]

The Enron collapse revealed a host of other risks associated with investing in stock. In the past, most investors assumed that annual reports reported all significant facts and that CEOs of large corporations were honorable people looking out (at the very least) for the interests of shareholders. With those illusions shattered, there are now calls for a variety of reforms. Somehow, the nearly $2 trillion in 42 million 401(k) plans must be better protected. A variety of accounting and taxation practices need to be changed. (For example: Stock options are currently tax deductible, yet corporations need not show them as an expense against profits. Corporations can't continue to have it both ways.) Financial auditing must be separated from financial consulting. And CEO compensation schemes must be redesigned to ensure that CEOs look out for the long-term interests of the corporation and its shareholders, not just their own enrichment.

The aim of such measures is not to kill the goose of the market economy, but to properly tend her, so the golden eggs come in a steady, reliable stream rather than in bursts. The world needs enterprise to help meet the legitimate needs of its people, and enterprise must be financed. But can't this be done through investment in solid enterprise in return for reasonable dividends rather than for greed–driven expectations of something for nothing?

Beyond the remedies outlined above, world society must eventually take the long view and recognize that the capitalism we have

inherited from the twentieth century is a transient anomaly—inherently different from the steady–state, nongrowth economy that must eventually come into existence. According to most analysts, capitalism as it exists today *requires* quantitative growth. Roger Terry went so far as to call endless growth "the mechanism by which the system works."[78] As Herman Daly has pointed out, growth also enables those who possess much to justify keeping it:

> *We built our economy around the idea of growth…partly to avoid facing up to the problem of sharing. Because if you don't continue to grow, and you still have poverty, you have to redistribute…. To avoid the moral problem of sharing—we say moral problems are too difficult—we'll convert it into a technical problem of just growing faster. Then we won't have to deal with it. We've gotten away with that for a long time, living in a relatively empty world with abundant resources and spaces. Now that we're in a pretty much a full world with much tighter limits I don't think we can get away with that strategy. And maybe, in some way, that will force us to face up to the moral issue.*[79]

Whatever the forces behind it, quantitative growth is clearly unsustainable, and the sooner we start moving in the 2050 direction, the smoother the transformational trip is likely to be.

Work and Leisure

A new balance exists between work and leisure. Every able person is expected to spend a certain amount of time in socially relevant activity. It could be job and work as we know them today, or raising children, caring for the elderly, important tasks now handled by volunteers, or new activities not yet imagined. In return, everyone eats, is housed, is fed, and gets treatment when they are sick. Money probably changes hands, but it might not; that doesn't really matter. What matters is, the essential work of society gets done, people's basic needs are met, and there is time left over for personal pursuits. Everyone has discretionary time—time to play, time to spend with neighbors and distant communities of interest, time to learn, time to develop psychologically and spiritu-

ally, time to perform, time to create—time to live a full, rich, life of the mind.

Some potential uses of that discretionary time will be discussed shortly; here we focus on the changed nature of work in mid-century. The change envisioned in the statement above is rooted in two twentieth century realities that have intensified and continued into the twenty-first. We have already looked at the first of these from a personal perspective. Subjectively, it involves a shift in values from "having stuff" to "having time to do my thing," from the rat race to a simpler but richer life. Objectively, it involves a maturing of the economy. More than a quarter century ago, Herman Daly called attention to a parallel between ecosystems and economies. He noted, "Young ecosystems seem to emphasize production, growth, and quantity, whereas mature ecosystems emphasize protection, stability, and quality." He felt the world economy would follow the same course and said, "With constant physical stocks, economic growth must be in nonphysical goods: services and leisure."[80] In other words, a mature economy might continue to grow in quality, but no longer in quantity. Recently, Joseph Pine and James Gilmore made the case that this maturation process is already well under way. In their book *The Experience Economy,* they show how the primary focus of economic activity has shifted over time from *commodities*, to *manufactured goods*, to *services*—then beyond services to *experiences* (where things are moving now), and ultimately (they believe) to the *transformation* of people and organizations into what they most want to be.[81]

The second reality affecting work is a side effect of this economic maturation: the continually diminishing number of person–hours required to do the essential work of the world. As technology takes over more tasks, there is less "employment" (in the twentieth century sense of the word) to go around. Agriculture and manufacturing are dramatic examples. In the late 1800s, roughly 70 percent of the North American working population labored on farms to raise enough food to feed themselves and everyone else. As farms consolidated and became mechanized, that figure decreased—to 6 percent in 1963 and less than 2 percent in 1993.[82] As agricultural employment

fell in the early 1900s, manufacturing employment rose, and most of those displaced from agriculture were able to find factory jobs. Then, about mid-century, automation began to replace factory workers. A new shift began, this time from employment in manufacturing to employment in a wide range of services—personal, repair, health, educational, social, legal, engineering, management, etc. In 1945, 38 percent of nonfarm employment was in manufacturing, but by 1996, that figure had dropped to 15 percent.[83] In 1982, Wassily Leontief (winner of the Nobel Prize for his work on input–output economics) wrote about a coming era of permanent unemployment. In an article in *Scientific American,* he acknowledged that in the past when an industry became obsolete and people lost their jobs, some new enterprise always came along to hire them. This, however, was no longer the case. As Leontief put it:

> *With the advent of solid–state electronics, machines that have been replacing human muscle from the production of goods are being succeeded by machines that take over the function of the human nervous system not only in production but in the service industries as well…. The relation between man and machine is being radically transformed.*[84]

Leontief questioned how society would handle this reduction in demand for human labor. He noted that, from 1860 to 1950, the U.S. workweek had progressively shortened, but that after 1950, it leveled off at about 42 hours per week. Workers seemed to have no appetite for shortening it further, at least if shortening meant reduced pay. This remained the situation for the rest of the century. The reduction in "good jobs" came along just as he predicted. But it was not met by shortening the workweek and sharing the pain among all workers. Those who had jobs continued to work their forty or more hours, and those who lost their jobs and couldn't find comparable work remained unemployed or took low–end and part–time jobs to make ends meet.

There have been some successful experiments with job sharing and sabbaticals. Many government workers in Canada, for example, are able to opt for a three–and–one or four–and–one plan for taking

a year off. Under the three–and–one plan, employees sign up to work for the next three years at three-quarters of their present salary, and then take the fourth year off while getting paid three-quarters salary during that year too. People use these plans, enjoy them, and in the process create jobs for people who wouldn't otherwise have them. But these are the exceptions. For the most part, there have been the two groups: those with full–time jobs that paid reasonably well and those who scrambled for whatever work they could find.

Obviously, managing the transition to a steady–state economy while simultaneously creating a more equitable distribution of work, personal time, and economic well–being will require a great deal of inventiveness, cooperation, and good heartedness. But we're not starting from scratch. Back in the 1960s, there was much talk about a guaranteed minimum income. Robert Theobald edited a book on the subject in which several highly respected people contributed essays. Some of their comments shed light on our present predicament. For psychologist Eric Fromm, the fundamental problem with the guaranteed minimum income was that of trying to pin a basically good idea onto an incompatible socioeconomic system. As he saw it, introducing just this one change wouldn't work; a number of things had to change:

> *We must change our system from one of maximal to one of optimal consumption…. [This would include the] transformation of* homo consumens *into the productive, active man (in Spinoza's sense); …the creation of a new spiritual attitude, that of humanism (in theistic or nontheistic forms); and…a renaissance of truly democratic means (for instance, a new Lower House by the integration and summation of decisions arrived at by hundreds of thousands of face–to–face groups, active participation of all members working in any kind of enterprise, in management, etc.).*[85]

Marshall McLuhan said:

> *As the age of information demands the simultaneous use of all our faculties, we discover that we are most at leisure when we are most intensely involved, very much as the artists in all ages….*

[We need to] create for the community the kind of "leisure" that has always been known to the artist and creative person: the leisure of fulfillment resulting from the fullest use of one's powers. It is this "leisure" that dissolves the existing job structure with its fragmentary and repetitive noninvolvement of the integral powers of man.[86]

Contemporary Europeans are also thinking along these lines. A Finnish Committee for the Future included these words in a recent report:

Remunerative work is becoming a much smaller part of a person's work history and life cycle than it has been to date. The twentieth century's standard of work, whereby one held a paying job eight hours a day, forty hours a week, from age twenty to age sixty-five, usually for the same employer, has disappeared. More often than before, work is temporary and consists of numerous separated fragments. In a lifetime, a person holds many jobs, which are fundamentally different from one another. The new characterization which people give to their work—bit jobs—is apt. More and more clearly, we are headed in the direction of an alternation and overlapping of work, study, and leisure.[87]

In a Club of Rome report entitled "The Rediscovery of Work," Orio Giarini and Patrick M. Liedtke proposed to create full employment through a "multilayer system of work." The basic "first layer" would involve twenty hours per week of work service in the public sector. Everyone between the ages of eighteen and seventy-eight would be expected to participate "in exchange for a minimum amount of money that allows the individual to meet its most basic needs." First–layer activities would be funded using the resources that now go for unemployment insurance, income support, welfare, food stamps, and their bureaucracies. The "second layer" would involve all remunerative private–sector work. This work could be done *instead of* or *in addition to* the first layer work—or not at all, at the individual's discretion. Thus, if you are an artist and your art is your life, you could do your twenty hours of basic work for your society, live simply, and have the rest of each week to do your art. On the

other hand, if you are a businessperson and remunerative business is your life, you could opt out of the public sector service and its "basic needs" compensation, and spend many hours a week doing business.[88]

With fewer and fewer people needed to do the world's manufacturing and with the manufactured goods of the future being designed to last a long time, most of the work that remains for humans to do is going to be of two kinds. One involves mental activities that are beyond computer capability: the imagining, planning, inventing, and creating of which only a human mind is capable. The other involves largely physical activities that also require human qualities, such as judgment, common sense, and TLC: tending children, fixing meals, caring for the sick and elderly, cleaning dirty stuff, fixing broken stuff. Despite traditional patterns of avoidance, we're finding out that men can do this second kind of work very well. And there will be a lot of it waiting for willing hands and hearts in that world of 2050.

Perhaps there is a way of providing people's basic economic support so that it is not just a straight transaction—money for work—as proposed by Giarini and Liedtke. It would be better if we could do our twenty hours a week in a *giving* frame of mind: This is my gift to my society, to my community, to the people around me. As Lewis Hyde makes clear in *The Gift*, something given freely has a power for good that disappears when the very same thing happens as a matter of economic exchange. Giving builds relationship, builds community; market transactions do not.[89]

Political Stability

World politics, too, has changed. Seeing to it that everyone's basic needs are met has greatly enhanced political stability. Nations have decided it is in their best interests to have a system of world governance with appropriate decision–making, judicial, and conflict–ending powers. The latter include ready–to–go, conflict–resolution, peace–making, and peace–keeping forces, whose role it is to act early on to ward off or resolve conflicts between or within nations.

Wouldn't this mean giving up national sovereignty? From the modernist perspective, perhaps—but there are other ways of looking at it. Harlan Cleveland (president emeritus of the World Academy of Art and Science and former U.S. Ambassador to NATO) has referred to international cooperation as a *pooling* of sovereignty: "Cooperation does not mean giving up independence of action, but pooling it— that is, using sovereign rights together to avoid losing them separately."[90] Maurice Strong has said: "There is no way in which we need or should have a world government per se, as one great big global government. What I do want to see, because I feel it is absolutely necessary, is a system of world governance…a series of arrangements which include the international institutions but are not controlled by them, by which countries can cooperate in doing the things that are going to create a decent global situation."[91]

The parallel between national sovereignty and personal freedom seems fairly obvious: Both become significant when committed to some larger purpose. And just as the failure to make personal commitments is a sign of a person who is not yet fully mature, a nation's failure to commit its sovereignty toward various larger goods is a sign the nation is not yet fully mature. William Halal, in writing about the World 2000 planning dialogue said:

> *Governments around the world are losing control as power leaks across their borders, making the old concept of national sovereignty increasingly obsolete. Pooling sovereignty through collaborative alliances…, however, allows governments to regain control through sharing responsibility for international problems.*[92]

It is interesting that those on the American far right who have vigorously opposed U.S. involvement in the UN and the International Court of Justice are the same people who, in support of a global economy, have eagerly supported giving up a large measure of U.S. governmental control to transnational corporations, global financial interests, and trade overseers, such as the WTO and NAFTA panels. Given this, one might suspect their hue and cry about sovereignty has had less to do with nationhood and patriotism

than with ensuring that powerful U.S. corporate and financial interests will be free to do as they wish without outside interference.

The fact is, the U.S. has quietly committed itself over the years to a large number of cooperative ventures—ventures that have furthered U.S. national interests, not harmed them. Examples include:

- The Universal Postal Union founded in 1875 to ensure the free passage of mail from country to country
- The International Telecommunication Union, which since 1934, has regulated the use of the electromagnetic spectrum (radio, television, and satellite communication)
- The Law of the Sea Treaty
- The Antarctic Treaty
- Cooperative agreements concerning international civil aviation, weather forecasting, and outer space

The UN is behind much of the current cooperative activity. As Hazel Henderson has pointed out, "For fifty years, the UN has engaged in quiet norm–setting. It's one of our best hopes."[93]

Cooperation, in all its forms, is becoming an increasingly realistic hope. Halal again:

> *A knowledge–based society fosters pockets of collaborative problem solving in which all partners benefit, while competition between these pockets serves to drive collaborating parties together. That's why no–nonsense business executives are creating a flurry of strategic alliances, even with their competitors. Cooperation has now become the most powerful trend in world affairs. This different perspective offers the prospect of forging alliances to knit together a global community of business and government, economists and ecologists, competing nations and so on. Note that an ethic of cooperation does not imply altruism, but rather a reciprocity of interests that benefits all partners. It is enlightened self–interest.*[94]

Unfortunately, since early 2001 the U.S. government has embraced a U.S.–centric unilateralism rather than international cooperation and mutual benefit. The "go it alone" policies of the George W. Bush administration in refusing to ratify the Kyoto accord, withdrawing from the treaty to participate in the International

Criminal Court and the 1972 Antiballistic Missile Treaty, sabotaging U.N. family planning efforts, violating trade rules, blocking an agreement to provide medicines for the world's poorest nations, ignoring the Geneva Convention and due process in its dealings with Guantanamo prisoners, authorizing the C.I.A. to kill those they merely suspect of being terrorists, and—without UN backing—initiating a preemptive war against Iraq, have been perceived by a host of world leaders as profoundly uncooperative. Much of the rest of the world considers such actions to be unacceptable behavior for a civilized nation at this point in human history. World public opinion has called upon the U.S to return to the arena of international cooperation and undo the damage.[95]

Thoughtful Americans are also disturbed about this state of affairs. Career diplomat John Brady Kiesling resigned in protest over Bush administration policies. In his letter to Colin Powell he wrote:

> *We have begun to dismantle the largest and most effective web of international relationships the world has ever known. Our current course will bring instability and danger, not security.... We are straining beyond its limits an international system we built with such toil and treasure, a web of laws, treaties, organizations and shared values that sets limits on our foes far more effectively than it ever constrained America's ability to defend its interests.... When our friends are afraid of us rather than for us, it is time to worry.*

New York Times foreign affairs columnist Thomas L. Friedman put it this way: "Mr. Bush has repeatedly told the world: If you're not with us, you're against us. He needs to remember this: The rest of the world is saying the same thing to us."[96]

Let us go back for a moment to Gwynne Dyer's view of the world scene. Dyer sees in recent history the final death throes of the patriarchal order. In support of this, he offers the following observations:

- **Democracies have been replacing dictatorships**. In 1775, zero percent of national governments were democracies. In

1943, 15 percent were. Between the late 1950s and 1980 the number was about 25 percent. Now it is 70–75 percent.

- Despite the impression given by the electronic media, **war as a means of solving problems is ending**. In 1943, hundreds of millions of people were at war, a million people were dying per month, and by the end of World War II between 40 million and 50 million had died. In 1995, warfare was restricted to two narrow bands—one in Africa, the other extending from the former Yugoslavia to Afghanistan—involving only 0.5 percent of the world's population.

- **Communication gives a society the opportunity to become self–determining, and the society always takes it**. With few exceptions, fifty years after literacy reaches 50 percent, democratization happens.

- Though the first movements toward democracy involved bloody revolutions by the populace at large, **major democratization has happened in recent years without armed revolution**—in India, the USSR, and South Africa, for example.

- **Democracies don't fight other democracies.** War between France and England is no longer conceivable. Nor since becoming democracies, do the Allies consider war against Germany or Japan.

- At the 1994 Cairo Conference on population, 150 nations agreed that **giving women more control over reproduction** was the best way to handle the world's population problem.

- We, by nature, like shallow gradients of power and dislike steep ones. They make us uncomfortable. Because of this, **the whole world is moving toward recognizing the principal of equality and fundamental rights for all human beings**.

Dyer sees the major challenge of the new century being the clash between the rising (but as yet unrealized) material aspirations of the developing South and the high level of material consumption in the developed North. He suspects it might take one or more environmental mini-catastrophes before North and South engage in serious

dialogue about what to do. But he is guardedly optimistic that the recognition of equality rights will by then lead to an ecologically sustainable fair deal, involving reduced consumption in the North and consumption limits in the South.[97] Some steps in this direction were taken at the 2002 UN conference on world poverty in Monterrey, Mexico. The "Monterrey Consensus," signed by the U.S. and 170 other nations, agreed to double development aid and cut world poverty in half by 2015. There, in a much welcomed policy shift, President Bush pledged to increase US foreign aid from $10 billion per year to $15 billion by 2006.

International tradition has held that you don't interfere in the internal affairs of a sovereign nation, no matter what horrors are going on within its borders. This was one of the presuppositions upon which the UN was founded. Then in 1948, the UN issued its *Universal Declaration of Human Rights,* which set standards for governmental behavior toward a nation's own people. From then on, two conflicting standards existed. Gwynne Dyer has pointed out that, as long as the cold war was on, most people seemed able to ignore a nation's atrocious internal behavior—but not since then.[98] Internal horrors in Somalia, Bosnia, Kosovo, central Africa, and East Timor created a rising level of frustration in the international community and led to forceful (albeit, late) interventions.

Some sort of international police force seems to be on the horizon—and perhaps something more comprehensive. In the mid-1990s, the Global Commission to Fund the United Nations proposed the establishment of a United Nations Security Insurance Agency (UNSIA). It would involve a unique partnership between the UN Security Council, the global insurance industry, and the hundreds of INGOs that are involved with conflict resolution and peace. As Hazel Henderson describes it, "Any nation wanting to cut its military budget and re-deploy its investments into its civilian sectors could apply to UNSIA for a peace–keeping 'insurance policy.' The insurance industry would supply the political risk assessors and write the policies. The 'premiums' would be pooled to fund both properly trained peace keepers and a rapid–deployment, online network of

existing civic, humanitarian organizations 'on the ground' to build trust and confidence." The idea was debated in the Security Council in 1996, and the Council asked the Secretary General to investigate the feasibility of establishing such a "rapid–deployment humanitarian force." Later that year, the Norwegian government pledged a million dollars to the project.[99]

All of this brings us to the big question: Can we pull it off? Can humanity actualize something like the socioeconomic vision presented here? Given the positive attitudes, trends, and actions just mentioned, I'm encouraged. It's not a done deal, for sure. But if ever there was a challenge worthy of the effort, this is it. In the words of economist Kenneth Boulding:

> *The human road to betterment of any kind, whether in the larger sense of human betterment or in the narrower sense of economic betterment, is uphill on a knife–edge. It is all too easy to fall off on either side. But the more we know about the world, the more we are likely to perceive where the cliffs lie and the better chance we have of inching up that long precarious slope that does lead to a better world and a better economy.*[100]

Allan Combs has called for an integral approach—one that integrates rationality with those still–present older forms of consciousness: "There is a great need to discover economic strategies that carry mythical appeal, magical involvement, and logical means."[101]

David Korten proposes a number of specific actions:

- End the legal fiction that corporations are entitled to the rights of persons and exclude corporations from political participation.
- Implement serious political campaign reform to reduce the influence of money on politics.
- Eliminate corporate welfare by eliminating direct subsidies and recovering other externalized costs through fees and taxes.
- Implement mechanisms to regulate international corporations and finance.

- Use fiscal and regulatory policy to make financial speculation unprofitable and to give an economic advantage to human–scale, stakeholder–owned enterprises.[102]

A FULL, RICH LIFE OF THE MIND

Human beings have certain basic needs that can be met only via physical means. We need physical food, physical clothing, physical shelter, physical medications, and physical tools. Beyond those necessities, however, most of the physical "stuff" in our lives exists to enhance our enjoyment of life—and enjoyment is 100 percent *mental*. That realization leads us to contemplate how we might structure a future society to enhance our mental life while simultaneously reducing physical consumption.

To some extent, this is already happening. To listen to Tchaikovsky's First Piano Concerto at the end of the nineteenth century, someone had to bring together a superb pianist, a symphony orchestra, and a concert hall. That's a lot of physical infrastructure to create a totally mental end product. Today, with a pair of headphones and a Walkman you can listen to Tchaikovsky's First with better sound quality than if you had been sitting in one of the poorer seats in that concert hall. Another example: pick up any telephone, and you can engage in crystal–clear conversations with people on the other side of the world. You do that, or communicate with them via keyboard and the Internet, at a tiny fraction of the cost and energy consumption involved in traveling there to have that conversation. Today, artists, writers, scientists, and other affinity groups are meeting—not in the coffee shops of Paris as artists and writers did a century ago—but in front of their computer screens, sipping coffee, while their conversations span continents and oceans. In short, we are becoming better and better at getting to the heart of the matter—to *the experience itself*—and are doing so with less and less impact on the physical world.

Business people have long been aware of the central role that experience plays in our lives. Years ago, Hazel Henderson coined the phrase *attention economies*. One such economy involves the advertising industry, where $147 billion a year is exchanged for brief periods of

our attention.[103] Other attention economies include the entertainment industry; the computer/software/Internet industry; personal development; and tourism.[104] Pine and Gilmore contend that the economy as a whole is now beginning to focus on people's inner lives, with *experiences* being the leading–edge consumer phenomenon today and *transformations* just down the road. The truth is that attention, energy, and the time to make use of them are the basic stuff of our lives. Beyond their fundamental role in the cosmos, they are our primary personal resources. "Time is all you've got" is the stark title of Brigitte Berman's film about Artie Shaw—and a profound existential statement. The transformed culture will recognize and honor that truth. Fortunately, values are already beginning to shift. As we've seen, many people are coming to value their own time more than money and possessions, and are getting better at saying "no" to unappreciated demands for their attention. People are throwing out junk mail unopened, deleting "spam" email without reading it, being more selective about the TV they watch, and hanging up on supper–hour telephone solicitations. We're coming to understand that time *is* all we've got—and that our attention and energy are personal and cosmic capital to be invested wisely.

Many of the things we enjoy in life involve both the physical and the mental: friendship, community, a civil society, education and learning, psychological/spiritual development, creativity, art, music, and literature. They all have a significant mental component, and our enjoyment of them is solely mental. They represent the inner, cultural, subjective side of our vision of a sustainable, yet enjoyable, world. Let's imagine what these aspects of life might be like at the middle of the twenty-first century.

Friendship

As in the twentieth century, people have local friends and distant friends. In the late twentieth century, fossil fuel–powered transportation was plentiful, fast, and inexpensive. Barring unexpected energy breakthroughs, intercontinental and transcontinental trips at mid-century are rarer events in people's lives and more expensive. At the same time,

> electronic communication has become increasingly sophisticated, widespread, and cheap—enabling rich and meaningful friendships to be maintained regardless of distance.

Electronic communication will play a central role in the mid-century culture. Back in the 1970s, farsighted people saw it coming. In the *Whole Earth Epilog,* Stewart Brand called for "a steady–state energy–economy, coupled with a growth–information economy."[105] About that same time, Lewis Thomas felt that our electronic communication technologies had taken us to the edge of a new stage in human evolution, involving the "brains of mankind…undergoing fusion." As he saw it, "Only in this century have we been brought close enough to each other, in great numbers, to begin the fusion around the Earth, and from now on the process may move very rapidly."[106] Some years later, Naisbitt and Aburdene commented on certain societal effects of the communication revolution: "Linked by telephones, fax machines, Federal Express, and computers, a new breed of information worker is reorganizing the landscape of America. Free to live almost anywhere, more and more individuals are deciding to live in small cities and towns and rural areas. A new electronic heartland is spreading throughout developed countries and around the globe…."[107]

Already, electronic communication has transformed the way many of us live our lives. By the end of 2002, there were more than 665 million Internet users worldwide.[108] A large percentage use email, and you are probably among them. For those still unconnected, a few comments. Regarding convenience, email lies somewhere between telephoning and letter writing, but it has advantages over both that make people love it. For one thing, email is more casual and fluid than letter writing. Sending an e-message is simpler and less costly than sending a letter. It's faster too. By the next day, you usually have a reply—not a week from now. Email's advantages over telephoning include its nonintrusiveness (you send and retrieve email on *your* schedule), the opportunity to refine your message before sending it off, and the permanent record that email provides. You can save each message you send and each one you receive with a couple of mouse

moves, thereby creating a time–extended e-dialogue to refer back to. If there are long intervals between messages, you can look back and refresh your memory about what you were last discussing. The stored dialogue also provides a record of your own thoughts. A friend of mine has ongoing e-correspondences with many friends, and she looks at her saved correspondence files as a "really interesting alternative to keeping a diary."[109]

Email is a wonderful tool for maintaining distant friendships, but it is only one of several such tools. Equipped with one of today's computers, a $75 video camera stuck to the top of the monitor, an Internet connection, and the right software, two people (or a group) can share text, audio, video, graphics, and even scribble back and forth on an electronic whiteboard. Thus, the basics are already here, and even today they enable us to maintain distant friendships in a "next best thing to being there" way. What is likely to evolve over the next fifty years is an enhancement of communication quality and ease of use. It seems likely that transmission speed will continue to increase, and virtual–reality techniques will be refined further and brought down in price. If this happens, it is conceivable that online get–togethers at mid-century could approach across–the–table chats in immediacy, the ability to communicate nuance, and the overall sense of *being with* a friend.

These electronic tools are what Ivan Illich called *convivial tools*—tools that are widely available, easy to use, and most important, can be used "for the accomplishment of a purpose chosen by the user."[110] Industrial tools are not like that. As Walter Prescott Webb noted, after the industrial revolution the worker "became lost in the labyrinth of the tool and its enveloping corporation."[111] Industrial tools are used for purposes chosen by their owner, and in the 1950s, corporations owned all the powerful tools. To a large extent, individuals could be productive only if they worked for a corporation. Today, powerful desktop computers and affordable global communication are allowing individuals to take back a measure of personal control. Barring some disaster, the trend should continue.

Community, Civil Society, and Civic Culture

> At mid-century, most people find themselves involved with two very different kinds of community. One is their local, geography–defined community—their town, neighbors, community groups and organizations, local schools, etc. The other is a geography–irrelevant community of common interests. Through more–evolved forms of early twenty-first century Internet newsgroups, email "listserv" groups, chat groups, electronic conferences, and plain email, people who have common interests are communicating about them regardless of where they live. People who participate in community at these two levels come to recognize and honor two levels of culture: local culture and world culture. And in the less frantic society of the day, people have more time for strengthening community and culture at both levels. An important focus during the decades leading up to mid-century has been a renewal of caring, civility, and meaningful democracy. There is a renewed sense of social responsibility, because with new methods of making social decisions and a drastically overhauled political system, ordinary citizens once again feel they have a significant say in how their society is run.

At the start of the twenty-first century, we are getting mixed messages about the strength and vibrancy of local communities. Some inner–city communities deteriorate, while others become revitalized. Some rural towns die, while others redefine themselves and find new prosperity. The next fifty years will be a time of change for communities, but some positive forces are at work. At the heart of community life these days—local as well as international—are the nongovernmental organizations that form the third societal sector mentioned earlier: civil society. As Lester Salamon, director of the Institute for Policy Studies at Johns Hopkins University has said:

> *We are in the midst of a global "associational revolution" that may prove to be as significant to the latter twentieth century as the rise of the nation state was to the latter nineteenth. The upshot is a global third sector: a massive array of self–governing private organizations, not dedicated to distributing profits to shareholders or directors, pursuing public policy purposes outside the formal*

apparatus of the state. The proliferation of these groups may be permanently altering the relationship between states and citizens, with an impact extending far beyond the material services they provide.[112]

Imaginative organizations in this sector are harnessing local resources to meet significant community needs. One example concerns the emotional development of children and youth. There is a problem. Daniel Goleman has confirmed what many of us suspected: a "worldwide trend for the present generation of children to be more troubled emotionally than the last: more lonely and depressed, more angry and unruly, more nervous and prone to worry, more impulsive and aggressive."[113] Though this phenomenon has no single cause, it is easy to identify contributing factors. One likely contributor is the reduced amount of time that parents spend with their children. The two–income economic bind in which many parents find themselves has created a time bind. A 1999 study by the White House Council of Economic Advisers revealed that the "typical American parent" spends "twenty-two fewer hours per week with his or her children" than thirty years ago.[114] If kids are more troubled and parents have less time, what then can be done to enhance child development? The Minneapolis–based Search Institute proposes a corrective of coordinated community action on many levels. Here, action couples with a new community philosophy clearly expressed in the title of Peter L. Benson's book *All Kids Are Our Kids.* Research in Minneapolis and Albuquerque led the institute to identify forty "developmental assets…that help young people grow up healthy, caring, and responsible." The list includes items relating to family support and communication, the constructive use of time, appropriate boundaries and expectations, a commitment to learning, positive values, a positive sense of identity, and a sense of purpose. The approach taken in the institute's *Healthy Communities – Healthy Youth* initiative is to mobilize communities to develop coordinated, long–term strategies for child and adolescent development, and to get the entire community thinking in asset–building terms. For existing organizations, that means analyzing current programs to see whether they could be more effec-

tive in developing some of those forty building–block assets. For parents, it means bringing a developmental focus to parent–child relationships. For young people, it means increased consciousness of their own development, self–directed asset building, community involvement, and contemplating those forty things that can make a difference in their lives.[115]

The Healthy Communities – Healthy Youth program has an educational focus, which, according to David Roodman, is one of the keys to the power of nongovernmental organizations:

> *What is remarkable about nonprofit, nongovernmental organizations is that they wield power despite their seeming lack of it. They have no army or police force, no power to tax or regulate or ratify binding international accords. The for–profit sector dwarfs them financially. Their source of strength is far less tangible: it lies in education, broadly defined....* This suggests that the fundamental challenge of building a sustainable society is one of education.[116] *(Emphasis mine.)*

Lester Salamon contends that the most basic force behind the expansion of the nongovernmental, "voluntary" sector is "ordinary people who decide to take matters into their own hands and organize to improve their conditions or seek basic rights."[117] He notes two other factors that have facilitated the growth of the third sector internationally: the great expansion of electronic communication capabilities, and rising levels of literacy and education.

There seems little doubt that between now and mid-century, NGO–based pressure for change will continue and strengthen. In Roodman's words: "In the final analysis, it is the power of individuals, channeled through civil society, that will drive governments, international institutions, and businesses toward sustainability."[118] Or, as Margaret Mead so famously put it: "Never underestimate the power of groups of committed citizens to change the world. In fact, it is the only thing that ever has."[119]

Just as governments have lost some of their authority over practical affairs to economic globalism, they also have lost much of their moral authority to third–sector NGOs. A *Time* magazine series,

"Visions of the Twenty-First Century," raised the possibility that the center of gravity of governance itself could be shifting from national governments to NGOs. In an article entitled, "Will Socialism Make a Comeback?" Francis Fukuyama said that, though socialism in its twentieth–century form is not likely to return, "the egalitarian political impulse to constrain the power of the wealthy in the interests of the weak and marginal remains strong and is already making a comeback." Fukuyama suggests this impulse may lead to "an entirely new form of governance that might be called government by NGO."[120] In a companion article, "Will Politicians Matter?" Peter Beinart said, "We may be entering an age…when even high government officials are seen as mere functionaries, following the lead charted by civic groups."[121] Elise Boulding also blurs the line between the governmental and nongovernmental. Her term *civic culture* embraces the entire public milieu—our "common space, common resources, …common opportunities" and "common interest in maintaining a public framework within which we can live our private lives as individuals and families, within circles of intimacy."[122]

While government as functionary—carrying out the NGO agenda—is one possible scenario, reinvention and revitalization of government is another. Many politically alienated Americans seem ready for social and perhaps technological inventions that remove the control of government from highly funded organizations, and put it where the founding fathers intended it to be—in the hands of the people. The electorate is tired of powerful gas, oil, and timber interests giving millions of dollars in donations to candidates for the U.S. Congress to protect their tax breaks, subsidies, and extraction rights that are worth billions. Passage of the 2002 U.S. campaign finance law was a step in this direction. It outlawed unlimited "soft money" contributions to national parties and restricted the broadcasting of commercials by outside groups. But it also raised to $95,000 per election cycle the total amount that a person can give to parties and candidates, and it doubled (to $2,000) the maximum allowable gift to an individual candidate. Adam Lioz of the U.S. Public Interest Research Group points out that hard money contributions from wealthy individuals remain a problem: "Unlike soft money, which is

rarely spent until a general election, hard money (which accounts for more than 80 percent of the funds raised by federal candidates and parties) begins to influence the outcome months or years before the primaries, in the time when candidates are sitting in quiet living rooms contemplating campaigns. It is at this stage that grass-roots candidates are effectively locked out of the system…. Almost half of all the hard money contributed to candidates by individuals during the 2000 election cycle came in at the $1,000 level, the current per-person limit. Yet, only one in about every 1,000 Americans of voting age gave at that level."[123] The struggle between political big money and meaningful representation will continue, with an eventual Supreme Court decision on the constitutionality of the 2002 law strongly influencing the pace of change.

In 2003, the Canadian Parliament took campaign finance reform a giant step further. The new law bans corporate contributions to political parties, limits to $1,000 corporate donations to specific candidates, and limits contributions from individuals to $5,000. The bulk of political party funding now comes from the federal government: parties get $1.75 for every vote they won in the last election.[124]

If people like Thomas Jefferson and Gwynne Dyer are right, clearer understanding of what is going on and better communication about it will lead to better and more democratic government in the years to come. Allan Combs has discussed this communication issue from the integral perspective, and in his view those who have developed integral consciousness are in the best position to initiate truly helpful communication about our future. "It is only from the integral perspective," said Combs, "that mythical belief systems and irrational magical urges can be seen in an objective light, reconciled with rational ideas, and freedom of action can be gained." Though he strongly encourages the development of integral consciousness through meditation and other means, he also feels the need for other, more immediate techniques. Among these is finding "the ways that effective dialogues can be opened between those who represent the emerging integral consciousness and those still under the primary influence of older [consciousness] structures."[125]

Alan F. Kay sees a better understanding of how people feel about issues as the starting point for both dialogue and democratic political action. He initiated, and to a large extent personally funded, a ten–year experiment to find out what Americans *really* think about the significant issues of their time. The mechanism he used was polling, but polling designed to reveal true feelings, not designed—as many polls are—to prove a point. In his book *Locating Consensus for Democracy*, he makes a convincing case that well–designed polls could foster a much more responsive form of democracy. He also comes to the sobering conclusion that politicians aren't interested.[126]

The politics of modernism has been a politics of left vs. right, liberal vs. conservative, and in both its left and right incarnations, it has been a politics that served the modernist agenda. A transmodern, or integral, politics will seek to abandon those dichotomies and to direct energy and attention toward creating a new political synthesis that responds to twenty-first–century reality. It will be a politics that serves humanity's psychological, spiritual, and artistic aspirations in a materially sustainable way. Ken Wilber notes that when it comes to human suffering, liberals tend to believe in exterior causes (economic conditions, material well–being, technological advance, social safety net, environment), while conservatives tend to believe in interior causes (values, meaning, morals, the development of consciousness). Wilber feels that each of these positions has value, but that each is inherently limited. For a politics to be truly integral, it must address both the inner *and* the outer.[127]

Can you imagine politicians in the House of Representatives in Washington or Parliament in Ottawa actually working to achieve consensus rather than constantly putting each other down? If not, perhaps we need to figure out a better way. Fortunately, some interesting proposals are being floated and discussed. A twenty-first–century version of the town meeting is one. How about those thousands of face–to–face groups Eric Fromm suggested back in 1966—but with their deliberations facilitated by Internet access to the information needed and by electronically conveyed feedback from other groups dealing with the same issues?

Or perhaps we could change the nature of politicians. Ervin Laszlo wrote:

> *Ballots carry the names of individuals who for the most part have a taste for power and a high level of competitiveness. Those who prefer cooperation to competition, knowledge to power, and are concerned with long–term issues rarely present themselves for election—and even more rarely are they elected to powerful positions. Economist Kenneth Boulding's "dismal theorem" states that most of the skills that lead to the rise of political power make those who possess the skills unfit to exercise that power.*[128]

In response to this problem, Czech Republic President Václav Havel has wondered "whether genuine intellectuals, philosophers and poets are not virtually duty–bound to stop fearing and loathing politics and take upon themselves all the risks and requirements that go with it."[129] He wrote:

> *Politics should be principally the domain of people with a heightened sense of responsibility and a heightened understanding of the mysterious complexity of Being…. Soul, individual spirituality, firsthand personal insight into things, the courage to be oneself and go the way one's conscience points, humility in the face of the mysterious order of Being, confidence in its natural direction, and, above, all, trust in one's own subjectivity as the principle link with the subjectivity of the world—these, in my view, are the qualities that politicians of the future should cultivate.*[130]

The late Rudolph Bahro shared these feelings and suggested a particularly intriguing structural change. He proposed the establishment of an "upper house"—a new form of Senate or House of Lords—peopled by women and men who (in my terminology) would be conscious agents of Spirit and the cosmic process. They would possess deep understanding, a high level of ethical sensibility, and have the long view. In Bahro's words, the "delegates" to this "general council" would "disregard their own special interests and those of their districts or professional fields in everyday social life," and would "represent the interests and rights of [children and] all those aspects of nature which cannot create a human social power."[131] Many details

would have to be worked out. Would upper–house delegates be elected? Or would they be chosen by a body of knowledgeable people, something like the one that selects Nobel laureates? What sort of power would this upper house have? Would its approval be required for legislation to become law, as is the case with the present U.S. Senate? Or would it lack the power to kill lower–house legislation, as is the case with the Canadian Senate?

Yet another approach would involve the linking of market forces and governance. Market dynamics evolved better automobiles, computers, and package–delivery services. Perhaps they could be harnessed to evolve better forms of government. John Stewart has suggested a vertically organized competitive market that would trade in "acts of management and components of governance," purchased by the societal groups that benefit from them. An individual or organization could develop a new component of governance and try to market it. Societal groups, always on the lookout for improved ways of handling their governance problems, would be free to adopt new ones. To demonstrate the advantages of this approach, Stewart asks us to consider how ineffective an economic market would be if it was organized the way our democratic governments are now organized:

> *A comparable economic market would be one in which there were only two possible producers of goods and services. Each possible producer would develop a package of all the goods and services that each citizen would have over a three or four year period. Citizens would then choose which package would actually be implemented by voting for the producer of their choice. They could not pick and choose goods and services out of each package. They could have only one package, in its entirety…. Our present democratic systems of governance share all the features that would make such an economic system incompetent at satisfying the needs of consumers.*[132]

In the U.S. and many other countries, the introduction of electronic town meetings having real political power, Bahro's proposed upper house, or Stewart's market in governance components would require constitutional change. And we could expect international

finance, transnational corporations, and other voices of the status quo to oppose such changes. But it is the nature of constitutions to be amended in response to changing circumstances, and when the time and the proposals are right, they surely will be again.

Consensus building will be an important art in this coming era. Consensus is a given in many women's organizations, and we can look to women for insights into how to build it. I'm also impressed by the group processes used by the Society of Friends and the Bahá'is to arrive at a course of action. A Quaker business meeting has been described as "an exercise in attentiveness, in listening to the promptings of the Spirit." The meeting's facilitator—its Clerk, or "servant of the meeting"—presents agenda items one at a time. And, one at a time, individuals who are moved to comment on an item present their thoughts. Presentations are followed by periods of silence, which "act as a brake against one or more individuals seizing control of the meeting through rhetorical display, appeal to emotions or other means." This process leads eventually to a group decision and a written statement, or "minute," describing that decision.[133]

The Bahá'is call their decision–making process *consultation*. Here, participants agree in advance that the group will focus on the group–as–a–whole and its task—not on personal opinion. The collective aim is to arrive "at a consensus about the truth of a given situation and the wisest course of action among the options open at any given moment." Consultation is:

> *[A] consultative process in which the individual participants strive to transcend their respective points of view in order to function as members of a body with its own interests and goals. In such an atmosphere, characterized by both candor and courtesy, ideas belong not to the individual to whom they occur during the discussion but to the group as a whole, to take up, discard, or revise as seems to best serve the goal pursued.*[134]

Regarding the second form of community—that "geography–irrelevant community of common interests"—people are already participating to a significant degree. The Internet has allowed this to happen to an extent that seemed totally impossible just a few decades

ago. In the 1970s, I was involved with a group of radio amateurs who, in a very modest way, were using the unreliable medium of short-wave radio to communicate internationally about world problems and socially relevant issues. As noted, between then and now, more than 665 million people have acquired the ability to do the same thing—and with far higher reliability. Back in the 1970s, even those of us who were totally convinced that international communication under personal control was a wonderful thing couldn't imagine a communication revolution so massive and coming so soon.[135]

Internet statistics change rapidly and are hard to pin down, but as I write this, there are more than 30,000 "Usenet newsgroups" on the Internet. Each of these is a special–interest electronic "coffee shop," if you will, devoted to exchanging information about some particular shared interest. Supplementing these groups are tens of thousands of "listserv" interest groups that serve a similar function—often for an organization. (Sending one email message to a listserv address results in a copy of that message being sent automatically to every member of that group.) With an expanded Internet, people involved in community–of–interest communication could be anywhere in the world. Even today, Internet service exists in most of the world's urban centers. To a large extent, the people communicating this way have never met and never will meet. Yet, participants in these online communities are involved in significant sharing with others who care about the same things.

What the Internet and other forms of worldwide communication have given us are two levels of community, two levels of identity, and two arenas for personal participation. Locally, we are members of geographically defined local and national communities, and citizens of a nation state. Globally, we are world citizens who participate in worldwide communities of interest and the emerging world culture. In the coming decades, we can expect a gradual refining of the human–interface aspect of the technology and the geographic spreading of that technology to the most remote corners of the world.

Electronic media also allow us to share aspects of local culture around the world. The *world music* phenomenon is perhaps the best current example. Tapes, CDs, and MP3 are allowing people everywhere to share the musical side of local cultures from Cape Breton, Africa, the Middle East, and Latin America. This can't help but be an integrating influence; it's going to be hard to hate a people if you love their music. Consider the resurgence of interest in Cuban music in the United States, for example. Is it just coincidence that negative attitudes toward Cuba softened shortly after *The Buena Vista Social Club* album won a Grammy and sales reached half a million?

One of late modernism's contentious issues concerns "cultural imperialism" and a perceived clash between local cultures and the emerging global culture. Cultural imperialism and economic imperialism are frequently packaged together, and this gives us hope that as the global economy becomes transmuted into one that serves humanity's legitimate interests, the most objectionable aspects of cultural imperialism will fade. Still, the global culture of the future will have an ethical bottom line to which local communities will be expected to adhere. For example, cultures that fail to acknowledge basic human rights (including the extension of those rights to women), whole–person development, and sustainability will be in trouble. There seems to be no reason, however, why the best of the old and the best of the new cannot exist side by side. Positive, life–affirming aspects of local culture can be retained while still having electronic access to the global culture for those who want to participate in it. I say *participate* rather than passively observe, because that is one of the key attributes of the Internet. In the words of Pine and Gilmore, "The Internet is an inherently *active* medium—not passive, like television—that provides a social experience for many. The value people find on line derives from actively connecting, conversing, and forming communities."[136]

Inner Development and Transformation

Academic learning, skill development, ethical development, psychological and spiritual maturation, and the development of creativity are at

> mid-century considered aspects of one interlinked and comprehensive process of inner development—an ongoing transformative movement toward self–actualization and wisdom.

In recent years, the realization has deepened that our children need and deserve a more holistic kind of education. We need to involve them in a developmental process that addresses emotional development, life skills, values, and ethics as well as intellectual development and the acquisition of facts. Daniel Goleman has said, "I can foresee a day when education will routinely include inculcating essential human competencies such as self–awareness, self–control, and empathy, and the arts of listening, resolving conflicts, and cooperation."[137] The religious right has opposed "values education" in schools, but Michael Lerner made a distinction that would appear to defuse that opposition. He says: "What the schools can teach is what we value as a community." His list includes "love, empathy, caring, cooperation, commitment to others, spiritual and ethical sensitivity, respect for difference, respect for learning, respect for hard work, responsibility, self–discipline, tolerance, and honesty." He would leave other values exclusively to parents to teach.[138]

As computer and distance–education technologies advance, and as self–directed learning materials get more sophisticated, teachers—in their traditional role as presenters of information and indoctrinators of routine skills—are increasingly less needed. Needed instead are skilled assessors of readiness and needs, orchestrators of individual development, and suggesters of next steps. The teachers of tomorrow (whatever we call them) will help the child develop emotional maturity, and they will be experts at guiding young people into Csikszentmihalyi's *flow* experience—with its attendant feelings of delight and thirst for more in situations where level of ability matches level of challenge.[139] Furthermore, like Pine and Gilmore's "transformation elicitors," these teacher/guide/mentors will take responsibility for *results*, not just devote time to the attempt. As Pine and Gilmore put it in their business–context way, "Transformation elicitors must care enough to offer upfront diagnosis, to direct the staging of the multiple events required by the buyer to change, and to follow

through relentlessly."[140] Perhaps a generation of parents, equipped with more time and a greater level of psychological/spiritual development themselves, will fill this role—rather than hired teachers. In any event, at every point in each child's life, at least one mature, knowledgeable person needs to take responsibility for fostering that child's ongoing development. Kids can't be left to float.

Fortunately for parents and their children, materials designed to help parents become more effective guides, facilitators, and transformation elicitors are becoming available. One example is the *Great Aspirations!* program, the aim of which is to help parents help their kids turn on to life and to the excitement of aspiring and accomplishing. Great Aspirations! is the joint effort of Doug Hall (founder of Eureka! Ranch, the Richard Saunders International invention think–tank mentioned earlier) and Russ Quaglia (Director of the National Center for Student Aspirations at the University of Maine). The materials for parents have been designed to support and complement the National Center's in–school programs that have the same objective, but they are effective all by themselves. (Check http://www.greataspirations.org/).[141]

Needed in the long run is a new curriculum devoted to developing a deep, multilevel, multi-perspective understanding of how the world works. Young people in the coming decades will need to know about all those things mentioned earlier: energy, probability, how our brains and minds work, a great deal about systems, and much, much more. Ornstein and Erlich feel that we could do it today if we had the will:

> There is now enough material from studies of human development, cognitive psychology, decision analysis, and the physical, biological, and social sciences in general to develop a new curriculum to deal with the problems of the new world. The basic tools are already available, albeit often buried in irrelevant material. The key goal of a new curriculum will be to encourage students to think about the nature of their own minds and the limitations on their own thinking, about underlying physical and biological prin-

ciples that govern the world, and about long–term trends in that world, as early and continuously as possible in their schooling.[142]

Naturally, growth and transformation at mid-century will not be for kids alone. Lifelong transformation, like lifelong learning, will be an intrinsic feature of this more–evolved culture. With society no longer focused on high levels of material consumption and with most of one's time and energy no longer absorbed by the mandatory high–income job, adults at mid-century will quiet their minds and in other ways cultivate the intuitive side of deep understanding. Many will utilize traditional mind–quieting meditative practices to do this, but without necessarily adopting 2,500–year–old interpretations of what they experience. Instead, people will integrate their newly acquired shifts of perspective with personally acquired intellectual knowledge. This will result in interpretations of deep inner experience that are in harmony with scientific understanding.

What sort of inner life will people head toward via their lifelong programs of inner development? I see it as a life characterized by:

- Attentiveness
- A feeling of responsibility for one's choices and actions
- Courage: the ability to act with clarity and skill, despite the presence of dangers and fears
- A positive, "let's make the most of it" attitude
- A reality–seeking, truth–seeking orientation
- A desire to learn and to develop inwardly—coupled with the understanding that learning and inner development are one's own responsibility
- A slowly developing understanding of "the laws of life"—an ever–deepening appreciation of causes and consequences in life situations
- Frequent experiences of wonder
- Happiness and quiet joy—coupled with an understanding of what allows the experience of these mind states as well as what obscures them
- Empathy and compassion
- Self–discipline: the ability to work now for later rewards

- A fully functioning mind: the balanced, integrated use of intellect and intuition, coupled with the ability to deal skillfully with reactive emotions
- A deep understanding of the way things are and the way things work—in a word, wisdom

Creativity in the Arts and Sciences

> Rather than relaxing into some form of entertainment after a hard day's work—as was typical in the late twentieth century—people in this life–of–the–mind era have reclaimed their own creativity. With fewer hours of compulsory work, people have more time and energy, and are using their nonworking time in exciting ways. Just as the twentieth century Balinese made music, poetry, dance, theater, sculpture, painting, and crafts central to their culture, so too have these and other modes of creativity become central features of local cultures and the new global culture.
>
> Among those other modes are independent scholarship, social and technical invention, and scientific exploration. Global communication has opened the door not only to personal "publishing" and the easy distribution of many kinds of creative effort, but to extensive collaboration in both the arts and sciences. Through it, amateur scientists are able to play a significant role in the scientific investigations of the day.

A steady–state physical economy does not imply a diminished culture. Quite the opposite, in fact. Back in 1857, John Stuart Mill put it this way:

> *It is scarcely necessary to remark that a stationary condition of capital and population implies no stationary state of human improvement. There would be as much scope as ever for all kinds of mental culture, and moral and social progress; as much room for improving the Art of Living and much more likelihood of its being improved, when minds cease to be engrossed by the art of getting on. Even the industrial arts might be as earnestly and as successfully cultivated, with this sole difference, that instead of serving no purpose but the increase of wealth, industrial improve-*

ments would produce their legitimate effect, that of abridging labor.[143]

In 1973, Randers and Meadows echoed this sentiment:

Although global equilibrium implies nongrowth of all physical *activities, this need not be the case for cultural activities. Freed from preoccupation with material goods, people may throw their energy into development of the arts and sciences, into the enjoyment of unspoiled nature, and into meaningful interactions with their fellow [humans].... The presence of global equilibrium could permit the development of an unprecedented golden age for humanity. Freedom from the pressures of providing for ever–increasing numbers of people would make it possible to put substantial effort into the self–realization and development of the individual.... The few periods of equilibrium in the past—for example, the 300 years of Japan's classical period—often witnessed a profound flowering of the arts.*[144]

In his book *The Gift*, Lewis Hyde talks about the gifts of talent and inspiration, and how such gifts stir within those who possess them a great desire to share the fruits of the gift. As he puts it: "Having accepted what has been given to him—either in the sense of inspiration or in the sense of talent—the artist often feels compelled, feels the *desire*, to make the work and offer it to an audience. The gift must stay in motion. 'Publish or perish' is an internal demand of the creative spirit, one that we can learn from the gift itself...."[145]

Everyone has talents, and we have only to watch small children at play to see that everyone has the creative impulse. Howard Gardner's theory of multiple intelligences has helped us to realize how wide the spectrum of talent really is. The intelligences that Gardner identified include the two that IQ tests measure—*linguistic intelligence* and *logical–mathematical intelligence*—as well as:

- The *musical intelligence* that skilled musicians have
- The *spatial intelligence* essential for visual artists and architects
- The *bodily kinesthetic intelligence* that dancers and athletes need
- The *interpersonal intelligence* represented in relationship skills
- The *intrapersonal intelligence* that leads to "knowing thyself"[146]

Mid-century culture's recognition of multiple intelligences will help people discover their own particular talents early in life, develop them, and share their gifts.

At mid-century, some of this sharing will happen locally and will no doubt involve traditional modes of expression and sharing: concerts, theater, dance events, sports, displays of sculpture and painting, the publication of paper–and–ink books, etc. But—based on current indicators—we can also expect an immense amount of worldwide sharing via the Internet and other electronic media. The whole phenomenon of personal websites is really a *publishing* phenomenon. Millions of individuals are already sharing what is close to their hearts with anyone in the world who happens to browse by or gets directed to their site by a Web search engine. Book publishing has also gone on line. Already we have handheld "electronic books" that enable users to download e-text from major publishers and read it in bed or at the beach. When the e-book technology matures a bit, writers will no doubt sell their works on line, directly from home or through writers' coops. As the economy transforms and people's basic needs are met in other ways, writers may someday simply give their works away.

Some of this is already happening in the music field. The MP3 audio encoding format permits the encoding of musical selections into computer files of reasonable length. Couple this with the presence of thousands of individual musicians, composers, and fledgling musical groups trying make it in the music business, and you have websites whose sole purpose is to give music away. At www.mp3.com, for instance, musicians have made available a million free musical selections. A *Weekly Top 40* list allows visitors to the site to see what other visitors have been choosing. Recent lists included selections from classical, Celtic, blues, techno, world fusion, break–beat, mood music, smooth jazz, rock, and other genres.

Little doubt remains that creating visual and multimedia art (individually and collaboratively), and experiencing other people's art, will be part of the life–of–the–mind culture. Creative collaborations over great distances are practical even today—and again, we have

present–day examples that point to what's coming. One of these is a multimedia "virtual corporation" called MEDIAfusion. Based in Nova Scotia, it has more than thirty member organizations, ranging from educational institutions, like Mackenzie College and Nova Scotia Community College, to small CD–ROM production groups.

Global communication also creates an environment in which amateur scientists can participate in serious scientific investigations. The following up–and–running projects illustrate some of the possibilities:

1. The Cornell University Laboratory of Ornithology and the National Audubon Society have teamed up to create Bird-Source—a Web site devoted to "birding with a purpose." Current BirdSource projects include a Gulf Coast Bird Survey, a winter–long survey of North American feederbirds, the Christmas Bird Count, and a project to observe warblers during their spring and fall migration seasons. (http://birdsource.cornell.edu/.)

2. Since 1999, the search for extraterrestrial intelligence (SETI) has been aided by more than 600,000 cooperating individuals and their home computers in an activity called SETI@home. Present–day SETI researchers gather tremendous amounts of data from radio telescopes and then computer–analyze that data, looking for patterns that might have been created by some extraterrestrial intelligence. Unfortunately, much more raw data is collected than existing SETI–program computers can analyze—about 35 gigabytes per day from the Arecibo, Puerto Rico, radio telescope alone. The SETI@home solution involves compartmentalizing the data–analysis task. In practice, each SETI@home participant downloads special software, down-loads their assigned 250 kilobyte allocation of data, allows their computer to background–process the data for twenty-five to fifty hours, and sends back the results of the computer analysis. (http://setiathome.ssl.berkeley.edu/.)

3. If forecasting the weather for the next five days is tough, think about forecasting climate for the next fifty years. A group at

Rutherford Appleton Laboratory in England would like to gather results from hundreds of thousands of climate–model computer runs—each simulating climate change over a fifty–year period but involving different sets of initial conditions and assumed perturbations. Once again, individuals with home PCs are being recruited to let their computers process the data in the background. One run takes roughly six months to complete. (http://www.climateprediction.com.)

4. GIMPS is a project aimed at discovering new Mersenne prime numbers, of which only thirty-eight are known at the present time. Here, math aficionados download a program that allows their computers to search for Mersenne needles in the numerical haystack. (http://www.mersenne.org/prime.htm.)

5. NASA initiated a Mars Clickworkers program in which volunteers at home viewed photos of Mars taken by orbiting spacecraft, and clicked their mouse to define the size and location of the hundreds of thousands of craters that appear on those photographs. (http://clickworkers.arc.nasa.gov/top.)

Sometimes we're motivated by sticks and sometimes by carrots. Today, both are present to nudge us toward a future like the one just outlined. The unpleasant consequences of exceeding the sustainable limits of the planet are the stick. The carrot is this richer, fuller, freer, more creative, more exciting life of the mind that becomes possible if we choose sustainability. We of the twentieth century focused excessively on material consumption. Now, it is time for a renaissance and expansion of the human spirit—time to do the learning, growing, Spirit–actualizing, creative, mental thing. It is time to get serious about our role as agents of the universal process, and to help the process here on Earth move into that exciting next stage where physical sustainability, universal provisioning, and a full, rich life of the mind have become the commonplace reality.

More than half a century ago, Teilhard de Chardin penned some words of advice for us:

> *We cannot expect to see the Earth transform itself under our eyes*
> *in the space of a generation. Let us keep calm and take heart….*

> *We need not mind very much if the light on the horizon appears*
> *stationary. What does matter is when it seems to be going out.*[147]

The light on the horizon is our vision of a sustainable, equitable, mentally engaging world. No, the vision won't become actuality tomorrow, but as long as it remains in human consciousness, the light is still on.

Notes

[1] As noted earlier, Wilber presented his four–quadrant worldview both in his scholarly book *Sex, Ecology, Spirituality* (Wilber, 1995) and his shorter *A Brief History of Everything* (Wilber, 1996).

[2] As quoted in Henderson, 1996. Her reference note says: "From the report on the three–day dialogue on culture and development sponsored by the Kapur Surya Foundation, Bijwasan Najafgarh Road, P.O. Kapas Hera, New Delhi, India 110037; Fax: 91–11–3316331."

[3] See Grant, 1997, and Meadows, 1992, p. 46.

[4] CBC Radio *Ideas*, 1999, Episode 1.

[5] Glenn and Gordon, 1998.

[6] The quote is from Florida Agricultural Information Retrieval System document 22084—http://hammock.ifas.ufl.edu/txt/fairs/22084, read on 23 April 1999.

[7] The quote is from a Whitehouse document read on 23 April 1999: http://www2.whitehouse.gov/PCSD/Publications/TF_Reports/pop-intr.html.

[8] Op. cit. Florida Agricultural Information Retrieval System document 22084.

[9] Keller, 1993.

[10] Keller, 1992.

[11] Searches done on 15 May 2001 and 30 May 2003 using the Google™ search engine. Search criteria used: "advanced search," "any language."

[12] Gardner and Sampat, 1999, pp. 16, 17, 28, 29.

[13] Lipschultz, 2001.

[14] Quoted in Wald, 2002.

[15] Quotes from the *New York Times*: Greenhouse, 1999b.

[16] Lacayo, 1999.

[17] Egan, 1999.

[18] Elliott, 1999.

[19] CBC Radio *Ideas*, 1999, Episode 7.

[20] Stewart, 2000, Chapter 17.

[21] Fuller, 1969, p. 128.

[22] This information was gathered from von Weizsäcker, Lovins, and Lovins, 1997, pp. 4–10; the Toyota website http://www.toyota.com/afv/prius/specs.html; the Honda website http://www.honda.com/; and the website of the Rocky Mountain Institute— "Frequently Asked Questions About Hypercars" at:
 http://www.rmi.org/faq/hyperq.html and
"Recent Developments" at http://www.hypercar.com/dox/new_1.html.

In *Natural Capitalism*, Paul Hawken, Amory Lovins, and L. Hunter Lovins stress that the North America transportation dilemma is rooted in urban sprawl, and to a lesser extent, the lack of mass transit. They feel that "hypercars can buy time to address these issues, but cannot resolve them…. Mobilizing the ingenuity to create a better car must be matched by finding the wisdom to create a society worth driving around in—but less often." (The quote is from page 47.)

[23] von Weizsäcker, Lovins, and Lovins, 1997, p. 89.

[24] von Weizsäcker, Lovins, and Lovins, 1997, p. 90.

[25] 3M, 1998.

[26] Gardner and Sampat, 1999, p. 52.

[27] Gardner and Sampat, 1999, p. 53.

[28] Factor 10 Club, 1997.

[29] As read at http://www.factor10-institute.org/Factor10.htm on 16 May 2001.

[30] Gardner and Sampat, 1999, p. 50.

[31] Check: http://www.naturalstep.org/.

[32] Brown and Mitchell, 1998, p. 171. Their source: "Industrial Ecology: Case Histories," Indigo Development, Competitive Industries in Sustainable Communities Through Industrial Ecology, CA.

[33] Gardner and Sampat, 1999, p. 54.

[34] Hawken, 1995.

[35] The quote is from RRI, 1999.

[36] Flavin and Dunn, 1998, p. 117.

[37] Roodman, 1999, p. 173.

[38] von Weizsäcker, Lovins, and Lovins, 1997, p. 204.

[39] ISO, 1999.

[40] *Natural Capitalism* is a book by Paul Hawken, Amory Lovins, and L. Hunter Lovins that discusses the resource–efficiency/resource–productivity issue in a predominately U.S. context. See Hawken, Lovins, and Lovins, 1999.

[41] See Abraham Maslow's description of the Northern Blackfoot society in Maslow, 1971, pp. 203–05. Maslow also indicates (p. 200) that Ruth Benedict considered the Zuni, Arapesh, and Dakota to be examples of good, secure, high–synergy societies.

[42] Buchanan, 2002, pp. 188-196.

[43] Gregg's article was reprinted in the summer 1977 issue of the *Co-Evolution Quarterly*, p. 20, and this excerpt from it was quoted in *Elgin*, 1981, p. 31.

[44] Elgin, 1981, p. 30.

[45] CBC Radio *Ideas*, 1999, Episode 8.

[46] The survey data is from "Yearning for Balance: Views of Americans on Consumption, Materialism, and the Environment," prepared for the Merck Family Fund by the Harwood Group, July 1995, and quoted in *Timeline*, November/ December 1995, p. 2.

[47] Refers to work by The Trends Research Institute, "a think–tank of educators and specialists that predict social trends," reported in an item entitled "Escaping the Rat Race," on the ABC News website:
Read at http://abcnews.go.com/sections/living/DailyNews/simplicity980630.

[48] Maslow, 1971, p. 204.

[49] See, for example, Petzinger, 1999.

[50] See Korten, 1999.

[51] U.S. Small Business Administration, 1999, p. 2.

[52] U.S. Small Business Administration, 1998.

[53] U.S. Small Business Administration, 1999, p. 1.

[54] Termination rate reported in Hall, 2001. Failure rate reported in U.S. Small Business Administration, 1999, p. 1.

[55] For more information on business incubation, visit the web site of the National Business Incubation Association at http://www.nbia.org/ where the quoted statement about business incubation appeared. For more information on Doug Hall's approach see his books: Hall, 2001 and Hall, 2003.

[56] Hawken, Lovins, and Lovins, 1999, pp. 4, 5, 260, 261.

[57] Hawken, Lovins, and Lovins, 1999, p. 321.

[58] For more information on the Domini 400 Social Index and its screening criteria. Check: http://www.domini.com/SocialScreen-1.html.

[59] Read at http://www.kld.com/sitenews.cgi?id=41 on 14 December 2002.

[60] Check: http://www.cepaa.org/.

[61] Kahn, 2000.

[62] Read at http://www.undp.org/hdro/english/book/book1.pdf on 2 July 2000.

[63] Mannis, 1998.

[64] EEA, 1998.

[65] Data either from or derived from: Cobb, Halstead, and Row, 1995; Rowe and Anielski, 1999.

[66] Figures derived from Figures 1 and 2 in Brink and Zeesman, 1997.

[67] Shiller, 2000, p. 4.

[68] NASDAQ Composite figures derived from a chart on the NASDAQ website: http://dynamic.nasdaq.com/dynamic/IndexChart.asp?symbol=IXIC&desc=Nasdaq+Composite&site=nasdaq&sec=nasdaq&months=84 read on 15 June 2000.

[69] The S&P Composite data is from Shiller, 2000, pp. 8, 9. Shiller's price–to–earnings figures are derived from inflation–corrected S&P Composite Price Index figures and a moving average over the preceding ten years of inflation–corrected S&P Composite earnings.

[70] As *New York Times* business columnist Alex Berenson put it in a 23 July 2000 article in the *Times* (Berenson, 2000).

[71] Rubin, 2002

[72] Karlgaard, 2000.

[73] The Tobin Tax is a small tax (0.1 to 0.5 percent) applied to each transaction, and is called that because, back in 1972, Yale University economist James Tobin suggested that such a tax be applied to international currency transactions. Tobin is a Nobel laureate: 1981, Economics.

[74] Uchitelle, 2000.

[75] Rifkin, 1995, p. 228.

[76] Shiller, 2000, p. 43.

[77] The quote is from the *New York Times*: Stille, 2000. Information regarding the Canadian and international situation is from the Tobin Tax Initiative website at http://www.ceedweb.org/iirp/.

[78] Terry, 1995, p. 159.

[79] Herman Daly comment from CBC Radio *Ideas*, 1999, Episode 6.

[80] Daly, 1973a, p. 20.

[81] Pine and Gilmore, 1999.

[82] Ilg, 1995.

[83] Meisenheimer, 1998.

[84] Leontief, 1982, p. 188.

[85] Fromm, 1966, pp. 180, 183.

[86] McLuhan, 1966, pp. 194, 196.

[87] "Report of the Committee for the Future," 1998. Read at:
http://www.eduskunta.fi/efakta/vk/tumv0198.htm#european on 24 April 1999.

[88] Information gathered primarily from the authors' summary at:
http://www.clubofrome.org/global/06/work_redis.htm, with some details from "Report of the Committee For the Future," 1998 at:
http://www.eduskunta.fi/efakta/vk/tumv0198.htm#european.

[89] Hyde, 1983.

[90] Cleveland, 1993.

[91] Quote from a CBC Newsworld interview with Evan Soloman, aired 10 June 2000.

[92] Halal, 1993.

[93] Henderson, 1997d.

[94] Halal, 1993.

[95] Below, in chronological order, are articles that discuss some of these issues:

> "US renounces world court treaty," BBC News, 6 May, 2002 [http://news.bbc.co.uk/1/hi/world/americas/1970312.stm].
>
> "The War on Civil Liberties," New York Times, September 10, 2002.
>
> Adam Clymer, "World Survey Says Negative Views of U.S. Are Rising," New York Times, December 5, 2002.
>
> James Risen and David Johnston, "Bush Has Widened Authority of C.I.A. to Kill Terrorists," New York Times, December 15, 2002.
>
> James Dao, "At U.N. Family-Planning Talks, U.S. Raises Abortion Issue," New York Times, December 15, 2002.
>
> Elizabeth Becker, "U.S. Unilateralism Worries Trade Officials," New York Times, March 17, 2003.

[96] The Kiesling quotes are from his letter of resignation to Secretary of State Colin Powell, made public in "U.S. Diplomat's Letter of Resignation," *New York Times*, February 27, 2003. The Friedman quote is from Friedman, 2002.

[97] The above points were made by Gwynne Dyer in his talks at the University of Prince Edward Island on 13 February 1995. (Dyer, 1995).

[98] Dyer commented on this during testimony to a Government of Canada committee on foreign affairs, aired by CPAC on 30 July 1999.

[99] Henderson, 1998.

[100] Boulding, 1995b, p. 75.

[101] Combs, 2000.

[102] Korten, 1999, p. 15.

[103] Henderson, 1996, p. 114.

[104] Henderson, 1996, p. 124–25.

[105] Brand, 1974, p. 467.

[106] Thomas, 1974, p. 168.

[107] Naisbitt and Aburdene, 1990, pp. 304–05.

[108] The 665–million figure is from a 16 December 2002 press release from the Computer Industry Almanac Inc. Read on 12 May 2003 at:
http://www.c-i-a.com/pr1202.htm.

[109] Virginia Kouyoumdjian, personal communication.

[110] Illich, 1973.

[111] Webb, 1975, p. 129.

[112] Salamon, 1994, p. 109.

[113] Goleman, 1995, p. xiii.

[114] The quotes are from John M. Broder's 24 May 1999 *New York Times* article concerning President Clinton's 23 May 1999 commencement address at Grambling State University. Other information is from the ABCNEWS.com report of the speech.

[115] Roehlkepartain and Benson, 1998, is a booklet that explores the Healthy Communities – Healthy Youth initiative. Benson, 1997, is a 300–page book that goes into the core ideas behind the initiative. Much information is also available on the Internet. The Search Institute website URL has been http://www.search-institute.org/. For the list of forty developmental assets, check:
http://www.search-institute.org/assets/forty.htm

[116] Roodman, 1999, p. 185.

[117] Salamon, 1994, 112.

[118] Roodman, 1999, p. 182.

[119] Quoted in Henderson, 1996, p. 123.

[120] Fukuyama, 2000. Read on 26 May 2000 at:
http://www.time.com/time/reports/v21/work/mag_socialism.html.

[121] Beinart, 2000. Read on 2 June 2000 at:
http://www.time.com/time/reports/v21/live/politicians_mag.html.

[122] Boulding, 1990, p. xix.

[123] Lioz, 2002.

[124] http://www.parl.gc.ca/PDF/37/2/parlbus/chambus/house/bills/government/C-24_3.pdf

[125] Combs, 2000.

[126] See Kay, 1998.

[127] Paraphrased from Wilber, 2000d, p. 84.

[128] Laszlo, 2001, p. 97.

[129] Havel, 1997, p. 100.

[130] Havel, 1997, pp. 101, 93.

[131] Bahro, 1994, pp. 341–342.

[132] Stewart, 2000, Chapter 17.

[133] Latham, et al., 1995.

[134] Bahá'i International Community Office of Public Information, 1995, p. 9.

[135] The loose network of radio amateurs called itself New Directions Radio, and its exploits were recorded in the New Directions Radio column, which appeared in *The Mother Earth News* during the ten years from September 1973 to November 1983. The article that led to the column is Macdonald, 1973a.

[136] Pine and Gilmore, 1999, p. 34.

[137] Goleman, 1995, p. xiv.

[138] Quotes from Lerner, 1997, p. 256.

[139] For a detailed discussion of the flow phenomenon, see Csikszentmihalyi, 1990.

[140] Pine and Gilmore, 1999, p. 181.

[141] For information on the Great Aspirations! parent programs, check on line at http://www.greataspirations.org/ or contact Doug Hall, Great Aspirations!, 3849 Edwards Road, Newtown, Ohio 45244—513–271–9911 (doug@eurekaranch.com). For information on in–school programs, contact Dr. Russ Quaglia, National Center for Student Aspirations, University of Maine, 5766 Shibles Hall, Orono, ME 04469—207–581–2492, aspire@umit.maine.edu.

[142] Ornstein and Erlich, 1990, p. 233.

[143] Mill, 1857. Quoted in Daly, 1973a, p. 13.

[144] Randers and Meadows, 1973, pp. 302, 304–05.

[145] Hyde, 1983, p. 146.

[146] For more detail about Gardner's theory of multiple intelligences see Gardner, 1985, or Armstrong, 1993 (a popular guide to Gardner's ideas).

[147] Teilhard de Chardin, 1959, p. 255.

Doing What Needs To Be Done

Before we consider issues of process and opportunities for action, let's reflect for a moment on our wide–ranging exploration of reality to this point. We began with a look at the enduring primal reality, which creates and progressively elaborates an ephemeral, information–based relative reality. We saw that this process of informational evolution creates increasingly complex structures and functions, and that this complexity emerges as a hierarchy of holonic systems. The holons at any level in the hierarchy start cooperating with each other and become components in the more complex entities of the emerging next level. This approach has been successful, because the evolutionary process has found ways of fostering and harnessing *cooperation* among self–interested entities. Unless the entities at one level cooperate in the specific ways needed for next–level systems to function, those systems will not emerge. And when next–level systems are created, the cooperation must continue or the systems will self–destruct. Cooperation is essential for continued functioning at all levels of existence.

Because primal reality is proto-mental as well as proto-physical, properly configured physical systems can exhibit useful mental characteristics. Human beings are extremely complex systems capable of highly sophisticated sensory, emotional, rational, and intuitive mental processing. In **Part III**, we explored some significant aspects of this. We noted that human mentality has some troublesome limitations, but that each human being's higher mental capabilities are progres-

sively developed during a lifetime of intellectual, moral, and psychological/spiritual advancement. Individual circumstances can strongly influence the pace of this development, which can be accelerated through the use of self–directed learning in its broadest sense—including not only intellectual learning, but also involvement in psychological therapies, spiritual practices, and creative/expressive/exploratory engagements with life. In the advanced stages of this developmental process, the ordinary sense of separation between person and cosmos disappears, identity expands to include the informational All and the underlying One, and the universe is seen to be playing *the* great adventure game of all time.

We were exposed to the idea that exploring reality deeply with a quiet, receptive mind—a mind that *really wants to know the truth* about a situation—can lead to insights concerning what is wrong and what must be changed. In reviewing the situation here on Earth, we a saw a world in need—a world headed for big trouble, unless we transform in major ways the social, cultural, political, and economic systems we humans have created. We came to understand that the present world economic system does not currently operate in the best interests of the great majority of people on this planet—and in the long run, in the interest of no one.

Among the deficiencies we identified are:

- The global market system cannot benefit those who have insufficient purchasing power to participate in it.
- Share price has become the overriding corporate value.
- International economic interests frequently determine small–nation policies.
- Inequality in income and wealth is growing in the United States and many other countries.
- Speculative finance has negative consequences.
- Democracy is undermined when large amounts of corporate money pour into election–campaign war chests, the lobbying of politicians, and the funding of law suits that benefit corporations.

It became apparent that the values driving the transnational economic system and its alliance with political systems are at the root of many of our present sociological, cultural, and ecological problems. Instead of this economic–political reality existing for the purpose of equitably and sustainably provisioning all the world's people, its most basic operating rules ensure that its focus is, and will continue to be, that of increasing the wealth of a relatively small number of people.

We noted that industry, commerce, global trade, and their financing are not the problem in any *intrinsic* sense; humanity needs to be provisioned, and provisioning requires enterprise. Rather, the current *modus operandi* of these institutions is the problem: the existing rules of internal functioning and external engagement. Cliff Havener speaks of the original "spiritual" purpose of organizations and how that purpose frequently gets lost as the organizational focus shifts to efficient functioning. We need a respiritualization, in Havener's sense of that word, of economic institutions worldwide. The tasks before us are to shine the spotlight of public attention on the original purpose of economies as servants of humanity and to transform the functioning of economic institutions to conform with that purpose.

Along the way, we saw that ethical sensibility and psychological/spiritual development go together, and that ethics are not arbitrary or relative. Human ethics have an objective basis in facts and their relation to context, and in holonic relationship. The past several centuries have also seen a gradual but unmistakable rising of the ethical bar. Exceptions do exist, of course, but in general, people today draw the line between ethically acceptable and unacceptable behavior at a higher level than in the more distant past. The electronic and print media have facilitated this by making us much more aware of what is going on around the world and introducing us to at least some current injustices.

As the world's people develop higher levels of ethical sensibility and as we increase our factual understanding about humanity's situation, dissatisfaction with the status quo rises. None of us is going to single–handedly transform all that needs to be transformed. But each of us can participate in the transformational process. Each of us can

take steps to reduce our contribution to the world problematique and to increase our contribution to its resolution.

COMBINING PERSONAL AND SOCIETAL TRANSFORMATION

Once we see, what do we do? Yes, we can recycle, live simply, and make our personal lives saner. And that's all to the good—necessary, we might even say, *but not sufficient.* As we become clearer about the nested contexts in which our lives are inextricably meshed, we come to see that personal fine–tuning within the present systemic arrangement is not enough. Massive systemic change is also needed, and restricting our field of action to the cocoon of self, family, and friends is not going to bring that about. The ability to enthusiastically leave that cocoon and apply our energies to the needed transformation requires senses of identity and compassion that extend beyond our normal small group. Fortunately, if this broad focus does not yet exist, we can develop it.

Out of four decades of experience, the transformational community has come to realize that effective societal transformation in our ultra-complex world requires wise agents of change. It has also become clear that the needed wisdom is most likely to arise from the seamless integration of personal growth *and* social change, in lives dedicated to both. As Rudolph Bahro put it: "*There is no path to [societal] salvation which avoids individual transformation.* At the present moment the most important social process is the growth of this movement, the stimulus and encouragement to more and more people to pursue a path of intensive self–knowledge."[1] (Emphasis his.)

Michael Lerner put it this way:

> *The globalization of Spirit requires that we overcome the false dichotomy between changing ourselves and changing societal structures. At times we may be inclined to say, "I need to work on my own head first, then later I'll try to change society." But this strategy can be the beginning of a slippery slope toward narcissistic self–absorption, just as the "I'll change society first and then worry about inner life" strategy can be a slippery slope to the*

insensitivity and spiritual obtuseness of most contemporary political movements.[2]

Let's consider three variations on this theme of integrated personal/societal transformation: Michael Lerner's, Ken Wilber's, and then—in somewhat more detail—my own.

Michael Lerner's Approach

In his book *Spirit Matters*, Michael Lerner identifies the central problem of our time as the *globalization of selfishness* and maintains that the only serious alternative to that unhappy state is the *globalization of spiritual consciousness* and the development of *emancipatory spirituality*. Lerner is a psychotherapist as well as a rabbi, and his research with thousands of working people convinced him that the desire to feel connected to Spirit is a basic need. Unfortunately, we live in a Spirit–denying society, and we spend much of our lives in society's schools, workplaces, and other Spirit–denying institutions. The general consequences of this are feelings of powerlessness, meaninglessness, and the loss of any hope for change.

Key elements of Lerner's spiritual alternative to old–style social change include:
- Celebrating the wonder of the universe
- Recognizing the Unity of All Being
- Cultivating our capacity to see each other as ends, not means to some end
- Affirming the equal worth of every human being
- Seeking the healing and transformation of the world in ways that enhance peace, tolerance, cooperation, mutual respect, ecological sanity, social justice, and celebration of the grandeur of the universe
- Cultivating the capacity to transcend our individual egos, so we can experience connection to the Oneness of All Being
- Developing mindfulness, a form of alert attention to each act and experience
- Developing an ability to sustain a connection to Spirit, even through periods of adversity and pain

- Enhancing our ability to play, to experience joy and pleasure, to honor our emotions and the emotions of others, to educate the next generation in love and compassion, and to experience solitude and silence
- Engaging in non-goal–directed aesthetic creativity in all forms of human artistic expression
- Affirming pleasure and sexuality, while rejecting all attempts to separate Spirit from its embeddedness in body
- Encouraging an overwhelming feeling of love toward others and a respectful caring for their needs, without forgetting our own needs
- Cultivating a desire to live ecologically sustainable lives and to create human societies that are environmentally sustainable and embody respect for all life forms
- Deepening our intellectual capacities, so they can be directed toward ensuring the survival and spiritual flourishing of the human race
- Seeking the integration of our many capacities and strengths, both on the individual and global levels, without abandoning uniqueness
- Supporting a change in society's bottom–line ethos from self-ishness and materialism to love and caring
- Encouraging the spiritual evolution of the human race toward higher forms of knowing, loving, sharing, and rejoicing.[3]

In *Spirit Matters,* Lerner also suggests that we engage in a number of "spiritual exercises." These include writing the story of one's own spiritual evolution; looking at individual people and seeing them as embodiments of God; each day, doing something kind for someone you barely know; and three exercises that involve taking time to contemplate the pleasures and abundances of life, their source, and the cooperation it took to create and maintain them. His suggested objects of contemplation include natural and manufactured things, our food, and our bodily functions.

Ken Wilber's Approach

Ken Wilber has called for an *integral practice* to augment the integral vision. He says: "The integral vision helps provide us with insight, and thus helps us overcome dissonance and face toward our own deeper and wider opening. And integral practice anchors all of those factors in a concrete manner, so that they do not remain merely abstract ideas and vague notions." Wilber's integral practice would exercise "physical, emotional, mental, and spiritual waves in self, culture, and nature." Regarding the *self*, he suggests "physical exercise (weightlifting, diet, jogging, yoga), emotional exercises (*qi gong*, counseling, psychotherapy), mental exercises (affirmation, visualization), and spiritual exercises (meditation, contemplative prayer)." Moving to *culture*, he suggests getting involved in community service of various kinds as well as making use of "mutual respectful dialogue" and relationships, in general, to further individual growth and the growth of others. In the arena of *nature*, Wilber suggests getting involved in activities that respect nature, such as recycling, environmental protection, and nature celebration—activities that both honor nature and promote our own capacity to care.[4]

The Deep Understanding Approach

As you know by now, I consider a deep understanding of the human situation to be the key to both personal fulfillment and global transformation. I share Maslow's conviction that when we see clearly what *is* with a quiet receptive mind, we then see what needs to be done. It is also my experience that when we see what needs to be done, we are often motivated to participate in the doing—and opportunities for meaningful activity and significant living reveal themselves to us. Because the quality of our doing cannot exceed the quality of our understanding, many who care about righting societal wrongs are today getting involved in activities that help to develop a deeper understanding of both the world around them and their own mental processes.

I have explained that deep understanding combines breadth of intellectual knowledge with deep emotional/intuitive/spiritual knowledge—knowledge that involves perspective and identity, and

therefore, is largely nonverbal and nonintellectual. Both types of knowledge are essential, and to develop both we need to adopt a two–pronged strategy: On the one hand, go *outward* and acquire relevant intellectual knowledge. On the other, go *inward* and find intuitive self–knowledge and a quiet mind.

Developing the Intellectual–Knowledge Aspect of Deep Understanding

What intellectual knowledge is relevant? Where do we start? Much depends on our formal education and the additional knowledge we have acquired since school days. Many of us are exploring the "new disciplines," including the sciences of energy, complexity, and information; systems and the evolutionary process; consciousness and the workings of the human brain/mind system. Many of us also want to learn more about human cultures and economic systems. Then, assuming we want to change what needs to be changed, we also need to understand ethics and techniques for changing ethical perspectives; probability as a decision–making tool; the techniques of conflict resolution and effective persuasion; and current transformational activities and proposals.

Our individual preferred learning styles will influence how we go about acquiring this knowledge. Reading is the answer for many people: books, articles, the Internet. Others prefer to learn in the more structured environment of a course or workshop. Some are attracted to audio/visual media, such as television, documentaries, or CD–ROMs. Still others like the interpersonal stimulation found in topic–focused discussion groups.[5]

Since you are reading this book, I assume that reading is one of your learning styles. In APPENDIX A, I have listed some books, articles, and other resources that communicate their messages particularly well and represent good starting points for further exploration. These are arranged in four categories:

1. Physical/biological reality and evolution
2. Mental reality—brain and mind
3. Social/cultural systems and their evolution
4. Sustainability and Economic Transformation

Internet addresses are given for those articles and books that were available on line at the time of writing, and the list—complete with clickable links to the resources and any updates—is available on line. Go to: http://mattersofconsequence.com/outward.html.

Developing the Self–Knowledge/Intuitive Aspect of Deep Understanding

As I see it, the primary objective of the inner work (psychological therapies and spiritual practices) is to move us through the stages of consciousness from *ordinary* (lost in our personal dramas) to *mindfully detached* (able to observe ourselves and our immediate situation in a caring but detached way), and then to *Spirit–identified,* or *compassion–imbued,* (seeing inner and outer reality from the vantage point of Spirit itself—living *as* awareness; *as* compassion; *as* love; *as* Spirit). People can only speak with intimate knowledge about the practices they have used in their own development, and it is impossible to know multiple paths from beginning to end.[6] In following any psychological/spiritual path, insights come, shifts of perspective happen, and openings to absolute reality may occur. But each breakthrough moment happens only once. You can't rerun things using another practice, because you've already seen, you're already different. For that reason, I haven't attempted to provide a wide–ranging survey of spiritual practices, but have simply touched on what has worked for me, in the hope it might strike a responsive chord with others.

My approach to inner development is summarized in MATTER OF CONSEQUENCE 10, **Developing Deep Understanding**, and I suggest you re-read that chapter. In *Toward Wisdom,* I go into additional detail, and if you are drawn to this approach, you might also want to read that book.

We could call the starting point for advanced work *responsible adulthood* or *mature ego.* A person at this stage is free of psychoses and crippling neuroses and has developed emotional control and empathy to an ordinary degree. In 1977, when I was at this stage in my own life, I was introduced to mindfulness (vipassana, insight) meditation in a twelve–day silent retreat. I found it the most difficult experience of my life—and the most rewarding. As you may recall from MATTER OF

CONSEQUENCE 10, mindfulness meditation is a practice that helps us develop the ability to detach from our ordinary "lost in my personal drama" mode of consciousness and to start investigating how our minds work. After three years of this practice (forty-five–minute sittings each morning and one or two nine–day retreats a year), I had my first nondual opening, my first brief shift to the Spirit–identified perspective on reality. This happened while paying attention to the self–sense, or "I am," feeling, and it is described briefly in MATTER OF CONSEQUENCE 10 and in more detail in chapter nine of *Toward Wisdom*. (That chapter—now available at http://mattersofconsequence.com/twch9.html —focuses on broadening awareness and shifting identity, and might prove helpful.) Ongoing daily sittings and additional retreats led to more insights and nondual openings. In the 1990s, I began to sit quietly *as* awareness (that is, *identified with* awareness). When I mentioned this to my vipassana teacher, he suggested that I investigate Dzogchen, a Tibetan Buddhist practice. One of Dzogchen's purposes is to take the practitioner to their first nondual opening; another is to help the practitioner solidify that perspective, making it always accessible. Having already had my initial openings, the value of Dzogchen practice for me has been its role in making the nondual perspective an increasingly central part of my everyday life.

APPENDIX B contains a list of books on inner work that I have found helpful, a number of Internet resources, and some leads to vipassana and Dzogchen retreat centers and teachers. The same list, but equipped with clickable links to the resources, is available on line at http://mattersofconsequence.com/inward.html.

Deep understanding is not society–transforming action, per se, but it can imbue personal transformative action with wisdom and make it maximally effective. When we engage in transformational activity, we are involved with two iterative processes. Growing/doing is an iterative process in which inner development and outer activity feed back on each other. Growing and learning lead to higher–level doing, and significant doing teaches us new truths and deepens our understanding. Ideally, the process continues in an upward spiral throughout our lives. The second iterative process involves the inter-

action between the personal and the societal. All societal transformation comes about through the collective and cohesive actions of its individual members, and as the society becomes transformed, it stimulates and supports personal transformation.

PROCESS ISSUES

One thing worth keeping in mind is that action in the world is strictly personal. Each of us is in charge of our own life, and we must each arrive at our own decisions about how to live it. My purpose in writing this book has been to help you better understand the world and yourself, not to tell you what to do with your life. I strongly believe that as we deepen our understanding, we broaden our sphere of caring and identification, and increasingly act in ways that benefit others. But the amount of time and effort a person chooses to devote to that, and the actions they decide to take, are up to them.

It is also helpful to think about our capabilities. What skills can I bring to the transformational party? What kinds of leverage? (Knowledge? Money? Special respect? Power of persuasion, perhaps in the arts or mass media? A leadership role in government, business, or a nonprofit organization?) Where am I able to exert influence? (Politics? Business? Education? An organization? The general public?) What skills might I want to develop further? (Writing? Speaking? Conciliation?)

When we first feel the urge to *do*, we sometimes know exactly what form our doing should take. At other times, we don't know. In either case, it can be helpful to find out what others are up to. With regard to transformational activities, the easiest way to learn who is doing what is to visit the websites of some of those NGOs and INGOs on the forefront of change. APPENDIX C contains a list of more than seventy organizations working toward a sustainable and more equitable world. The list is in no sense complete, but because many of these websites maintain links to the sites of kindred organizations, they seem a good place to start. This list also appears in clickable form at http://mattersofconsequence.com/ngolist.html. Browsing the list is click–simple, if you start from there. If you don't have access to the Internet, you might want to check out the sixty-seven–

page catalog of economy– and community–related organizations in Michael Shuman's book *Going Local: Creating Self–Reliant Communities in a Global Age* (New York: The Free Press. 1998).

We'd all like to get paid for doing what we'd most like to do. Unfortunately, there aren't many paying jobs with titles like World Transformation Agent or Savior of the World from Its Own Foolishness. A few thoughts about this: Sometimes paying jobs of this kind *really do exist*, but with less glorious titles and more narrowly focused mandates. At one point in my multifaceted working life, I ran a governmental energy conservation program. Later, as a freelance writer, I got paid for writing about energy conservation and energy alternatives. In both situations, I was getting paid for being part of the solution, and it felt good.

If you fail in your attempts to get paid for saving the world, maybe you can do something for pay that at least does not harm it and still leaves you time and energy to devote to what you most want to do. Many creative people end up with a "day job" to pay the bills, but still manage to spend a significant amount of time doing what they love. Artists do it. Actors do it. Writers do it. And change agents can do it too. During my write–for–pay years, the best I was ever able to do was to spend about half time writing to pay the bills and the other half writing about what was most deeply meaningful to me. A related approach is to save up for time off. Several times in my life while working at conventional jobs, I intentionally cut back on expenditures and saved, so I could then take off a year to pursue some close–to–the–heart activity.

What if we hit a brick wall? What if it becomes apparent that the course of action we have been following is not going anywhere? What then? There is no pat answer, of course, but I can tell you about my own general strategy. First, whatever happens, it helps to remember that we have not failed. Each course of action in life is an experimental endeavor. Sometimes we get the results we hoped for; sometimes we don't. If the result is unsatisfactory, do we then try a modified version of the last experiment, or do we try something entirely new? The answer to that question can come only from the

workings of one's own creative process. Here, I use the same approach I use for other creative challenges: Gather all the information I can; then quiet my mind. (See the section below, Engaging in Social Invention, which discusses this process in more detail.) Even if a complete answer does not emerge, insight into the most appropriate next step usually does.

SOME ACTION OPPORTUNITIES

There is no shortage of significant tasks awaiting people with wisdom and focused energy. Our personal challenge is to find the ones that fit our capabilities and visions, and draw us to them. A few tasks that strike me as especially important are:

- **Creating transformational community**. Helping others to realize they are not alone in their concerns and in their desire to create a sustainable and more equitable world
- **Informing and educating**. Doing what we can to increase people's knowledge about matters of consequence, helping them understand more deeply, and fostering their psychological, spiritual, and ethical development
- **Transforming politics**. Reforming election financing, making voting fair, bringing the focus back to significant issues, reforming political parties from the inside, encouraging politicians to do the right thing, and giving them positive reinforcement when they come through
- **Engaging in social invention**. Working with others to find new mechanisms for bringing about change: practical ways of getting us from the unsatisfactory present to a satisfactory future—ways that actually work and get us past current impasses
- **Engaging in active protest**. When outrageous things happen, action may be needed here and now to stop them
- **Staying in touch with the whole**. Not getting lost in the details of our chosen tasks, but frequently stepping back to renew our view of the big picture.

Let's consider these critical tasks one at a time.

Creating Transformational Community

We have a problem. The research done by Paul Ray and others tells us that many tens of millions of people in North America and Europe have transmodern values and a transformational mindset. I'm one of them, and I bet that you are too. Yet, this has been a well–kept secret. Until recently, most of us have not thought of ourselves as being part of something so massive. For reasons that include geographic dispersal, differences of personal focus and interest, and the constant flood of influences from mainstream culture, many of us have felt pretty much alone. Changing that perception is an important action opportunity. We will not be a powerful cohesive movement until many more of us wake up to this reality, communicate with each other more extensively, coordinate our varied capabilities, and apply them to significant transformational tasks. We are, for now, largely the *hope of* a movement, the *potential for* a movement, and the *precursor to* a movement.

Informing and Educating

I've noticed that when people learn something of value or get passionately involved with something, they almost always get the urge to communicate this interest to others and to educate them about it. You may recall David Roodman's contention that nongovernmental organizations wield power through education and that "*the fundamental challenge of building a sustainable society is one of education*." If our passion happens to be societal transformation in any of its myriad forms, then this urge to communicate, inform, and educate is especially important. We should honor it, if we possibly can. Among the possibilities open to us are:

- Tell our friends.
- Organize a local reading or discussion group, or participate in an online group.
- Call talk radio shows.
- Write letters to people who need to know.
- Write articles and books.
- Create CDs, websites, and online networks of people.

- Think up new effective ways of bringing others up to speed about our reality, its problems, and explorations toward solutions—especially explorations toward solutions.

Transforming Politics

The challenge is not only to restore democracy and make government once again the servant of ordinary people, but also to replace ideology-based confrontation with a cooperative search for solutions. This will not be easy. With few exceptions, today's politicians are not open to new ways of seeing the world. On their way to power, almost every one of them has adopted a rigid political and economic ideology. Each politician sees the world through the filter of that ideology. It influences their response to situations, and if it is challenged they vigorously defend it. This closed-mindedness prevents politicians of various stripes from coming together in a joint search for the truth about a situation and for the most appropriate course of action. Instead, they debate using ideology-based arguments, and often respond to situations in ways that fit the ideology but not the situation. Examples include the IMF's one-size-fits-all economic approach to developing countries, and George W. Bush's misguided answer to the question Why do they hate us?: "They hate…a democratically elected government…. They hate our freedoms…" (The truth, of course, lies elsewhere—as anyone who undertakes a sincere and open-minded search for the answer will discover. Yes, terrorists and their actions must be dealt with, but as experience in situation after situation has shown, focusing solely on terrorist behavior and not at all on its root causes does not make terrorism go away.)

Transcending the current ideology-based insanity will not happen overnight, but there are positive steps we can take and worthwhile things we can do to help things move in the right direction. Among the many possibilities are:

1. **Work on election finance reform.** To restore real democracy, campaign spending must be reduced to low–enough levels to create a level playing field of public exposure for even modestly funded parties. Many corporations and industries make large contributions to both major parties and to

candidates of both parties—thereby assuring allegiance from whoever wins. Big spending must stop, but the details of a workable approach have yet to be worked out. Prohibit all gifts from the business sector? Drastically limit gifts from individuals? Answers must be found.

2. **Make voting universal and fair.** The 2000 U.S. presidential election highlighted the problems that need fixing. Beyond this, consider pushing for *proportional representation*, a more equitable voting system that is now used in many countries.

3. **Find ways to bring campaigns back to policies and issues, and away from personality, image, celebrity, and gossip.** This might involve insisting on clear policy positions from candidates and then presenting those positions to the general public in a comparative way. The League of Women Voters began doing this many years ago. By interviewing candidates in penetrating ways and repeatedly presenting their policy positions, the mainstream media could serve our need for important information, instead of pandering to our less–elevated interests in gossip and celebrity.

4. **Work to reform the structures and values of political parties from the inside.** Picking up on those suggestions from Václav Havel and Rudolf Bahro, we might consider getting involved in politics, even though we hate the very thought of it. We might join a party; work to change attitudes within the party; work to get wise people elected to party leadership positions; and attempt to get the party to offer wise and knowledgeable people as candidates, rather than candidates with the drives, personalities, and value systems of the traditional "politician."

5. **Contact politicians.** One way of exerting influence is to write letters and email messages to decision makers about significant issues, and to visit them when that is possible. I suggest not delivering belligerent rants, but rather to present in a calm, reasoned way the factual and ethical aspects of the situation as you have come to understand them. (Obviously, the deeper

that understanding is and the more clearly and sincerely you can present it, the greater your influence is likely to be.) We can take a cue from Gandhi and approach those in power with the expectation that they will do the right thing, with the desire to help them understand what the right thing is, and with the willingness to help them take the necessary action. That might even mean helping them save face—which is fine, as long as they do the right thing. Just as important is taking the time to reinforce right action when we see it. When people in power take risks to move things in a positive direction, they often act with some ambivalence and discomfort. They want to do the right thing, but it's scary. Expressions of appreciation, thanks, encouragement, offers of help, and other forms of affirming feedback can embolden politicians to rise to the high moral ground more often.

Engaging in Social Invention

We need to invent new systemic arrangements in politics, society, and material provisioning—arrangements that meet the inner and outer needs of everyone on the planet, equitably and sustainably. To meet the inventive challenge, we need to figure out how to harness the vast creative potential of Americans, Canadians, Europeans, and everyone else who shares the vision of such a world.

A major part of the challenge is to invent mechanisms that get self–interested people to cooperate in new ways. Evolution values cooperation, because it is through cooperation that new patterns of complexity are able to emerge and to be sustained. With the simplest systems—atoms and molecules—cooperation happens automatically, via built–in algorithms. But when systems get more complex, things get trickier. Cooperation is still needed, but it is no longer automatic. Then, not only does evolution need to produce the system itself, it also must come up with ways of inducing system components to cooperate and ways of managing the cooperative process. Trial–and–error evolution came up with biological mechanisms that prompt cells to cooperate in forming organisms and with biological mechanisms that prompt social insects to cooperate in forming insect

societies. But where human societies are concerned, mechanisms that manage cooperation must be created by human beings, preserved by human cultures, and implemented by human societies.

Patriarchy provided one mechanism for inducing cooperation among large numbers of people. It and other forms of absolutism worked, but at great cost to the individuals who were forced to cooperate. Democratic governments achieved similar results at less cost to the person, but in many countries today, powerful institutions have undermined democracy. We also have persistent problems that existing organizations have been unable to solve. Humanity is currently casting about for new cooperation–management mechanisms that will solve (or otherwise eliminate) those problems. In the past, we focused on problems and their fixes in narrow, piecemeal, situation–specific ways. Today, creative people are attempting to transcend problems by creating new systems which ensure these problems don't arise in the first place. The goal of smart system design is having the design itself eliminate the problem.

It is only through collaboration and cooperation that things successfully progress, get more complex, and get more interesting. So in one sense, the major creative challenge of our time is simple: Invent effective new mechanisms for fostering cooperation. But in another sense, it is very difficult, because those mechanisms are rare beasts. More specifically, we need to invent new systemic arrangements in politics, society, and material provisioning (economics) that meet the inner and outer needs of everyone on the planet, equitably and sustainably.

We can approach the search for new solutions, mechanisms, and arrangements in a couple of ways. The first is to search for answers on our own, to create and invent independently. This is the way I go about it:

1. I gather information about the problem, involve myself directly with it, if possible, and try to understand it in the greatest possible detail and depth.

2. I quiet my mind. Our conscious, egoic, intellectual mind has a behind–the–scenes partner: the subconscious mental process

that gives rise to intuitive insights, to Aha! and Eureka! moments. Mental silence facilitates communication between this subconscious process and our conscious mind. It allows us to hear what our wise but soft–voiced partner is trying to tell us. To quiet my mind, I increase the amount of time I spend meditating. When facing a major creative challenge, I have sometimes followed up the information gathering with a silent retreat of a week or more.

The second methodology is the kind that Doug Hall has developed to both a science and a high art. Here, the synergistic interaction of a group of creative people ends up creating higher–quality ideas than those same people would be able to create in isolation.[7] I have seen it happen. And I have no doubt that if arrangements can be made to bring together small groups of bright, knowledgeable, psychologically mature, ethically grounded, and spiritually aware people—in the right environment and with the right focus—exciting ideas for all–win and minimum–loss ways of doing things will come out of their interaction.

Many tasks and subtasks warrant our creative attention. This book is full of them, and there are a great many others. (See, for example, the "world problems/issues" and "strategies/actions" online databases maintained by the Union of International Associations at http://www.uia.org/services/databases.php.) Less clear is where the support for this kind of creative activity is going to come from. Personal sacrifice? Far–thinking governments? Progressive corporations? Philanthropists? Colleges and universities? I don't know. Finding sources of support could be one of the first creative challenges we need to address.

Engaging in Active Protest

Outrageous things continue to happen, and when faced with the outrageous, many choose direct action of the nonviolent kind pioneered by Gandhi and Martin Luther King. Fiona, a college student, made this kind of choice. After spending a day at a threatened green space near Manchester, England, she decided to join the others who had

taken to the treetops to prevent the trees from being destroyed. In reflecting on this, she said:

> *You just have to try one small thing. Just do one thing, and you'll see it work. And it will encourage you, it will give you spirit. And you'll know that you're on the right track. All I did was come here for the day, because I felt an urge to do it, a pull—and I've been here three months, and I know what I want to do with my life. The easiest thing is to think about your children and what they are going to say to you. It's as simple as that: "What did you do, Mother?"*[8]

Ever since the 1999 Seattle WTO demonstrations, protests have taken place at almost every meeting of global leaders. Unfortunately, the violent and destructive activities of a few hundred male protesters (and sometimes a violent overreaction by hyper–zealous security forces) have overshadowed the peaceful activities of the nonviolent majority—30,000 from North America in Seattle, 50,000 from Europe in Genoa. The violence and destruction dominated media coverage of the events, undermined the legitimate message of the many, and made it easier for supporters of the status quo to brush off the protests.

The Internet has played a major role in both the anti-globalization protests and the protests against the 2003 Iraq war. It allowed large groups, small groups, and individuals to rapidly and efficiently join forces to organize rallies and vigils and non-violent civil disobedience. The Internet also allowed group tactics and overall emphasis to be quickly changed. For example, the New York Times reported that during the second week of the Iraq war "the most influential antiwar coalitions…shifted away from large–scale disruptive tactics and stepped up efforts to appeal to mainstream Americans."[9]

In this area of protest against the outrageous, the unconscionable, and the just plain wrong, much creative effort is needed. New strategies that prevent legitimate protest from being overtaken by destructive, counter–productive elements are needed. In addition, we must seek opportunities to move beyond protest (which tends to focus on preventing things from getting worse) into creative,

transformative action that actually improves things. We need to look for opportunities to participate in integral approaches and in cooperative/collaborative searches for optimum solutions.

The very good news is that tens of millions of people are unhappy with the way the world is currently being run and want massive changes. Their demands for sustainability, economic justice, and the peaceful resolution of conflict are grounded in wisdom, morality, and good sense. Moreover, the numbers signify real power. During the lead up to the 2003 Iraq war, Patrick E. Tyler of the New York Times said: "The fracturing of the Western alliance over Iraq and the huge antiwar demonstrations around the world this weekend are reminders that there may still be two superpowers on the planet: the United States and world public opinion."[10] Harvard's James F. Moore put it this way:

> *There is an emerging second superpower, but it is not a nation. Instead, it is a new form of international player, constituted by the "will of the people" in a global social movement. The beautiful but deeply agitated face of this second superpower is the worldwide peace campaign, but the body of the movement is made up of millions of people concerned with a broad agenda that includes social development, environmentalism, health, and human rights. This movement has a surprisingly agile and muscular body of citizen activists who identify their interests with world society as a whole—and who recognize that at a fundamental level we are all one.*[11]

Staying in touch with the whole

There are some people whose life work keeps them focused on the big picture most of the time. Among them are spiritual leaders such as the Dalai Lama, globally-minded political leaders such as Nelson Mandela and Gro Harlem Brundtland, leaders in the transformational community such as members of the Club of Rome and Club of Budapest, and a host of scholars who try to make ever-increasing sense of the great complexity in which we humans are immersed. The rest of us have chosen to focus on narrower, more specific transformational tasks, and that is totally appropriate. Most action

must, by its very nature, be local. That said, we must be careful not to get lost in the details of our tasks to the exclusion of the whole. The purpose of our activity is to uplevel, improve, and better the whole. So we need to step back frequently from our doing, broaden our attention, and take in the big picture. We need get in touch with both the underlying ONE (out of which everything flows), and the super-complex ALL (which the ONE has brought into existence). Doing this keeps us in tune with existing needs, and helps us know when it's time to switch tasks or add another one to our list.

Before human beings evolved, the evolutionary situation here on Earth was that shown in Figure 1. Spirit, Energy–Awareness, the primal ONE, created the informationally complex lithosphere/hydrosphere/atmosphere/biosphere through the guidance of intrinsic laws-of-nature algorithms.
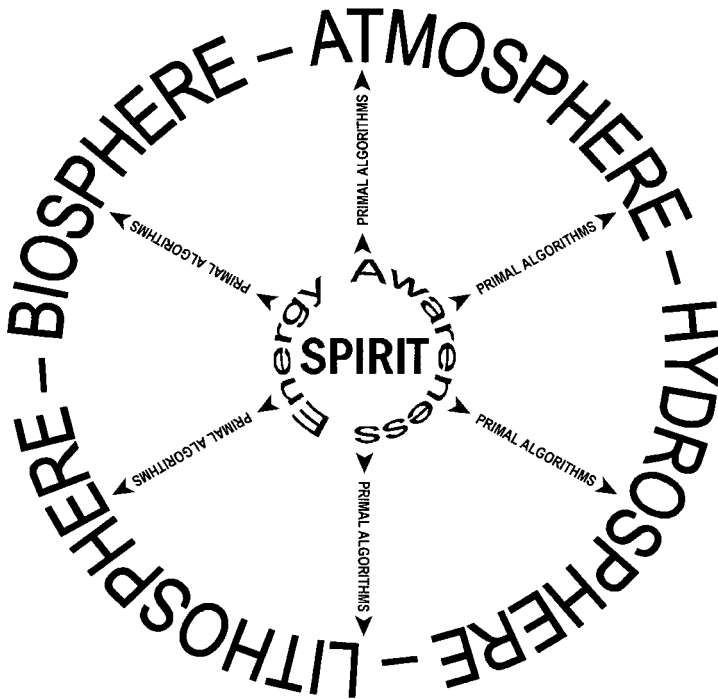
Figure 1 — Algorithm–Directed Evolution

When human beings evolved, things changed in two ways. First, a new sphere of activity—the human sociosphere—became intertwined with the other four at the surface of the Earth. Second, the dominant form of evolutionary guidance began to shift from intrinsic algorithms to human values. During the twentieth century this shift accelerated. As the century progressed, more and more evolutionary decisions were made by humans. And many of the guiding values were destructive ones such as acquisitiveness, comfort regardless of consequences, and out and out greed. The result is the world as it now exists.

Figure 2 — Mind–Directed Evolution, and Our Transformational Challenge

Figure 2 presents, in graphic form, the transformative challenge that humanity faces today. As in the twentieth century, human values

are guiding the changes. What is different are the values themselves. Instead of the informational elaboration of the world being guided by greed and acquisitiveness, the transformational activities of Figure 2 are structured around values such as sustainability; economic equity; psychological, spiritual, and ethical development; true democracy— and a deep appreciation of the big picture, the long view, and our place in the scheme of things.[12]

LIVING AS SPIRIT

In his book about finite and infinite games, James Carse called attention to two interesting things about infinite games. First, the only purpose of an infinite game "is to prevent it from coming to an end, to keep everyone in play." Second, "There is but one infinite game."[13] The Existence Game is that game. Spirit in all its forms plays it. And the core objective is to keep the game going. We see this in the natural world. Wherever things can grow, they will grow: The biosphere recovers from massive extinctions. Ravaged forests eventually grow back. Grass takes root in pavement cracks.

People—Spirit in human form—also play the Existence Game. They can't help playing it. And, like the grass and the trees, most play it unconsciously. People, however, have the potential to wake up and play with awareness and conscious intention. Clearly comprehending what *is* leads to a vision of what *should be*. And for most who come to that kind of deep, clear seeing, also comes an urge to act, to make things right, to *implement* the vision.

We are Spirit in human form, and since the evolutionary refinement of physical/mental complexity is clearly Spirit's central project, it is also *our* project. When we carry the process of inner development to the point where our sense of self includes the ONE and the ALL, that old sense of separation between personal and universal disappears. Personal purposes align with cosmic purposes, and we become cosmic adventurers and conscious agents of evolution—appreciating what is, up–leveling what is, and fostering betterment and well–being wherever we go.

We enter the cosmic arena with two melded identities: From the relative–reality perspective, we see ourselves as fallible, short–lived

human beings—albeit, human beings with a much clearer–than–ordinary understanding of the game and of our roles as transformational players. When we flip to the absolute–reality perspective, we know we are Spirit and thus, simply, naturally, and unquestionably committed to Spirit's mammoth undertaking.

If you are not yet consciously participating in this adventure of all adventures, think about it, feel about it, and meditate on it. I encourage you to find and enter the arena of Spirit. There, the egoic search for success and significance ends—and yet, the most exciting game ever is still under way. Conscious players are needed. Come in, and play to your heart's content.

The Matters of Consequence website was established to facilitate our ongoing exploration of matters of consequence and our search for transformational solutions. Visit it at http://mattersofconsequence.com/.

Notes

1 Bahro, 1994, p. 160.

2 Lerner, 2000, p. 273.

3 This list is excerpted from Lerner, 2000, pp. 167–73.

4 Excerpted from Wilber, 2000d, p. 138.

5 Reworking Tomorrow is a discussion–focused Australian organization, which has created an excellent guide to organizing change–oriented conversational groups of many kinds, including focus groups and study circles. The guide, *Clues on Conversations*, is available on line at http://www.resilientcommunities.org/articles/clues.htm.

6 Macdonald, 2001a [1996a 1993].

7 New product ideas is the creative focus of Doug Hall's Eureka! Ranch in Newtown, Ohio. There, employees of large corporations interact with other creative people in a high–stimulation environment and come up with ideas having a higher–than–average probability of success. It is his *creative methodology* that I find attractive

and am suggesting be applied to the very different task of societal transformation. Information about Eureka! Ranch programs is available at: http://www.eurekaranch.com/.

[8] CBC Radio *Ideas*, 1999, Episode 8.

[9] Zernike and Murphy, 2003.

[10] Tyler, 2003.

[11] Moore's article, dated March 31, 2003 and titled "The Second Superpower Rears its Beautiful Head," was read on May 2, 2003 at http://cyber.law.harvard.edu/people/jmoore/secondsuperpower.html.

[12] Heiner Benking (http://benking.de/index.html) is a connector of people, a facilitator of dialog, and an expert at helping people comprehend through visualization. Upon reading the manuscript for this book, he felt that the first five transformational tasks outlined in this matter-of-consequence should be complemented by two things: 1) a sixth task that focused on the big picture, and 2) a visual device of some sort that would relate the individual tasks to the task–as–a–whole, to the entire earthly happening. We discussed the matter at some length, and Heiner introduced me to several "wheels of transformation" (http://www.open-forum.de/wheel.html; http://www.wova.org/who/wheel.html; and http://www.consciousevolution.net/peaceroom/innovations/index.jsp) that became the inspiration for Figures 1 and 2. In all of this, Heiner's counsel was highly valuable and much appreciated.

[13] Carse, 1986, pp. 6–7, 149.

Resources for Developing the Intellectual–Knowledge Aspect of Deep Understanding

An updated version of the list below—complete with clickable links —is on line at http://www.wisdompage.com/outward.html.

Books and Articles

The intellectual knowledge needed to understand the human and cosmic situation is one of the two foundations of deep understanding. (The development of self–knowledge, intuition, and a quiet mind is the other; see APPENDIX B for those resources.) On the intellectual knowledge resource list below are a few books and articles that communicate their messages particularly well and represent good starting points for further exploration. To make selection easier, I have grouped them in categories. And since I have already introduced most of the authors, I don't comment further. Internet URLs are included for those works that were available on line at the time of writing.

Some of the books I refer to are no longer available from their original publishers. If a title is not available at your library, through interlibrary loan, or from your local or online bookstore, you might want to contact an online used book dealer. Try, for instance, Advanced Book Exchange at http://www.abebooks.com/ or Bibliofind at http://www.bibliofind.com/ (now associated with Amazon.com).

PHYSICAL/BIOLOGICAL REALITY AND EVOLUTION

Fritjof Capra

> *The Web of Life: A New Scientific Understanding of Living Systems.* New York: Doubleday. 1996.

Ervin Laszlo

> *The Systems View of the World.* New York: George Braziller. 1972.

Introduction to Systems Philosophy: Toward a New Paradigm of Contemporary Thought. New York: Gordon and Breach. 1972.

Evolution, the Grand Synthesis. Boston: Shambhala Publications. 1987.

Sidney Liebes, Elisabet Sahtouris, and **Brian Swimme**

A Walk Through Time: From Stardust to Us, The Evolution of Life on Earth. New York: John Wiley & Sons. 1998.

Copthorne Macdonald

"An Energy/Awareness/Information Interpretation of Physical and Mental Reality." *Zygon: Journal of Religion and Science* **29**: No. 2 (June 1994), pp. 135–51. Check: http://mattersofconsequence.com/zygon1.html.

Philip Morrison et al.

Powers of Ten: About the Relative Size of Things in the Universe. New York: Scientific American Library. 1982. This issue is dealt with extensively at: http://www.powersof10.com/.

John Stewart

Evolution's Arrow: The Direction of Evolution and the Future of Humanity. Canberra: The Chapman Press. 2000. Check: http://www4.tpg.com.au/users/jes999/.

Brian Swimme and **Thomas Berry**

The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era. New York: HarperCollins Publishers. 1992.

Myron Tribus and **Edward C. McIrvine**

"Energy and Information." *Scientific American*, September 1971, pp. 179–88.

Steven Weinberg

The First Three Minutes: A Modern View of the Origin of the Universe. New York: Basic Books. 1988.

Internet Resources Related to Systems:

Bela Benathy's "A Taste of Systemics" is an excellent introduction to the system perspective: http://www.isss.org/taste.html

Complex Systems Virtual Library is available at: http://lorenz.mur.csu.edu.au/vl_complex/

International Society for the Systems Science is a rich source of information about systems: http://www.isss.org/

MENTAL REALITY—BRAIN AND MIND

Bernard J. Baars

In the Theater of Consciousness: The Workplace of the Mind. New York: Oxford University Press. 1997.

Allan Combs

The Radiance of Being: Complexity, Chaos and the Evolution of Consciousness. St. Paul, MN: Paragon House. 1996.

Gerald M. Edelman

Bright Air, Brilliant Fire: On the Matter–of–Consequence of the Mind. New York: Basic Books. 1992.

R. Jackendoff

Consciousness and the Computational Mind. Cambridge, MA: MIT Press. 1990.

Copthorne Macdonald

"An Energy/Awareness/Information Interpretation of Physical and Mental Reality." *Zygon: Journal of Religion and Science* **29**: No. 2 (June 1994), pp. 135–51. Check: http://mattersofconsequence.com/zygon1.html

"Implications of a Fundamental Consciousness." A paper presented 1 May 1998 at the Tucson 3 Toward a Science of Consciousness 98 conference, Tucson, AZ. Check: http://mattersofconsequence.com/cmtu3htm.html.

SOCIAL/CULTURAL SYSTEMS AND THEIR EVOLUTION

Ruth Benedict

Patterns of Culture. Cambridge, MA: Riverside Press. 1934.

Richard Brodie

Virus of the Mind: The New Science of the Meme. Seattle, WA: Integral Press. 1996.

Duane Elgin

Awakening Earth: Exploring the Evolution of Human Culture and Consciousness. New York: William Morrow. 1993. Check: http://www.awakeningearth.org/books/awakening/aechapters.html

Global Consciousness Change: Indicators of an Emerging Paradigm. San Anselmo, CA: Millennium Project. 1997.

William E. Halal

"World 2000: An International Planning Dialogue to Help Shape the New Global System." *Futures: The Journal of Forecasting and Planning,* January/February 1993. Check: http://home.gwu.edu/~halal/Research/World_2000.pdf

Cliff Havener

Meaning. Edina, MN: Beavers Pond Press. 1999. Check:
http://www.forseekers.com/

Jane Jacobs

The Nature of Economies. New York: Modern Library. 2000.

Michael Lerner

The Politics of Meaning: Restoring Hope and Possibility in an Age of Cynicism.
Reading, MA: Addison–Wesley. 1997.

Robert Ornstein and **Paul Erlich**

*New World New Mind: A Brilliantly Original Guide to Changing the Way We
Think About the Future.* New York: Touchstone. 1990.

Paul H. Ray

*The Integral Culture Survey: A Study of the Emergence of Transformational Val-
ues in America.* Sausalito, CA: Institute of Noetic Sciences. 1996.

Paul H. Ray and **Sherry Ruth Anderson**.

The Cultural Creatives. New York: Harmony Books. 2000. Check:
http://www.culturalcreatives.org/.

Jonathan Rowe and **Mark Anielski**

"The Genuine Progress Indicator: 1998 Update—Executive Summary."
San Francisco: Redefining Progress. Check: http://www.rprogress.org/
pubs/gpi1998/gpi1998_execsum.html.

Ken Wilber

The Marriage of Sense and Soul: Integrating Science and Religion. New York:
Random House. 1998.

A Brief History of Everything. Boston: Shambhala Publications. 1996.

Sex, Ecology, Spirituality: The Spirit of Evolution. Boston: Shambhala Publi-
cations. 1995.

SUSTAINABILITY AND ECONOMIC TRANSFORMATION

Lester R. Brown, et al.

State of the World 2004. New York: W.W. Norton. 2004. (A new edition is
published each year.)

Herman E. Daly and **John B. Cobb, Jr.**

*For the Common Good: Redirecting the Economy Toward Community, the Envi-
ronment, and a Sustainable Future.* Boston: Beacon Press. 1994.

Duane Elgin

Awakening Earth: Exploring the Evolution of Human Culture and Consciousness.
New York: William Morrow. 1993. Check:
http://www.awakeningearth.org/books/awakening/aechapters.html.

Voluntary Simplicity: Toward a Life That Is Outwardly Simple, Inwardly Rich. New York: William Morrow and Company. 1981.

Factor 10 Club

"Factor 10 Club 1997 Carnoules Statement to Government and Business Leaders: A Ten–Fold Leap in Energy and Resource Efficiency." Check: http://www.factor10-institute.org/F10CStatm.htm.

R. Buckminster Fuller

Operating Manual for Spaceship Earth. Carbondale, IL: Southern Illinois University Press. 1969.

Paul Hawken, **Amory Lovins**, and **L. Hunter Lovins**.

Natural Capitalism: Creating the Next Industrial Revolution. Boston: Little Brown & Company. 1999.

The Ecology of Commerce. New York: HarperBusiness. 1993

"The Next Reformation." *In Context* #41, Summer 1995. Check: http://www.context.org/ICLIB/IC41/Hawken1.htm.

Hazel Henderson

Building a Win–Win World: Life Beyond Global Economic Warfare. San Francisco: Berrett–Koehler Publishers. 1996.

"Global Networks." *In Context* #36, Fall 1993. Check: http://www.context.org/ICLIB/IC36/Hendersn.htm.

"To Stitch the World Back Together Again." *Whole Earth Review*, Issue 87, fall 1995. Check: http://www.hazelhenderson.com/interviews.htm.

"Cyberspace: The Global Opportunities." A paper presented 3 December 1997 at the ActivMedia conference, at the Willard Intercontinental Hotel, Washington, DC. Check: http://www.hazelhenderson.com/article.htm.

"Evolving Economies from Lose–Lose Vicious Circles to Win–Win Cooperation and Sustainability." A paper presented at the Managing for Sustainable Development plenary session at the Rio+5 Forum held 13–19 March 1997 in Rio de Janeiro, Brazil. Check: http://www.hazelhenderson.com/article.htm.

"International Fund Strategies." *London*, Issue N 7, December 1997. Check: http://www.hazelhenderson.com/interviews.htm.

"Win–Win World." *Wired*, Issue 5:02, February 1997. Check: http://www.hazelhenderson.com/interviews.htm.

"What Did the Asian Meltdown Teach Us About Conventional Economic Policies." A paper presented 2 June 1998, at the Making a Profit While Making a Difference conference. New York: Capital Missions Company/Strategic Research Institute. Check: http://www.hazelhenderson.com/article.htm.

"Quality of Life: Issues and Questions." A paper presented 30 November 1998, at the HUGG Sydney conference, Socioeconomic Security: Globalization, Employment, and Quality of Life. Check: http://www.toda.org/conferences/sydney/papers/henderson.html.

"Game Over." *Red Herring*, April 1998. Check: http://www.hazelhenderson.com/interviews.htm.

David C. Korten

The Post-Corporate World: Life After Capitalism. San Francisco: Berrett–Koehler and West Hartford: Kumarian Press. 1999.

Ervin Laszlo

Macroshift: Navigating the Transformation to a Sustainable World. San Francisco: Berrett–Koehler. 2001.

Peter Schwarz

The Art of the Long View. New York: Doubleday. 1991.

INTERNET RESOURCES: THE WORLD PROBLEMATIQUE AND INNOVATIVE SOLUTIONS

The Brussels-based **Union of International Associations** presents analyses and creative ideas from thousands of intergovernmental and tens of thousands of nongovernmental organizations in its hyperlinked online databases. Particularly relevant to our intellectual exploration of the world problematique are their free "world problems/ issues" and "strategies/actions" databases:

http://www.uia.org/services/ databases.php

Anthony Judge is the person behind the UIA databases mentioned above, and the paper-and-ink *Encyclopedia of World Problems and Human Potential* which preceded it. He is a prolific writer on global issues, and more than 700 of his articles are available at:

http://laetusinpraesens.org/

Heiner Benking is another Europe-based force for change who has been active as a dialog facilitator, author on transformational issues, and inventor of new ways to visualize complex situations. His materials are dispersed among many Web sites, but a good starting point is:

http://co-forum.de/index.php4?HeinerBenking

The Millennium Project of the American Council for the United Nations University is "an international utility to assist in organizing futures research by continuously updating and improving humanity's thinking about the future and making that thinking available for feedback as a geographically and institutionally dispersed think tank."

This rich fund of information is available from the Project's superbly organized **Futures Matrix** at:

http://www.acunu.org/millennium/ information.html

The Center for Visionary Leadership seeks "to develop and support values-based visionary leadership in all fields of human endeavor" by "developing a new political process that goes beyond left and right and finds common ground on divisive issues." Of particular interest is their extensive collection of **Best Practices**—innovative solutions to social problems—at:

http://www.visionarylead.org/coc_main.htm

Best Practices Database "is a joint product of UN-HABITAT and The Together Foundation" that "contains over 1600 proven solutions from more than 140 countries to the common social, economic, and environmental problems of an urbanizing world. It demonstrates the practical ways in which public, private and civil society sectors are working to improve governance, eradicate poverty, provide access to shelter, land and basic services, protect the environment and support economic development." Project summaries can be viewed free; full details require a paid subscription:

http://www.bestpractices.org/

International Crisis Group is "an independent, non-profit, multinational organisation, with over 80 staff members on five continents, working through field-based analysis and high-level advocacy to prevent and resolve deadly conflict…. ICG's approach is grounded in field research. Teams of political analysts are located within or close by countries at risk of outbreak, escalation or recurrence of violent conflict. Based on information and assessments from the field, ICG produces regular analytical reports containing practical recommendations targeted at key international decision-takers." ICG is jointly funded by a large group of foundations, individuals, and national governments, and its reports provide a detailed look at crisis situations from a solution-oriented perspective.

http://www.crisisweb.org/

APPENDIX B

Resources for Developing the Self–Knowledge/ Intuitive Aspect of Deep Understanding

An updated version of the list below—complete with clickable links —is on line at http://www.wisdompage.com/inward.html.

Books

INNER DEVELOPMENT

Inner development—the development of self–knowledge, intuition, and a quiet mind—is one of the two foundations of deep under-standing. (The intellectual knowledge needed to understand the human and cosmic situation is the other; see APPENDIX A for those resources.) Listed below, in alphabetical order by author, are books presenting slants on our inner lives that I have found particularly helpful. I've already mentioned some of them. Each of these books is a partial map of the human psychological/spiritual territory, and together they present an excellent overview. Still, though good maps can lead us to the territory and help us find our way around it, if we hope to develop self–knowledge, we need to explore the territory first hand—directly, experientially. Reading cannot substitute for that.

Some of the books I refer to are no longer available from their original publishers. If a title is not available at your library, through interlibrary loan, or from your local or online bookstore, you might want to contact an online used book dealer. Try, for instance, Advanced Book Exchange at http://www.abebooks.com/ or Bibliofind at http://www.bibliofind.com/ (now associated with Amazon.com).

Allan L. Combs: Teacher, consciousness historian and theorist, lucid writer, cofounder of *Integralis: Journal of Integral Consciousness, Culture, and Science*, and much more

The Radiance of Being: Complexity, Chaos, and the Evolution of Consciousness. St. Paul, MN: Paragon House. 1996.

Mihaly Csikszentmihalyi: The recognized expert in "flow," the state of ideal functioning in which capability matches challenge

Flow: The Psychology of Optimal Experience. New York: HarperCollins. 1990.

Trevor Curnow: Philosopher and author of a comprehensive book on wisdom's history, nature, and relationship to ethics

Wisdom, Intuition and Ethics. Brookfield, VT: Ashgate Publishing Co. 1999.

Joanna Field [Marion Milner]: Psychologist who wrote about the inner transformation produced in her life by simply widening her focus of attention

A Life of One's Own. Los Angeles: J. P. Tarcher. 1981 [1936].

Howard Gardner: Psychologist with wide–ranging interests, who opened our eyes to the multifaceted nature of intelligence

Frames of Mind: The Theory of Multiple Intelligences. New York: Basic Books. 1985.

Joseph Goldstein and **Jack Kornfield:** Two of the best–known, most–respected teachers of vipassana (insight) meditation

Seeking the Heart of Wisdom: The Path of Insight Meditation. Boston: Shambhala. 1987.

Daniel Goleman: Author of the most up–to–date book (as of this writing) on human emotions and of one of the best books on meditation

Emotional Intelligence. New York: Bantam Books. 1995.

The Meditative Mind. New York: Putnam Publishing Group. 1996.

Bede Griffith: Anglican priest, who explored Eastern spirituality and shared his selections from the wisdom literature

Universal Wisdom: A Journey Through the Sacred Wisdom of the World. London: Harper Collins. 1994.

Doug Hall: Master of the creative process, adventurer, and motivator of young people; someone who helps us get beyond our fear of acting boldly in the world

Making the Courage Connection: Finding the Courage to Journey from Fear to Freedom. New York: Fireside Books. 1998.

Jon Kabat–Zinn: Pioneer in the use of mindfulness meditation for healing, stress reduction, and pain management

Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life. New York: Hyperion. 1994.

Michael Lerner: Editor of *Tikkun* magazine, Rabbi of Beyt Tikkun Synagogue in San Francisco, and integrator of personal growth and social change

> *Spirit Matters: Global Healing and the Wisdom of the Soul.* Charlottesville, VA: Hampton Roads Publishing Company. 2000.

Copthorne Macdonald: Student of reality and author of books on wisdom and personal/societal transformation

> *Toward Wisdom: Finding Our Way to Inner Peace, Love & Happiness.* Lincoln, NE: iUniverse. Chapter 9, dealing with the broadening of awareness and identity, is available on line at http://mattersofconsequence.com/twch9.html. Info and other excerpts at http://www.cop.com/twinfo.html.

> *Getting a Life: Strategies for Joyful and Effective Living.* Lincoln, NE: iUniverse. Info and excerpts at http://www.cop.com/glinfo.html.

Abraham H. Maslow: Visionary psychologist and a founder of the human potential movement

> *The Farther Reaches of Human Nature.* New York: The Viking Press. 1971.

> *Toward a Psychology of Being.* 2nd Edition. New York: D. Van Nostrand. 1968.

> *Motivation and Personality.* New York: Harper and Row. 1954.

Milton Mayeroff: Philosopher and author of a wonderful book on the role of caring in the fulfilled life

> *On Caring.* New York: HarperCollins. 1990 [1971].

Stephen Mitchell: Translator of spiritual works, who translates brilliantly because he has spent time in the mental spaces the ancients wrote about

> *Tao Te Ching: A New English Version.* With foreword and notes by Stephen Mitchell. New York: Harper & Row. 1988.

> *The Enlightened Mind: An Anthology of Sacred Prose.* Edited by Stephen Mitchell. New York: Harper Collins. 1991.

> *The Enlightened Heart: An Anthology of Sacred Poetry.* Edited by Stephen Mitchell. New York: Harper Collins. 1989.

Nisargadatta Maharaj: Practitioner of Advaita Vedanta, who lived in full identification with Spirit/Being/the Absolute

> *I Am That: Conversations with Sri Nisargadatta Maharaj.* 3rd Edition. Durham, NC: Acorn Press. 1986.

Larry Rosenberg: Founder of the Cambridge (MA) Insight Meditation Center and superb vipassana teacher

> *Breath by Breath: The Liberating Practice of Insight Meditation.* Boston: Shambhala. 1998.

John Stewart: Evolutionist and insightful commentator on the relationship of physical and psychological evolution to humanity's future

> *Evolution's Arrow: The Direction of Evolution and the Future of Humanity.* Canberra: The Chapman Press. 2000. Check:
> http://www4.tpg.com.au/users/jes999/.

> "Future Psychological Evolution." *Dynamical Psychology: An International, Interdisciplinary Journal of Complex Mental Processes.* Check:
> http://www.goertzel.org/dynapsyc/dynacon.html.

> "The Evolutionary Significance of Spiritual Development." Check:
> http://www4.tpg.com.au/users/jes999/EvSpirit.htm.

Ken Wilber: Generalist, synthesizer, and practitioner of deep understanding par excellence

> *A Theory of Everything: An Integral Vision for Business, Politics, Science, and Spirituality.* Boston: Shambhala. 2000.

> *Integral Psychology: Consciousness, Spirit, Psychology, Therapy.* Boston: Shambhala Publications. 2000.

> *The Eye of Spirit: An Integral Vision for a World Gone Slightly Mad.* Boston: Shambhala. 1997.

> *No Boundary: Eastern and Western Approaches to Personal Growth.* Boston: Shambhala Publications. 1981.

DZOGCHEN PRACTICE

Taking slightly different approaches and slants, the following books present the essentials of Dzogchen philosophy and practice. An excellent start is Sogyal Rinpoche's *The Tibetan Book of Living and Dying.* It is a comprehensive book, by a highly respected contemporary teacher, that discusses both Dzogchen and preparatory practices.

Keith Dowman (translator)

> *The Flight of the Garuda.* Boston: Wisdom Publications. 1994.

Namkhai Norbu. (**John Shan**, translator)

> *Dzogchen: The Self–Perfected State.* London: Arkana. 1989.

John Myrdhin Reynolds (translator and commentary)

> *Self–Liberation Through Seeing with Naked Awareness.* Barrytown, NY: Station Hill Press. 1989.

Sogyal Rinpoche

The Tibetan Book of Living and Dying. San Francisco: Harper San Francisco. 1993.

Tulka Urgyen Rinpoche

Rainbow Painting. Hong Kong: Rangjun Yeshe Publications. 1995.

Internet Resources

Ikosmos.com: "Dedicated to honoring the integral worldview…our mission is to help you define it and share it in a highly interactive community, through an online union of souls." The site features the online publication *Integral Edge Journal.*

> Home page   http://www.ikosmos.com/
> Journal   http://www.ikosmos.com/journal/

Integral Age: Hosts a website "dedicated to the notion that human consciousness evolves through specific stages, individually and culturally, and that we are collectively in the throes of an emerging integral consciousness." The site is described as "an *aperspectival* space, beyond the fixed focus of any one worldview, where leading thinkers on an emerging modality of consciousness…can share their visions and projects for an unfolding integral culture.…"

> http://www.integralage.org/

Integralis: Journal of Integral Consciousness, Culture, and Science: A multidisciplinary, peer–reviewed publication, exploring the emerging field of integral studies. The online issue is free and contains some of the papers published in the print journal, which is subscription–based.

> http://www.integralage.org/scripts/catheader.asp?catid=14

Mighty Companions: "Dedicated to encouraging the awareness of ourselves as a One Life. We produce events and projects and communications to support a shift of consciousness from outer focus to inner, from separation to union."

> http://www.mightycompanions.org/

New Dimensions World Broadcasting Network: "strive[s] to provide listeners with practical knowledge and perennial wisdom. We foster living a more healthy life of mind, body and spirit while deepening our connections to self, family, community, the natural world and the planet."

> http://www.newdimensions.org/

Stephen Palmquist: Brings a wisdom focus to his online book *The Tree of Philosophy: A Course of Introductory Lectures for Beginning Students of Philosophy*

> http://www.hkbu.edu.hk/~ppp/top/toc.html

Realization.org: Website "devoted to techniques for finding enlightenment. We provide information about yoga, meditation, enquiry, discrimina-

tion, and anything else that works. To us, enlightenment means becoming free of the ego. We do not identify with any particular guru, sect, or religion. We are interested in all traditional and modern approaches." Presents worthwhile online texts from many traditions.

http://www.realization.org/

Union of International Associations: presents analyses and creative ideas from thousands of intergovernmental and tens of thousands of nongovernmental organizations in its hyperlinked online databases. Particularly relevant to inner development are the free "human values" and "human development" databases.

http://www.uia.org/services/databases.php

The Wisdom Channel: "Informs, entertains, and empowers, by showcasing human values and the impact of the mind–, body–, and spirit–connection on individuals and the global community." Wisdom Radio and Wisdom TV are distributed by satellite and some cable systems, and thanks to RealPlayer™ technology, both are now available on the Internet.

Television	http://www.wisdomchannel.com/wisdomtv.ram
Radio	http://www.wisdomchannel.com/wisdomradio.ram
General info	http://www.wisdomchannel.com/

The Wisdom Page: "A compilation of wisdom–related resources: various online texts concerning wisdom, references to books about wisdom, information about organizations that promote wisdom, wise activities, and listserv groups concerned with aspects of wisdom"

http://www.cop.com/wisdompg.html

(Also, see Online Meditation Course, below.)

Meditation Centers and Resources

VIPASSANA

When it comes to actually exploring the territory of the mind, a powerful tool is the practice developed by that consummate introspective psychologist, the Gautama Buddha, called *vipassana*, *insight*, or *mindfulness* meditation. Daily sittings at home plus occasional intensive retreats make up an investigative regime that many have found highly effective.

Insight Meditation Society: Offers weekend, nine–day, and three–month vipassana meditation retreats in an ideal environment: 1230 Pleasant Street, Barre, Massachusetts 01005. Phone: 798–355–4378

http://www.dharma.org/ims/index.htm

Vipassana Centers, Teachers, and Online Resources: Guide to vipassana retreats and instruction around the globe, associated with the Insight Meditation Society

http://www.dharma.org/

Vipassana Meditation Centers: Presenting the practice as taught by S.N. Goenka

http://www.dhamma.org/centers.htm

Online Meditation Course: Free web–based instruction, but requires a serious ten–week commitment to actual practice

http://www.vipassana.com/course/index.html

DZOGCHEN

As indicated earlier, Dzogchen is a highly effective practice for developing nondual cognition.

Dzogchen Community in America: "Established in 1982, in Conway, Massachusetts, by the Dzogchen Master, Choegyal Namkhai Norbu. Tsegyalgar is the name of the main seat in North America and is part of the worldwide Dzogchen Community International. Other regional centers (Gars) are: Merigar in Italy, Tashigar in Argentina, and Namgyalgar in Australia."

http://www.tsegyalgar.org/

Dzogchen Foundation: "Dzogchen—the 'Innate Great Perfection' is the heart–essence teaching of the nonsectarian practice lineage of Tibetan Buddhism."   Phone: 617–628–1702, option 2.

http://www.dzogchen.org/

Rigpa: "An international network of meditation centers and groups under the guidance of Sogyal Rinpoche"

http://www.rigpa.org/

INTEGRATING THE INNER AND THE OUTER

Resources for creativity and innovation: an excellent creativity site.

http:/members.ozemail.com.au/~caveman/Creative/index2.html

Satyana Institute: "A nonprofit training organization. Our mission is to support individuals, communities, and organizations to combine inner work of the heart with outer service in the world"   http://www.satyana.org/

Some Organizations Working Toward a Sustainable and More Equitable World

An updated version of the list below—complete with clickable links—is on line at <http://www.wisdompage.com/ngolist.html>

Business and the Economy

Alliance for a Caring Economy: Wants "to change the rules by which our economic systems operate, so we value caring and caretaking; recognize and reward the individuals and organizations which provide caring; and promote a shift from uncaring to caring throughout society"

http://www.globalff.org/ace/

The Alliance for Democracy: "A new Populist movement—not a political party—setting forth to end the domination of our economy, our government, our culture, our media, and the environment by large corporations. We aim to promote true democracy in our country and [to] help achieve a just society with a sustainable, equitable economy. We work together with other organizations, both here and abroad, who share these goals."

http://www.thealliancefordemocracy.org/

Ashoka: "Identifies and supports leading social entrepreneurs around the world. These practical visionaries have the entrepreneurial drive and creativity to transform the systems in their respective societies in order to bring about large scale social change."

http://www.ashoka.org/

Center for the Advancement of Public Policy: "Fosters equitable, democratic, and humane management in government, corporations, and other organizations; seeks the elimination of prejudice, sexism, and discrimination in the workplace and in society; and promotes democratic government through research, investigation and education"

http://www.capponline.org/

Center for Economic and Social Justice: "Promotes a free enterprise approach to global economic justice through expanded capital ownership"

http://www.cesj.org/

Coalition for Environmentally Responsible Economies (CERES): "A nonprofit coalition of investors, public pension funds, foundations, labor unions, and environmental, religious and public interest groups, working in partnership with companies toward the common goal of environmental responsibility worldwide"

http://www.ceres.org/

CorpWatch: "CorpWatch counters corporate–led globalization through education and activism. We work to foster democratic control over corporations by building grassroots globalization—a diverse movement for human rights, labor rights and environmental justice."

http://www.corpwatch.org/

Global Business Network: "A unique network of organizations and individuals committed to reperceiving the present in order to anticipate the future and better manage strategic response"

http://www.gbn.org/

International Forum on Globalization: "Advocates equitable, democratic, and ecologically sustainable economics. It is formed in response to the present worldwide drive toward a globalized economic system dominated by supranational corporate trade and banking institutions that are not accountable to democratic processes or national governments. These current trends toward globalization are neither historically inevitable nor desirable."

http://www.ifg.org/

International Society for Ecological Economics (ISEE): "Dedicated to advancing understanding of the relationships among ecological, social, and economic systems for the mutual well–being of nature and people"

http://ecologicaleconomics.org/

Media Foundation: "A global network of artists, writers, students, educators, and entrepreneurs who want to launch the new social activist movement of the information age. Our goal is to galvanize resistance to those who would destroy the environment, pollute our minds and diminish our lives. To this end, the Media Foundation publishes *Adbusters* magazine; operates this website; and offers its creative services through PowerShift, our advocacy advertising agency."

http://www.adbusters.org/

National Center for Employee Ownership: "A private, nonprofit membership and research organization that serves as the leading source of accurate, unbiased information on employee stock ownership plans (ESOPs), broadly granted employee stock options, and employee participation programs"

http://www.nceo.org/

New Economics Foundation: "The New Economics Foundation (NEF) works to construct a new economy centred on people and the environment."

http://www.neweconomics.org/

Social Venture Network: "Has advanced the movement for social responsibility in business and played a role in creating a more just, humane and sustainable society"

http://www.svn.org/

United for a Fair Economy: "A national, independent, nonpartisan organization that puts a spotlight on the dangers of growing income, wage and wealth inequality in the United States and coordinates action to reduce the gap"

http://www.ufenet.org/

Sustainable Economics Links: A Cultural Creatives list

http://www.culturalcreatives.org/economics.html

World Business Council for Sustainable Development (WBCSD): "A coalition of 125 international companies united by a shared commitment to the environment and to the principles of economic growth and sustainable development"

http://www.wbcsd.ch/

Community—Local and Global

Community Action Links: A Cultural Creatives list

http://www.culturalcreatives.org/community.html

The Co-Intelligence Institute: "exists to catalyze the sustainability and conscious evolution of human culture. ... Ultimately, the goal of the CII is *the conscious evolution of culture in harmony with nature and with the highest human potentials.*"

http://www.co-intelligence.org/

Context Institute: "Since 1979…exploring and clarifying just what is involved in a humane sustainable culture—and how we can get there." Publisher of *In Context,* an online journal dealing with humane sustainable culture. Back issues available on line.

http://www.context.org/

Cultural Creatives: "The purpose of this website is to give you more information about the Cultural Creatives, including whether you are one. The story of the Cultural Creatives is the story of a whole culture, so one option you'll have on this site is to see the big picture. And it is also a personal story of how people choose a new life path, leaving behind old values and beliefs, picking and choosing their way to a new kind of life."

http://www.culturalcreatives.org/

Foundation for Conscious Evolution: Provides "a new context to 'converge that which is emerging' and to invite everyone to participate more fully in the cocreation of a future equal to our spiritual, social, and scientific capacities"

http://www.consciousevolution.net/

Foundation for Global Community: "Our mission is to contribute to an evolution of cultural values, from today's dominant focus on 'more,' on growth and materialism, to an emphasis on 'enough,' on quality and excellence of spirit. Our goal is a culture that works for the diversity and sustainability of all life."

http://www.globalcommunity.org/

Idealist: Links to 15,000 organizations

http://www.idealist.org/

Institute for Agriculture and Trade Policy: [Whose] "mission is to create environmentally and economically sustainable rural communities and regions through sound agriculture and trade policy"

http://www.iatp.org/

Institute for Local Self-Reliance: "A nonprofit research and educational organization that provides technical assistance and information on environmentally sound economic development strategies"

http://www.ilsr.org/

Institute for Policy Studies: "The purpose of this website is to provide resources for local elected officials (LEOs), scholars, and activists on economic and environmental policies to help make their communities more self-reliant and sustainable."

http://www.ips-dc.org/

New Civilization Network: "is a meeting place for people of good will who are working on building a world that works for all of us."

http://www.newciv.org/

One World: "is an internet community of over 1,250 organisations leading the way for human rights and sustainable development worldwide." (Find links to the partner organizations at http://www.oneworld.net/partners/)

http://www.oneworld.net/

Project Heaven on Earth: "A partnership of people committed to making our home planet work. We offer a doorway through which you can make your own unique contribution to creating Heaven on Earth. We'll help you discover and clarify your contribution. We'll connect you with others from around the world who share your interest and your gift."

http://www.projectheavenonearth.com/

Public Citizen: "The consumer's eyes and ears in Washington. With the support of more than 150,000 people like you, we fight for safer drugs and medical devices, cleaner and safer energy sources, a cleaner environment, fair trade, and a more open and democratic government."

http://www.citizen.org/

Reworking Tomorrow: a discussion–focused Australian organization that has created an excellent guide to organizing change-oriented conversational groups of many kinds, including focus groups and study circles. Their guide, *Clues on Conversations*, is available on line at

http://www.resilientcommunities.org/articles/clues.htm

Search Institute: "An independent, nonprofit organization committed not only to contributing to the knowledge base about youth development, but also committed to translating high–quality research on children and youth into practical ideas, tools, services, and resources for families, neighborhoods, schools, organizations, and communities."

http://www.search-institute.org/

Sustainable Communities Network: "Linking citizens to resources and to one another to create healthy, vital, sustainable communities"

http://www.sustainable.org/

Talking and Thinking with Each Other links: A Cultural Creatives list

http://www.culturalcreatives.org/talkingandthinking.html

Women of Vision and Action (WOVA): "A worldwide network of emerging and established women leaders from all backgrounds who are dedicated to a vision of positive change for the future and who are actively involved in making their visions real in the world."

http://www.wova.org/

World Citizen Foundation: "The most comprehensive list of resources on world citizenship, world government, and world law found anywhere in the world"

http://www.worldcitizen.org/

Conservation and the Environment

Earth Island Institute: "Fosters the efforts of creative individuals by providing organizational support in developing projects for the conservation, preservation, and restoration of the global environment. EII provides activists the freedom to develop program ideas, supported by services to help them pursue those ideas, with a minimum of bureaucracy."

http://www.earthisland.org/

Ecotrust: "Support[s] the emergence of a conservation economy in the coastal temperate rain forest region of North America"

http://www.ecotrust.org/

Envirolink: "The online environmental community"

http://www.envirolink.org/

Environmental Defense Fund: "The Environmental Defense Fund is a not–for–profit environmental advocacy group with four main goals: 1) stabilizing the Earth's climate; 2) safeguarding the world's oceans; 3) protecting human health; and 4) defending and restoring biodiversity."

http://www.edf.org/

Environmental Research Foundation: "Providing understandable scientific information about human health and the environment"

http://www.rachel.org/

Friends of the Earth: "A national environmental organization dedicated to preserving the health and diversity of the planet for future generations. As the largest international environmental network in the world, with affiliates in sixty-three countries, Friends of the Earth empowers citizens to have an influential voice in decisions affecting their environment."

http://www.foe.org/

Preservation Institute: "Dedicated to developing a new politics that recognizes the limits of technology"

http://www.preservenet.com/

Sierra Club: "Inspired by nature, we work together to protect our communities and the planet." Founded in 1892, the 700,000 member Sierra Club refers to itself as "America's oldest, largest and most influential grassroots environmental organization."

http://www.sierraclub.org/

World Conservation Union: "A union of governments, government agencies, and non-governmental organizations working at the field and policy levels, together with scientists and experts, to protect nature"

http://iucn.org/

Global Ethics

The Club of Budapest: "An international association dedicated to developing a new way of thinking and a new ethics that will help tackle the social, political, economic, and ecological challenges of the 21st century." Members of this prestigious organization include the Dalai Lama, Mikhail Gorbachev, Vaclav Havel, Desmond Tutu, Elie Wiesel, and other prominent people who are concerned about these issues.

http://www.club-of-budapest.org/

The Earth Charter Initiative: "For over a decade diverse groups throughout the world have endeavored to create an Earth Charter that sets forth

fundamental ethical principles for a sustainable way of life. Hundreds of groups and thousands of individuals have been involved in the process." Charter drafts in many languages and current information about the charter is available at:

> http://www.earthcharter.org/

Global Problems and Solutions

Best Practices Database: "is a joint product of UN-HABITAT and The Together Foundation" that "contains over 1600 proven solutions from more than 140 countries to the common social, economic, and environmental problems of an urbanizing world. It demonstrates the practical ways in which public, private and civil society sectors are working to improve governance, eradicate poverty, provide access to shelter, land and basic services, protect the environment and support economic development." Project summaries can be viewed at no cost; full details require a paid subscription.

> http://www.bestpractices.org/

The Center for Visionary Leadership: seeks "to develop and support values-based visionary leadership in all fields of human endeavor" by "developing a new political process that goes beyond left and right and finds common ground on divisive issues." Of particular interest is their extensive collection of **Best Practices** — innovative solutions to social problems — at:

> http://www.visionarylead.org/coc_main.htm

Institute for Global Creative Perspective: was established "to engage in action research and to provide education, training, and resources for the emerging 'Globally Aware Citizen Actor' in the transforming world of the 21st Century." Their Web site offers "insights and resources to citizens and NGOs who wish to learn more about why the present mode of globalization is coming under attack and how to become involved, to become aware of the global alternatives, and to discover and engage in strategies for transformation personally, locally and globally."

> http://www3.ns.sympatico.ca/jmeaton/about.htm

International Crisis Group: is "an independent, non-profit, multinational organisation, with over 80 staff members on five continents, working through field-based analysis and high-level advocacy to prevent and resolve deadly conflict…. ICG's approach is grounded in field research. Teams of political analysts are located within or close by countries at risk of outbreak, escalation or recurrence of violent conflict. Based on information and assessments from the field, ICG produces regular analytical reports containing practical recommendations targeted at key international decision–

takers." ICG is jointly funded by a large group of foundations, individuals, and national governments, and its reports provide a detailed look at crisis situations from a solution-oriented perspective.

http://www.crisisweb.org/

The Millennium Project: of the American Council for the United Nations University is "an international utility to assist in organizing futures research by continuously updating and improving humanity's thinking about the future and making that thinking available for feedback as a geographically and institutionally dispersed think tank." This rich fund of information is available from the Project's superbly organized **Futures Matrix** at:

http://www.acunu.org/millennium/information.html

The Union of International Associations: presents analyses and creative ideas from thousands of intergovernmental and tens of thousands of non-governmental organizations in its hyperlinked online databases. Particularly relevant to the world problematique are their free "world problems/issues" and "strategies/actions" databases:

http://www.uia.org/services/databases.php

The Integral Approach

Aurora Now Foundation: has as its mission inspiring people "to use their unique skills, perspectives and gifts in a collaborative way to creatively address complex, interconnected problems from a more holistic perspective. And through this collaboration to help youth, their families, organizations and communities co-create healthy and sustainable futures.

http://www.auroranow.org/

Integral Age: "An *aperspectival* space, beyond the fixed focus of any one worldview, where leading thinkers…share their visions toward an unfolding integral culture." The site is associated with *Integralis: Journal of Integral Consciousness, Culture, and Science* (see below).

http://www.integralage.org/

Integral Edge Journal: The online journal of ikosmos.com

http://www.ikosmos.com/journal/

Integral Institute: "Dedicated to the proposition that piecemeal approaches to the world's problems…not only no longer help but often compound the problem, and they need to be replaced by approaches that are more comprehensive, systematic, encompassing—and integral. Integral Institute functions as a network of many of the most highly influential integral theorists now working, an information clearinghouse, a source of funding for integral research, and a coordinating center for thousands of integral researchers from around the world."

http://wilber.shambhala.com/html/books/formation_int_inst.cfm/xid,8287/yid,9296268

Integralis: Journal of Integral Consciousness, Culture, and Science: An online and print journal that seeks to present the latest in all aspects of integral thought: Kosmos, Spirit, Psyche, Culture, Science, Society, Nature.

http://www.integralage.org/scripts/catheader.asp?catid=14

The Network for Creative Change: "change based on a systemic perspective which views the world as interconnected, the whole as greater than the parts, the intuitive as important as the rational, [and] all knowledge as interrelated…" A highly useful, multifaceted resource.

http://www.chebucto.ns.ca/CommunitySupport/NCC/WELCOME.html

Union of International Associations: presents analyses and creative ideas from thousands of intergovernmental and tens of thousands of nongovernmental organizations in its hyperlinked online databases. Of particular interest are the free "world problems/issues," "strategies/actions," "human values," and "human development" databases:

http://www.uia.org/services/databases.php

Political Reform

Center for Responsive Politics: "The online source for money in politics data."

http://www.opensecrets.org/

The Center for Visionary Leadership: seeks "to develop and support values-based visionary leadership in all fields of human endeavor" by "developing a new political process that goes beyond left and right and finds common ground on divisive issues."

http://www.visionarylead.org/

Center for Voting and Democracy: "Researches and disseminates information on how voting systems affect voter participation, accountable governance, and fair representation"

http://www.fairvote.org/

Council of Canadians: "Canada's pre-eminent citizens' watchdog organization, comprised of over 100,000 members and 50 chapters across the country. Strictly nonpartisan, the Council lobbies Members of Parliament, conducts research, and runs national campaigns aimed at putting some of the country's most important issues into the spotlight…"

http://www.canadians.org/

Independent Progressive Politics Network: "Building a unified, independent, progressive alternative to the corporate-controlled, Democratic/Republican political/economic system"

http://www.ippn.org/

Public Campaign: "Real solutions to clean up the campaign finance mess in this country [USA]"

http://www.publiccampaign.org/

Sustainability

Awakening Earth: Founded by Duane Elgin, "the purpose of this site is to provide knowledge resources that foster a sustainable, compassionate, and creative future."

http://www.awakeningearth.org/

CALResCo.org: "A non-profit organisation dedicated to promoting the wider aspects of the Complex System sciences by education, synthesis and by the integration of the theories into the mainstream viewpoints of arts, philosophy and science." Directly related to sustainability is their *Action* page, "an attempt to make explicit the contributions systems theory can make to creating wisdom in our behaviours."

Home page	http://www.calresco.org/
Action page	http://www.calresco.org/action.htm

Center for Economic and Social Studies on the Environment: Maintains this extensive set of links to online sustainable development resources

http://www.ulb.ac.be/ceese/nouveau%20site%20ceese/versionen/links.htm

Communications for a Sustainable Future: "CSF was founded on the idea that computer networking could be used to enhance communications, with the objective of working through disparate views and ideologies to secure a more promising future." An exceptionally rich source of sustainability–related links.

http://csf.colorado.edu/

Energy Foundation: "A partnership of major foundations interested in sustainable energy"

http://www.energyfoundation.org/

Factor 10 Institute: "...created to provide practical support for achieving significant advances in resource productivity in the production and consumption sectors…"

http://www.factor10-institute.org/

International Center for Technology Assessment: "A non-profit, bipartisan organization committed to providing the public with full assessments and analyses of technological impacts on society"

http://www.icta.org/

International Institute for Sustainable Development: A Linkages site; "a multimedia resource for environmental and development policy makers"

http://www.iisd.ca/

Loka Institute: "Making Research, Science & Technology Responsive to Democratically Decided Social & Environmental Concerns"

http://www.loka.org/

People & the Planet: "Peopleandplanet.net provides a global review and internet gateway into the issues of population, poverty, health, consumption, and the environment. …Launched in September 2000, this website originates from *People & the Planet*, the acclaimed quarterly international magazine, which was launched at the Earth Summit in Rio, in 1992."

http://www.peopleandplanet.net

Positive Futures Network: "Dedicated to supporting peoples' active engagement in creating a more sustainable, just and compassionate world. PFN is the publisher of ***Yes!** A Journal of Positive Futures*."

http://www.futurenet.org/

Redefining Progress: "Working within and beyond the traditional economic framework, RP generates and refines innovative policies and ideas that balance economic well-being, the environment, and social equity, so that those living today and those who will come in the future can have a better quality of life." RP is deeply involved with both the GPI and Ecological Footprint indicators, and this website presents information on both.

http://www.rprogress.org/

Renewable Energy Policy Project: "a pioneering force publishing information about renewable energy, energy efficiency and sustainability available on the Internet."

http://www.crest.org/

Resource Renewal Institute: "RRI's main role is to promote the implementation of green plans—long–term, comprehensive strategies designed to achieve sustainability."

http://www.rri.org/

Rocky Mountain Institute: "A nonprofit research and educational foundation with a vision across boundaries. Its mission is to foster the efficient and sustainable use of resources as a path to global security."

http://www.rmi.org/

SD Gateway: "Integrates the online information developed by members of the Sustainable Development Communications Network—a group of nongovernmental organizations working together to find ways of using the Internet to meet the goals of sustainable development." Excellent resource; many links to organizations and articles.

http://www.sdgateway.net/

Smart Communities Network: A U.S. Department of Environment site that provides "useful information to help you understand the concept of

sustainable development. You'll find overview articles, slide shows, links to other sources of information, recommended books and videos, and educational materials and programs that can help your community in its sustainable development efforts."

http://www.sustainable.doe.gov/

Sustainable Living Network: "An informal affiliation of people in the United States and around the world who seek to deepen their understanding and practice of sustainable living." A gold mine of sustainability information.

http://www.sustainableliving.org/

World Resources Institute: "Believes a healthy environment and healthy economy can coexist. Since 1982, we have used information and knowledge as tools to move human society to live in ways that protect Earth's environment and its capacity to provide for the needs and aspirations of current and future generations."

http://www.wri.org/

Worldwatch Institute: "A nonprofit public policy research organization dedicated to informing policymakers and the public about emerging global problems and trends and the complex links between the world economy and its environmental support systems"

http://www.worldwatch.org/

Voluntary Simplicity

Center for a New American Dream: "Helps individuals and institutions reduce and shift consumption to enhance our quality of life and protect the environment"

http://www.newdream.org/

Living More Lightly Links: A Cultural Creatives list

http://www.culturalcreatives.org/livinglightly.html

The New Road Map Foundation: "Provides people with practical tools and innovative approaches for managing and mastering basic life challenges. Our name reflects the fact that people need new ways to navigate the road of life—ways based on a vision of a cooperative human community in a diverse yet interconnected world."

http://www.newroadmap.org/

Personal Action Links: A Cultural Creatives list

http://www.culturalcreatives.org/personal.html

The Simple Living Network: "An online service containing thousands of pages of information about publications and tools for those wanting to

learn how to live a more conscious, simple, healthy, and restorative life-style."

http://www.simpleliving.net/

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INDEX

About the Author

Copthorne Macdonald is a writer, independent scholar, and former communication systems engineer. He writes about the nature and development of wisdom, new perspectives on mental and physical reality, and creating a sustainable future. His published works include seven books (two on the subject of wisdom) and over 130 articles, reviews, and column installments. He developed the slow-scan TV system used worldwide in amateur radio, founded New Directions Radio to foster socially-relevant communication, established an Internet-based compilation of wisdom related resources called THE WISDOM PAGE (http://www.wisdompage.com/) and has done extensive educational work in the field of energy alternatives and energy conservation. Formerly a columnist with two U.S. national magazines and Associate Editor of one of them, he was appointed to the Editorial Board of *Integralis: Journal of Integral Consciousness, Culture, and Science.* His engineering-related positions in the U.S. included Project Manager, Visual Communication and Display, at Westinghouse Electric Corp. in Pittsburgh; Manager of the Electronic Design Department at Ball Brothers Research Corporation in Boulder Colorado; and Director of Research at Vidcom Electronics in New York City. He is a citizen of both the U.S. and Canada, and lives in Prince Edward Island, Canada. Additional details about his life and work can be found at http://www.wisdompage.com/aboutcop.html.

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