



# **B**uilding a **B**etter **B**ridge to our peaceful and sustainable future

# A. Nicholas Frank

### This project is dedicated to

Dr. László Frank and Cecilia Berger

Their spirit and heroism are my guiding star.

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Published by Holigent Transition to Peace and Sustainability Org Los Angeles, California

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# Words Up Front

### **Do or Die!**

"If we don't take action the collapse of our civilizations and the extinction of much of the natural world is on the horizon."

Sir David Attenborough

The challenge of civilizations is to find the key that opens the door to the domain of peaceful sustainability. The purpose of this book is to encourage individuals, organizations and governments to pursue programs that will build a better bridge to our future.

Awareness Revolution is offering several proposals that may open the gate to a hopeful future in which humanity will survive and thrive on Earth; the only warm, wet and green habitable home we have in the universe

#### About this writing

This is part storytelling and part Q&A between me, the senior citizen who's seen it all, and the eight-year-old kid that lives in me — taking a ride through life, asking new and interesting questions.

The early question of the eight-year-old kid in me seeing Budapest bombed to rubble — *Why would grownups destroy a beautiful city and kill innocent people?* — keeps coming up every day. I see images of devastation of the war in Ukraine and other places in the world.

Lately that kid is pressing me with the question: Why would grownups cause climate catastrophes, damage and deplete Earth's life-support capacity, and destroy our only habitable home in the known universe?

I was a curious teenager, often staring into the dark sky, looking at the countless stars, hoping one day to learn about that distant mystery. I was 14 when the learning began as I started attending lectures at the observatory, near our home in Budapest. Looking through telescopes, I learned about astronomy, and I also began a lifelong self-education about the cosmos, galaxies, stars, and planets, particularly our warm, wet, and green Earth. Later I will invite you to join me in an exploratory journey into the cosmos to find answers to the question of how to build a better bridge to our future of universal quality of life, global peace, and systemic sustainability.

#### **About Holigent**

The word *Holigent* is coined from *holistic and emergent*; it stands for a concept of human societal reconstruction compliant with nature's building and sustainability code in pursuit of social, economic, and environmental justice; quality of life; and systemic sustainability. Holigent is capitalized as a reminder of its registered trademark status to protect its integrity in the service of the common good.

#### About the flaws in this writing

This book is written in "Hunglish" (Hungarian-English ;-) and self-published. Correcting grammatical errors is low on my list of priorities in our conflicted and endangered world. The window of opportunity to save the habitability of our planet is closing faster than we could comfortably contemplate. There is no time to perfect grammar and design; it's the message that matters.

#### About repetitions

Evolution holds that the highest survival skills are learned by repetitions. To build a peacefully sustainable world on our endangered planet requires a skill yet to be learned. Skills such as riding your bike cannot be learned from books alone. To reconstruct our damaged world to make it peaceful and sustainable requires new skills we need to learn and practice — skills best learned through repetition. You will find this repetitive practice repeatedly in this writing.

#### The core concept

This book explores the relationships between stress, human behavior, and quality of life. Rising global stress is depressing quality of life around the globe and deteriorating world order. There is no existing cure for this condition. If left untreated it will lead to the catastrophic collapse of civilization. There is no shortcut to global peace and systemic sustainability. Elevating universal quality of life may be our only option to reduce global socioeconomic stress that will lead in time to peaceful sustainability — for that we need an Awareness Revolution.

# **Awareness Revolution Primer**

To help introduce Awareness Revolution in high school and college classrooms as a tool for building a better bridge to our peaceful and sustainable future.

## Why do it?

a) Because our 'civilization': *Globally conflicted; techno-industrial; extractive capitalist-consumerist; military-industrial complex* — is not sustainable.

b) Because our educational system: From first grade to higher education is preparing students (all of us) to be 'successful' producer/consumers to maximize our earning and achieve high GDP for our community/country — is not sustainable.

c) Because our political system: *From local to national is trying to fix complex problems with the simple tool of right or left politics.* Like a plumbers wrench (aka monkey wrench) is the wrong tool for trying to fix your broken computer. The political left/right monkey wrench is the wrong tool for attempting to elevate quality of life for all and build a peaceful and sustainable future.

d) Because *protest* or *petition* by young and old expecting politicians to fix the problems of society is like expecting a plumber to fix your computer — it is beyond their skillsets.

e) Because: In the wake if all the unresolved problems of the world global socioeconomic stress is rising. High stress turns on anger and fear and turns off rational thought process. In the 20<sup>th</sup> century this resulted in two world wars. In the nuclear-armed 21<sup>st</sup> century it will result in MAD (Mutually Assured Destruction) aka nuclear Armageddon.

### **The Roots**

The roots of the idea for Awareness Revolution as a preparation for Holigent societal reconstruction — building a future of universal quality of life, global peace, and systemic sustainability — go back to 1945.

At the end of World War II, my mother, sister, and I climbed out of the deep shelter under the old fort of Buda and I saw Budapest bombed to rubble. My eight-year-old self asked: *Why would grownups destroy a beautiful city and kill innocent people?* 



I devoted much of my life to searching for the answers to that and many other questions. I suspected that the educational system offered no formal classes in *'healing and saving the world*.' Therefore, I created my own path to understanding.

My 'political science' class, if you can call it that ;-), started in 1944 as the Nazis were hunting us. I have vivid memories of hiding in hot and creaky attics and wet foul cellars sharing the space with rats. As a seven-year-old, I experienced the consequences of extreme right politics.

Fascism was defeated in the bloody battles of World War II. As an attempt to compensate for the wrongs of the extreme right, the political pendulum swung to the extreme left. As part of communism's clumsy attempt at wealth redistribution without compensation, the beautiful and fertile farm I inherited from my grandfather was confiscated. In the end, communism was not defeated in an epic battle, but collapsed peacefully under the weight of its own stupidity.

Following the war, Hungary had few cars or trucks; horse-drawn carts provided the transportation. At first I did not understand why all the horses were equipped with blinders. Of course it is to narrow their vision so they walk straight, undistracted by events all around them.

Why humans wear invisible blinders to narrow their awareness is much more difficult to explain. It may be an attempt to protect against the stress and challenges of life. However, the narrowing of awareness is counter-productive, because it limits our understanding of life and a society that is inherently complex. The narrowing of awareness and understanding of the ever-expanding complexity of life, society, and interactions with the natural world is endangering the future of humanity.

## What to do?

My understanding of stress began during the mid-1970s in an evening class at Beverly Hills High School, as I listened, sitting on the edge of my seat, to Dr. Sydney Walter's introduction to psychology, stress, and human behavior. He recommended the book *The Stress of Life* by Hans Selye.

On an early summer afternoon in Palm Springs, California, sitting in the shade of a tangerine tree, I was reading *The Stress of Life*. That is where my learning about the significance of stress on individuals and on societal behavior began. I devoted the following ten years to practicing and helping others with stress management.



Build a better bridge to our future

To understand stress, my awareness had to go back millions of years. In the dangerous world of the evolutionary jungle, our ancestors had to make split-second reflexive decisions without thought processes (there was no time for thinking) to fight or flee in order to stay alive. The human stress response is deeply embedded in our neuroendocrine system; it cannot be surgically corrected or removed.

High stress still turns on aggression and turns off reason (rational thought processing) — a deadly legacy from our early evolution, in this nuclear armed  $21^{st}$  century.

The question of the eight-year-old in me continued to grow without answers and became as tall as a mountain, so I realized that the mountain I had to climb required serious preparation. This is how I decided to pack up my family — my wife, Marsha, and our two toddlers — in 1985 to fly to Amsterdam. That is how my serious thought and our year-and-a-half RV camping trip around Europe started (Amsterdam, Berlin, Prague, Vienna, Budapest, Belgrade, Venice, Paris, London, and places in between).

I came to understand that building quality of life and a peacefully sustainable world is outside the skill sets of politicians; therefore, protest is a mostly futile exercise. Solutions lie deep in the understanding of human behavior, in understanding the flaws in the philosophical foundations of societies and our evolutionary legacy of stress response.

I began to read and pay attention to Socrates and examine life because "the unexamined life is not worth living." Likewise, I followed the instruction of Albert Einstein to develop a new mindset because (paraphrased) 'a problem cannot be solved with the same mindset that created it.' And, of course, talk alone will not solve the big problems. As Sir David Attenborough asserted, "If we don't take action the collapse of our civilizations and the extinction of much of the natural world is on the horizon."

Gradually it became clear in my mind that our existing system of *globally conflicted, techno-industrial, extractive, capitalist-consumerist, military-industrial complex* with 8 billion people and 1.4 billion cars on Earth is a deadly combination, not sustainable. Together with climate change, the rising global socioeconomic stress will produce more conflicts and wars, and will very likely lead the world into MAD (Mutually Assured Destruction), aka nuclear apocalypse.

# Let's ask a serious question

How is it that humans can build amazingly functional gadgets such as smartphones, yet our societies are dysfunctional to the extreme — making wars, killing one another, damaging and depleting Earth's life-support capacity?



My best answer is that we build smart gadgets with our frontal brain, but organize our societies with input from our primitive 'reptilian brain' — leftover from the evolutionary jungle.

I came to understand that building quality of life and a peacefully sustainable world is outside the skillsets of politicians; therefore, protest is a mostly futile exercise. So then what is the solution?

Our reptilian bran houses our stress response mechanism that works today as it did millions of years ago — at high stress it turns on aggression and fear and now it turns off rational thought process. While our frontal brain helps us builds amazingly functional appliances; our reptilian brain tells us to fear our fellow humans, prepare for war and spend excessive amounts on military. For example, in 2023 the United States spent 916 billion dollars on the military; China spent 296 billion; Russia spent 109 billion and the list goes on. In that year the world spent a total of 2.44 trillion in US dollars on military.

Let's do a mental experiment and some simple math to see what the world could do with that amount of money every year if it was not spent on the military? Assuming that each Holigent Village (nature compliant, providing secure quality of life) would cost about \$500 mil to build; \$2.44 trillion could build roughly 5,000 such villages; housing 1,000 people per village; the total would house 5 million people every year. In addition to securing quality of life in peaceful systemic sustainability the process would project hope and help reduce global collective

socioeconomic stress; moving the world toward a future of universal quality of life, global peace, and systemic sustainability.

Understanding that our stress response is built into our neuroendocrine system, a part of our primitive 'reptilian brain', and functions today as it did for the caveman. It cannot be surgically corrected or removed. Our remaining option is to secure universal quality of life to reduce societal stress and keep it dormant.

Our task, in essence, is to reaassign the building and organizing of human societies exclusively to our frontal brain, without input or interference from our reptilian brain. This will not be simple, but it is doable. That is why we need an Awareness Revolution that will enable us to build a better bridge to a future of universal quality of life, global peace, and systemic sustainability.

When we accomplish that conflict, war, destruction, injustice, suffering, hunger, and homelessness will be history. Humanity will survive and thrive on our warm, wet, and green Earth — the only habitable home we have in the known universe.

Let the Revolution begin in the classrooms!

## Teachers

Brave and heroic Teachers will break some old rules to introduce Awareness Revolution in the classrooms that will open new choices. The old choice is still teaching us to become 'successful' producer/consumers as we move from classrooms to the workplace — unintentionally damaging and depleting Earth's life support capacity.

The Awareness Revolution curriculum will teach young people to become solutioneers in reconstruction of societies, a community at a time, to be compliant with nature's building and sustainability code so that humanity could continue on a new track toward a future of universal quality of life, global peace, and systemic sustainability.

# How to do it?

I realized that a true solution excludes any degree of left or right politics or 'green washing' environmental challenges. A systemic solution will be necessary, involving cellular reconstruction of society a community at a time, in compliance with nature's building and sustainability code. After all, evolution perfected systemic sustainability for billions of years.

Thus the Holigent (holistic-emergent) concept was born. In 2011, I published my third book, *The Holigent Solution*, which outlines the concept. However, no amount of words can fully express how to achieve universal quality of life, global peace, and systemic sustainability — the meaning of Holigent. Therefore, it needs to be demonstrated.



A Holigent Village model

This brings us to a challenging reality; we need millions of dollars to build a Holigent Village in which people will live, learn, and work — enjoying life where food, shelter, employment, community, and all the essentials of quality of life will be secured independent of the conditions of the general/global economy — thus demonstrating the Holigent Solution.

Holigent.org is asking for any amount of grants and donations which will go toward kick-starting an 'Awareness Revolution' that will introduce a new direction for society heading away from conflicts, wars, and damaging our planet's lifesupport capacity; instead heading toward a future of peaceful systemic sustainability.

The first stop along the new direction is the introduction of the spirit of Socrates and Einstein to high school students, encouraging them to examine life because "*the unexamined life is not worth living*" (Socrates) and to do it with a new mindset because "*a problem cannot be solved with the same mindset that created it*" (Einstein paraphrased). This would begin the Awareness Revolution in high school and college classrooms.

The second stop along the new direction is the purchase of real estate for housing residents of an experimental Holigent Community. No salaries or

operating expense will be paid from the received grants and donations. Expenses will be paid from rental income of the community.

The first million dollars will buy a residential property along the Expo rail line, near USC in Los Angeles, California. We will call it a Holigent House. Holigent Houses will be open any day for funders to visit and inspect the progress of the Holigent Project, moving us all toward a future of peaceful systemic sustainability.

As additional private and public grants and donations arrive, the Holigent Project will grow to become a Holigent Village. The growing community will demonstrate the broadening of social, economic, and environmental justice; quality of life; and systemic sustainability offered by Holigent societal reconstruction.

# How much?



Our existing system of a *globally conflicted*, *techno-industrial*, *extractive capitalist-consumerist*, *military-industrial complex* with 8 billion people and 1.4 billion cars on Earth is not sustainable; it will come to its end with predictable certainty, sooner than we can comfortably contemplate. How much money is too much to dedicate to healing and saving Earth — the only warm, wet, and green home we have in the known universe?

The 'first stop' in the direction of healing and saving Earth is introducing the concept of the 'Awareness Revolution' into the classrooms to prepare the young generation to craft a better future than the one they currently stand to inherit.

\$10,000 would buy a number of lectures from one teacher.

\$100,000 would employ one teacher for one year.

The 'second stop' in the direction of healing and saving Earth is to begin building and organizing nature-compliant Holigent Communities.

\$1 million would buy a home to be the first 'Holigent House.'

\$5 million would buy a small apartment building — the seed of a campus.

\$10 million would buy 10-12 homes — the seed of a Holigent Urban Village.

\$100 million would buy and build a Campus, the core of a Holigent Global Village, where we would invite students from around the world to live and learn. They would learn the science and skills of Holigent societal reconstruction to comply with nature's building and sustainability code — building a future of universal quality of life, global peace, and systemic sustainability.

## Who will do it?

You can do it. This book will help you learn how. Or

We can do it.

The day after sufficient funds arrive, Holigent.org will purchase a property to become the first Holigent House. I will utilize my forty years of experience in buying, renovating, renting, and managing housing units in the spirit of nurturing quality of life.

The purpose of the Awareness Revolution is to plant the seeds of the idea in the classrooms; and to nurture that seed so that in time, the concept will grow and branch out from the classrooms into society. When that happens the prospect for action will develop and the spirit of Sir David Attenborough will triumph; *'the collapse of our civilizations and the extinction of much of the natural world'* will be averted, and humanity will survive and thrive in a peaceful and sustainable future.

Humanity will thank you for helping to heal and save the world.

# Introduction

For millions of years evolution developed and trained our 'reptilian brain' to respond to challenges in the critter-eat-critter world where, in order to survive, our early ancestors needed fast reflexive action to fight or flee without thought process (there was no time for thinking).

The neuroendocrine stress response was the survival mechanism of our early ancestors. In today's world, that evolutionary legacy still functions to turn on aggression and turn off thought processes when stress levels are high — a flawed and dangerous arrangement in a nuclear-armed world.

There is another critical issue we need to address, illustrated by the following experience. A decade ago, tabling on UCLA's Bruin Walk, I set up my Holigent Urban Village model. Students curiously stopped to look and ask questions, and we got into conversations about sustainability.

Recently, I repeated my display of the model on that same busy Bruin Walk. Hundreds of students walked by; none stopped to look and talk... not even a glance. With deep concern, I concluded that curiosity is dead. Then I began searching for answers as to why. I remembered Greta Thunberg's explanation of her school strike. Understanding the environmental catastrophe on the horizon, she posed the question, "Why go to school if I don't have a future?" I suspected that rising societal stress is killing curiosity. Then I continued to dig deeper and I found something else, the thought of which sent chills down my spine: the divergence of the rising complexity of our world and the narrowing of human awareness.

Rising complexity is understandable; in essence it is the engine of evolution that produced complex life from its simple beginning. What is chilling is that human awareness is moving the opposite direction. Instead of broadening to be able to live with rising complexity, it is narrowing. Humans with diminished awareness will not be able to cope with the rising hyper-complexity of the 21<sup>st</sup> century. The collapse of civilizations will be the predictable consequence.

Awareness Revolution can be the answer. It's not simple but it is doable; we can handle this in multiple phases.

**Phase 1** requires the expansion of our awareness horizon from the



This will facilitate our frontal brain to recognize the critical parts of the system and allow for the redesign and retrofit of those parts.

**Phase 2** In this phase we can study each part of our bridge to the future. When we are aware of the parts, then we can learn how they work and think of ways we could fix each. Part 2 of this book, *Solving the Big Puzzle*, will walk you through that.



**Phase 3** Once we are aware of the process by which the parts of our bridge to the future can all be fixed, then we need to reassemble the pieces to create a renewed bridge to the future. A suspension bridge illustrates the interconnectedness of the parts of the systems and the 'one for all and all for one' arrangement and spirit. This ushers in the awareness of *holistic-emergence*.

**Phase 4** *Holistic-emergence* is the guiding spirit of nature that incorporates *synergy* into the process of evolution. **Holistic** means the parts are working together all at once, not one after another. In an orchestra, this creates harmony; in a living body, holistic organic connections produce the **emergence** of life that does not reside in any of the parts. **Synergy** produces the "more than the sum of the parts" magic (Buckminster Fuller). A simple example can demonstrate synergy — the binding of two hydrogen and one oxygen atoms produces a water molecule, a new substance that did not exist in its parts.

**Phase 5** *Demonstration.* Words cannot fully express *synergetic-holistic-emergence*; therefore, we need to build a community that demonstrates a functioning Holigent hybrid socioeconomic arrangement. In time, Awareness Revolution will promote a 'reconstruction revolution' of society from the *unsustainable, conflicted, warring, extractive capitalist-consumerist, military-industrial complex* and progress toward 'Holigent' (holistic-emergent) nature-compliant cellular societal reconstruction (one community at a time). In a generation or so, this will facilitate the emergence of universal quality of life, global peace, and systemic sustainability.

### Part 1 Getting To Know Each Other

### Allow me to introduce myself



I was born into the Great Depression in Budapest, Hungary. My mother, sister, and I survived World War II in a bunker deep under the old fort of Buda. Near the end of the war in 1945 we emerged from the shelter and saw our city in ruin. My eight-year-old self asked: *Why would grownups destroy a beautiful city and kill innocent people?* This question is fueling my life-long search for answers.

I lost my father, Dr. László Frank, to illness when I was four years old. I got to know him well through his 1930s book manuscript about the evolution of societies and his dream of a peaceful Europe during the years leading up to World War II. His spirit is my guiding star.

I grew up in mindless and murderous communism, and following the defeat of our short-lived revolution in 1956, I escaped hopelessness to the west under the cover of darkness across the partially dismantled Iron Curtain. I promised my mother that I would be careful not to step on a land mine.

I live in Los Angeles now, and this city is paradise for me, a place where I met and married an angel. We raised two adorable children and built a modest fortune of residential income properties. As a kid, I was a jack-of-all-trades who could fix nearly everything that was broken for my family. This early self-training is my secret of being able to fix electrical, plumbing, doors, locks, heating systems, you name it — and construct multi-story residential structures from foundation to roof (with city permits).

The relentless voice of that eight-year-old kid inside me never stopped whispering, telling me I have work to do. In 1972, on a late evening walk in the Westside of Los Angeles, it all came together. I decided that I would answer all the questions of the kid inside me even if it should take the rest of my life. I educated myself and learned about self, life, society, and the universe.

Allow me to tell you about a few interesting things I learned. Reading Carl Sagan helped me realize that in some sense I am as old as the universe because all the atoms in my body were born in the bellies of stars billions of years ago. I am deeply impressed by his words: *"The cosmos is within us. We are made of star stuff. We are a way for the universe to know itself."* 

The value of this realization was to stretch my awareness in my search to be bold and nimble while navigating my thoughts in the extreme complexity of our world today. But I did not know what he meant when he said, *"Extinction is the rule. Survival is the exception."* So I set out to explore these and many more questions.

It all began by reading *The Stress of Life* by Hans Selye ("the father of stress"). I devoted 10 years to studying and experimenting with stress and stress management. I learned much about the stress factor in human health and behavior. Perhaps the most important conclusion in my exploring the subject is the realization that during high socioeconomic stress, collective human behavior turns predictably ugly. This is our evolutionary legacy: Reason and morality go up in smoke as our primitive fight or flight aggressive stress response takes over and often leads to conflict and war.



Why would grownups destroy a beautiful city?



W hy would grownups destroy such magnificent bridges?





Why would grownups kill innocent people?

Toward the end of that ten-year period I realized that while understanding stress sheds light on the problem, it provides no answer to my core question. So I needed some fresh air and to find a new track to chase down the answers.

I closed my windowless garage office, packed up, and with my family, took a flight to Amsterdam to begin that long trip around Europe in an old VW camper van towing a travel trailer twice its size. Pulling all that weight with the small air-cooled VW engine was not supposed to work. I made it work by developing an understanding relationship with Fritz (our VW).

Hours of walking, thinking, and searching for answers were my daily routine. I made some notes but did no serious writing. During the 18 months we traveled through much of Europe from Amsterdam to Budapest, ferried across the Adriatic from Yugoslavia to Italy, and continued through France and across the channel finishing our trip in England.

Back in Los Angeles I felt refreshed and full of ideas. I knew that beyond stress, I needed to understand how society works. With this in mind I picked up Buckminster Fuller's big book *Synergetics*. The fascinating concept of synergy kept me busy for twenty years. I put my thoughts into two books, *Biosynergy* and *Socioeconomic Synergism* (both out of print now).

During that twenty-year period, I still did not find a satisfactory answer, so it was back to the drawing board. The following years produced the breakthrough for me. I came to understand that the only truly credible source of wisdom is nature. So came the idea of searching to find nature's building and sustainability know-how that propelled evolution for billions of years from the simple to the complex.

I had a great urge to understand nature's creative process. I collected my thoughts in my third book, *The Holigent Solution*, written with my collaborating daughter, Elisa. This is an excursion outside the box into the mysteries and "magic" of the evolutionary process — the emergence of something out of the near nothingness of a cosmic vacuum; the evolution of matter from simple to complex in the bellies of stars following the Big Bang; inorganic matter turned organic from which life evolved from simple to complex here on Earth. The essential result is that I managed to get a peek into nature's building and sustainability know-how.

This writing has emerged from witnessing and remembering the most tragic and painful events of the 20th century. My words are meant to convey history, experiences, emotions, and a deep determination to see that our children inherit a kinder, peaceful, and sustainable world.

At this point one thing must be clear to all reasonable minds: our world is like a heap of puzzle pieces, disconnected and dangerously dysfunctional. I began identifying the pieces decades ago. Now I invite you to join me so that together we can solve the puzzle of how to create a world of universal quality of life in peaceful systemic sustainability.

# Part 2 Solving the Big Puzzle

Have you heard the alarm? Scientists and nonscientists have been sounding the alarm for decades. Remember Al Gore's *An Inconvenient Truth*? And in recent years the alarm got louder. Teenage Greta Thunberg went on school strike, because as she explained, "*Why go to school if I don't have a future.*" And the alarm is getting louder:

Did you hear ninety-year-plus, wise Sir David Attenborough at the 2018 U.N. Climate Conference? *"If we don't take action, the collapse of our civilizations and the extinction of much of the natural world is on the horizon."* 

Did you read The Uninhabitable Earth by David Wallace-Wells?

Did you hear Mikhail Gorbachev in 2019? "The conflict between Russia and the West is putting the world in colossal danger."

Did you pay attention to Emmanuel Macron's warning in 2019? *"Europe is on the edge of a precipice."* 

Did you follow UN Secretary General António Guterres' The State of the Planet Report? "*The state of the planet is broken; humanity is waging war on nature — this is suicidal.*"

Do you know that in January 2021, the atomic scientists advanced the Doomsday Clock 100 seconds to midnight?

*The Economist* published the summary of an eight-hour conversation with Henry Kissinger in their May 20, 2023, issue. "*The rivalry between the United States and China may spark a catastrophic conflict in less than ten years.*"

Here is how I see the world: Humanity is in deep, deep trouble. The trouble started way back in our evolution when humans acquired free will. With newfound do-as-I-please free will, humans broke the rules that sustained the evolution of life for 3.5 billion years.

We managed to break, nearly irreversibly, the natural order of sustainability during the last couple of industrialized centuries (less than a blink on the evolutionary time scale).

We got deeper into trouble as we allowed our collective stress to rise to flash points that twice in the 20<sup>th</sup> century ignited world wars. In these early decades of the 21<sup>st</sup> century, our global collective socioeconomic stress is rising uncontrolled — because we are changing the climate and depleting Earth's life-support capacity while overpopulating our planet. Yet, all the brilliant minds and institutions have failed to develop peaceful ways to resolve problems in an increasingly stressed and conflicted world.

After decades of searching and connecting dots, the answer to the question of the eight-year-old in me has filtered through. *Why would grownups destroy a beautiful city and kill innocent people?* The briefest answer lies in our deep-rooted evolutionary legacy, *aggression* (on which I will elaborate later)

To overcome our self-destructive impulse will require no less than *transformative societal reconstruction* of the ways we live, work, commute, produce, consume, educate, and govern ourselves in the interest of building our future of resilient peaceful systemic sustainability.

It is not difficult to understand that the natural order, "nature's building and sustainability code," that evolved and sustained life on Earth for billions of years is functionally inoperative in the present day "do-as-I-please free will" of the human domain. It will also be clear in any thoughtful mind that humanity must urgently update its societal organizing practice to be compliant with nature's building and sustainability code to avoid a catastrophic collapse of civilization.

#### Our world is broken.

Why are so many people so highly alarmed these days? It could be because they know or sense how dangerously fragmented our world is.



This is the state of our world today: Fragmented, disconnected, not sustainable.

They also know that in a climate-changing, conflicted, and food supply-interrupted world, there are many hungry and angry people. Nations full of angry people make social upheaval and war. No doubt there is plenty to be alarmed about. Yet, there is one more truly alarming thing that is rarely, if ever, seriously talked about.

It is the "BOX"! The greatest problem-solvers in the known universe with countless brilliant minds credentialed by higher educational institutions locked themselves in that BOX; they committed to preserve the same old "mindset" that created it and threw away the key. Inside the BOX they are engaged in mass-producing the engineers, laborers, and directors working the machinery of techno-industrial, extractive capitalist-consumerism that spews out non-biodegradable and toxic waste poisoning our fields, rivers, and oceans — changing the climate while depleting Earth's life-support capacity.

One purpose of this writing is to break an opening on the BOX in hopes that a few brave individuals and institutions understand that reducing carbon emission is not nearly enough. They will then step outside the BOX and begin experiments in *transformative societal reconstruction*, one community at a time, to be compliant with nature's building and sustainability code creating social, economic, and environmental justice; quality of life; and systemic sustainability.

#### **Stepping Outside the Box**

I took that first step outside the BOX many years ago when I began a lifelong search for answers. At some point along that unpaved road I got overwhelmed.

One morning around 3 a.m. I woke up with a sensation that resembled being hit with a sledgehammer on the chest.

My wife Marsha rushed me to the nearby hospital's emergency room where the doctor explained that I had a frightening anxiety episode, not a heart attack.

I came out of that experience wiser by deciding that serious problems should not be taken so seriously, but rather pursued cheerfully with diligence as games to be played or puzzles to be solved.

The state of our world today resembles a heap of puzzle pieces — disconnected and dysfunctional. Our challenge is to identify and understand the pieces, and then put each piece into its proper place to develop a clear and true picture of our world.

### The Picture Puzzle of Our Bridge to the Future



#### Inspect and Retrofit Our Bridge to the Future

Following the damage, destruction, and death caused by strong earthquakes in years past prompted the city of Los Angeles to reexamine and rewrite the city's building and safety codes. The idea of societal retrofit and reconstruction could have been inspired by the changes in building codes in this city where I performed a number of such retrofit projects to structurally reinforce some of our buildings.

Similarly, it is becoming necessary for humanity to reexamine and rewrite society's organizing, safety, and sustainability codes in the interest of minimizing social, political, economic, and environmental dysfunction, damage, and death under the rising complexity, stress, and conflicts of the 21<sup>st</sup> century.

This picture puzzle is to illustrate how interdependent every aspect of life and society is. Reducing carbon emission is not nearly enough! Our bridge to the future has many critical parts; the failure of any one will collapse our bridge. All that under the dark clouds of climate change.

I have experience in home construction and watching the building inspector examine every phase and detail of the construction. So it came to me to assume the role of the structural inspector and examine the critical parts of our bridge to the future one puzzle piece at a time.

#### Puzzle Piece 1

### Population Overload and Quality of Life

I want to clarify this up front: There is something dishonest about the cartoon above. The stick figure, representing all of us, thinking about quality of life, should be very fat, supersized to illustrate the population overload of our bridge to the future. Why did I choose a stick figure? For about the same reason that the much talked about world population explosion (decades ago) receded as concerns about climate change moved to the front.

Retrofit: Solving of the population overload problem will fall on the next two or three generations, provided that collapse is avoided and sustainability is secured for that period. One of the first things that young people living in Holigent houses will learn is to raise their sight from their digital devices and widen their awareness horizon beginning to visualize their future of quality of life in peaceful systemic sustainability. Once they reset their sight and compass, they will learn how to navigate toward that desired destination, all along working on lightening the load on the life-support capacity of our planet Earth.

Eight billion and rising. In 2022, the world population hit the big eight. Some scientists believe we need five Earths to support that number at the currant rate of consumption. In fact, we are failing to save the only Earth we have. What are we to do? My best suggestion is to remember Albert Einstein's wisdom and develop a new mindset; through an Awareness Revolution. With the new mindset, we need to follow the spirit of Socrates and examine life, because *"the unexamined life is not worth living."* All that is rather challenging, because our world is suffering from feverishly high global socioeconomic stress. The complication is that humans live with a primitive neuroendocrine stress arousal mechanism we inherited from earlier times of our evolution: At high stress, our primitive "reptilian" stress mechanism turns on aggression and fear and turns off rational thought processes. Creating universal quality of life is the essential ingredient for building a

peaceful and sustainable future. Under the circumstances this is complicated, but possible. That is the subject of this book.

This leaves us but one option: Elevate quality of life to reduce stress. That would allow us to examine life, as we conduct experiments, developing new understanding of self, life, and society; and that would lead us to the proposed Holigent Transformative Societal Reconstruction Project.

Puzzle Piece 2

## Capitalism

We have known for a long time that the rich get richer and the poor get poorer, but why exactly is that? When inspecting capitalism, I found multiple flaws. It creates inequality, as Thomas Piketty's formula "r > g" so graphically reminds us that wealth will concentrate as it flows, migrates, and pools. Briefly, "r" (return on capital) in the long run will be greater than "g" (economic growth). Vertical wealth migration from the "99%" to the "1%" leads to extreme inequality that will from time to time bring out the pitchforks, guillotines, and the Bolsheviks in bloody upheavals.

Horizontal wealth migration such as the great transfer of wealth from the west to the east made China rich and the United States considerably less so with unfolding conflicts and consequences. A similar horizontal wealth migration from southern and central Europe to the north, unimpeded by the borderless European Union, also carries human resources along. This causes "brain-drain" in some regions of the continent that is resented and will be painfully felt for generations.

Vertical and horizontal migration of wealth is written into the "DNA" of wealth. If we allow the continuation of wealth-concentration and unreformed capitalist consumerism, the predictable result will be extreme inequality, societal turmoil, the depletion of Earth's life-support capacity, the rise of collective socioeconomic stress, global conflicts, and war.

Retrofit: How are we to reform capitalism to reduce inequality and be more people friendly and protective of our planet? The most ambitious experiment of the 20th century brought on by the Bolshevik Revolution brought about communism. Their idea was to end capitalism by nationalizing all private enterprises — in other words, wealth redistribution by confiscation without compensation. I was a victim of that when communism came to power after the war, and the beautiful and productive farm I inherited from my grandfather was confiscated. After that, hunger was my daily companion.

Democratic wealth redistribution through high taxation may be considered as legislated confiscation that the creators of wealth may object to. So then, what options do we have left to explore?

The Holigent concept is proposing to tame capitalism through a peaceful and voluntary transfer of wealth. This will take shape as individuals, businesses, corporations, billionaires, institutions, and governments give donations and grants to nature-compliant nonprofit communities, thus transferring wealth to the Holigent Commons. Such communities will then purchase housing units and land to build live/work Holigent Villages with hybrid economies that will elevate the quality of life of all residents of the community.

The 0.5% Solution proposes that the rich and the middle class voluntarily give 0.5% of their income/wealth to nature-compliant transformative societal reconstruction. This is an investment to build a livable future; therefore, it's an investment we cannot afford not to make.

Such grants and donations would help build experimental and demonstration Villages compliant with nature's building and sustainability code, aka Holigent Villages. Successful Holigent Villages would be fully developed to be permanent live world expositions and would invite young and old from around the world to live, learn, and work.

Over time, this process will move on multiple parallel tracks. On one track the voluntary transfer of wealth builds Holigent communities that distribute wealth in the form of significant reduction of housing cost. The other track leads to the Holigent hybrid economy that reduces reliance on money in securing quality of life at low cost for their residents living in Holigent communities. The third track is the reduced consumption of Holigent communities that helps preserve Earth's life-support capacity.

The Holigent Project is introducing a new kind of wealth and attractor generated by the three-way socioeconomic arrangement (Holigent Delta Plan) among employers, employee residents of the Holigent Community, and the nonprofit management organization. The new hybrid economy is diminishing the role of money and creating a new kind of non-monetary wealth — quality of life.

The proposed Budapest Project is an example: The Delta Plan, within a Holigent community, secures housing, food, employment, supportive community, and quality of life, at a fraction of the commercial cost, even during recessions of the general/global economy. Secured quality of life is the new attractor above money that will reverse the "brain drain" and will bring young talents back to struggling places such as Hungary. This will begin to redress the flaws in the European Union that provides a political economy in one size that does not fit all while the north attracts money and talent at the expense of southern and central Europe unimpeded by borderless EU.

Holigent societal reconstruction experiments are aiming to put the very difficult puzzle piece of sustainable wealth distribution into place. The proposed solution is voluntary private and public grants and donations to Holigent-compliant communities for the purchase of real properties to provide housing for the members of such communities.

The question that may arise here is why not subsidize housing that would require lower initial investment? The answer is that subsidy would promote ongoing dependence and would turn into a bottomless pit without true reduction of inequality. We need to transfer wealth to the Holigent commons for building long-term independence of selfreliant hybrid cellular communities that could secure quality of life while building peaceful systemic sustainability.

Puzzle Piece 3

### Resources

Some years ago, my daughter attended Professor Jared Diamond's lectures on geography at UCLA. I read his book *Collapse* with particular interest. He chronicles the collapse of civilizations along history and we learn that the common cause of collapse was the depletion of resources. This has a new and urgent meaning for us in this 21<sup>st</sup> century. Nature perfected sustainable resource management through the rule by which every organism of all species through countless generations make their flesh, leavings, and remains available as a resource for living plants and animals. Call it total recycling without waste — and it worked for billions of years.

Now, clever (but not wise) humans with their do-as-I-please free will and inventions such as extractive capitalist-consumerism are spewing non-biodegradable and toxic waste, poisoning fields, rivers, and oceans while depleting Earth's life-support capacity. Humans were able to break the natural rule that evolution perfected over billions of years in a couple of industrialized centuries — a blink on the evolutionary timescale.

Lately, the great powers are in an extraordinary conflict competing for the diminishing resources. Currently an unspeakable nuclear cold war is upon us as conflicts are escalating among the superpowers. In this nuclear age war cannot settle conflicts without the high risk of ending in nuclear Mutually Assured Destruction (MAD). There can be no winner in a nuclear holocaust in which the lucky ones will die instantly but most will die slow torturous deaths in a radiation-poisoned world.

Retrofit: The challenge and practice of Holigent communities are to continue developing radical waste reduction. This is achieved through rearranging the ways we live, work, commute, produce, consume, educate, and govern ourselves. Self-reliant, hybrid, pedestrian Holigent communities will achieve that by doing the essential most with the least of resources without waste. This includes mostly walking in pedestrian communities with minimal use of mechanical transportation, producing solar and wind power, and growing food locally in vertical farming, along with reuse and recycling to reduce waste. All of this will be done utilizing community service commitments for the benefit of all the residents of the community.

Self-reliant Holigent communities are hybrid nonpolitical socioeconomic entities. The focus is on creating quality of life by most efficiently utilizing available resources in pursuit of systemic sustainability to benefit all in their community. The Holigent nonpolitical approach to create quality and stability of life will reduce competition for resources and in time improve the prospects for global peace.

Puzzle Piece 4

### **Democracy**

In the 20<sup>th</sup> century, democracy defeated fascism, triumphed over communism, and created a mostly peaceful society in America, Europe, and other areas of the world. Recently, all that changed. What happened? I have been musing about that puzzle lately. Allow me to share my thoughts. You're welcome to disagree.

We don't need a more dramatic demonstration of the hatred of democracy by a large segment of Americans than the storming of the Capitol on January 6, 2021. Democracy is losing ground around the world, and the state of things in Europe is particularly worrisome.

Why worry? Because in recent centuries segments of humanity tried every "ism" they could think of: feudalism, fascism, Nazism, socialism, communism, and perhaps a few others in between. If we lose democracy our choices will narrow to totalitarianism, fascism, or gangster-ism.

There is no obvious reason why a large segment of Americans hate democracy. So I fastened my seatbelt and have gone off the well-traveled path onto a bumpy ride searching for answers. You are welcome to join. My best guess is that the Make America Great Again

crowd is following their instincts, not a carefully crafted critical thought process. Let's not underestimate instincts — they can be amazingly purposeful and accurate. How else could birds fly thousands of miles from one hemisphere to the other to find their winter home in a warmer climate.

If I was not thinking, but following my instincts, I would believe that America lost its greatness under the watch of democracy; millions of manufacturing jobs were outsourced and lost for Americans under the watch of democracy; great masses of people in Russia and China were not sufficiently impressed by democracy — consequently they became totalitarian, nuclear-armed enemies of America under the watch of democracy; extractive capitalist consumerism depleting Earth's life-support capacity under the watch of democracy; global warming and climate change are ravaging Earth and will soon make our planet uninhabitable, all under the watch of democracy; governance is polarized to extremes and near gridlock in the name of democracy; American infrastructure is crumbling and the cities are littered with homeless encampments under the watch of democracy; America lost its greatness and democracy lost its shine. And that is not all.

I remember Carl Sagan saying that we are made of star stuff — we are the way the universe wants to know itself. This reminds me that the cosmos evolved from simple to complex matter. The process continued on Earth as organic matter emerged from inorganic, followed by the evolution of life from the simple to complex organisms. Rising complexity is the rule of the universe and evolution. The secret of complex systems is that their self-organizational capacities also evolve to remain commensurate with rising complexity (there's enough "glue" to hold all the parts together). Whenever rising complexity outgrows self-organizing capacity, such systems/organisms fall victim to nature's terminator, entropy. Collapse and disintegration follow.

Democracy is an ancient Greek invention that has not had a meaningful update in recent times. The rising complexities of internal and external challenges of 21<sup>st</sup>-century life, politics, societies, economy, and environment are outpacing democracy's societal organizing capacity. Without a new high-capacity societal organizing system, the question of collapse is not if, but how soon.

If that wasn't enough, democracy has another deadly "virus." It is so unrecognized it doesn't even have a name. So let's call it internal-fragmentary-conflicted-opposition or "infraconop" for short. ;-)

This disease is best understood by observing nature and noting that while there is competition among living organisms, the strict rule that applies inside every organism is systemic/organic collaboration. The closest example is your body. Your heart, lung, and all your organs collaborate without conflict to sustain your life. If any opposition developed among the organs you would become very sick and die.

Society is a super organism. To keep society sustainably functional all parts must organically connect and collaborate without conflict. Democracy's concept of built-in opposition creates conflict, friction, and vulnerability. This system may work in good times, in an environment of ample resources and low socioeconomic stress. However, in our overpopulated, climate-changing, food-interrupted, resource-depleted, conflicted, angry, and nuclear-armed world, global stress levels are rising. In such a socioeconomic environment, democracy will be vulnerable to dysfunction. In such a condition, democracy can be taken over by authoritarians and society is likely to drift toward fascism.

I experienced the collapse of civility and of civilization early in my life as the Nazis were hunting us and as Europe collapsed into fascism and sparked the second World War. I can see clearly how this rudderless world today is drifting predictably toward catastrophic collapse. We have to act with speed to change direction before the window of opportunity closes forever.

### **Democracy in Europe**

As I inspect the democracy pillar of our Bridge to the Future, I see that a large block of it is in Europe. I notice flaws and cracks in that block. Some are obvious, some not so much. The obvious one is that Europe is not America. Europe is made of many nations large and small, each with deep and different histories, cultures, and temperaments. So you can say that anything like a United States of Europe would not be viable. Even in the unlikely event that you manage to overcome that hurdle, there is still another deep flaw.

That other flaw is best analyzed once again with Thomas Piketty's formula "r>g" (r is greater than g). This works as the "DNA" of money and wealth. In essence, it compels money to migrate toward certain attractors. In addition to vertical wealth migration from the 99 percent to the 1 percent, in Europe, money and wealth migrate horizontally from south to north at the expense of southern and central Europe. An even greater flaw can be found in the fact that human resource follows the money unimpeded within borderless EU. This results in "brain drain" suffered by some regions that is resented and will be painfully felt for generations.

This line of thought sheds some light on why the European Union is conflicted and fragmented and why democracy in Europe is so fragile. The Holigent Project will remedy these flaws on the continent and provide incentive for the European Union to support and participate in this Peace and Sustainability Initiative.

Retrofit: We can say that Europe has been a grand experiment in recent centuries: kingdoms, feudalism, fascism, communism, liberal democracy, illiberal democracy, authoritarianism, dictatorship, and gagster-ism. As I look at the list of available societal organizing systems, the strange thing that appears is that illiberal democracy may outlast liberal democracy; that is because illiberal democracy's tighter controls reduce the large, open surface of vulnerability, which is the greatest weakness that endangers liberal democracy from attacks from within and from the outside.
How can we reform liberal democracy to become more secure and resilient? The Holigent Project would accomplish that over time. Holigent communities are self-directed and self-maintained nonprofit corporations. Decisions are made by the board of directors that are elected from the resident members of the community. Over time, more and more societal functions and maintenance will be performed by self-organized and self-reliant Holigent communities. This "cellular" rearrangement will reduce the burden and the size of big governments. The cellular reformation of democracy will make society more resilient and less susceptible to takeover by fascists or other would-be authoritarians.

Puzzle Piece 5

## Peace

The human stress response is an evolutionary legacy. We learned that behavior in the dangerous world of the evolutionary jungle millions of years ago where nearly every critter was food for some other critter. Survival depended on split-second decisions of fight or flight. This was decided by fast reflexive action with minimal or no critical thought process. There was no time for thinking. The human brain has preserved this primitive "reptilian" neuroendocrine stress response to this day.

Critter-eat-critter was the rule of the evolutionary jungle. We humans still carry that primitive response in part of our brains. Under this circumstance, is creating a peaceful world a reasonable expectation? Indeed, critter-eat-critter was the rule of early life and evolution. However, humans left the evolutionary jungle and after a long and winding road entered the modern day techno-industrial jungle — the Age of Complexity. In the 21<sup>st-</sup>century highly stressed, climate-changing, food-interrupted, resource-depleted, conflicted, and nuclear-armed world, we must develop new rules if we are to survive and thrive. If humans continue to practice the primitive legacy, "the collapse of our civilizations and the extinction of much of the natural world is on the horizon" and will arrive sooner than we could comfortably contemplate.

As to weaving a just and resilient society, depending on a moral individual to lead the way, such as Raoul Wallenberg, who saved Hungarian Jews from the Nazis, is problematic. The problem is that in a climate-changing, conflicted, and angry world, the collective stress response of fight or flight fuels fear and aggression. In that world the primitive stress response will prevail. A society suffering from high collective socioeconomic stress regresses into the primitive mode. As a result, collective morality tends to evaporate as conflict and aggression come to dominate.

Retrofit: Our primitive fight-or-flight stress response mechanism is deeply embedded in our neuroendocrine system; it cannot be surgically removed. Our only option is to secure universal quality of life to keep collective socioeconomic stress dormant. This would secure peace, but cannot be achieved in our current socio-econo-political infrastructure. To achieve peace and systemic sustainability, Holigent transformative societal retrofit or reconstruction is necessary. The Holigent proposal is an action guide toward that goal.

> Puzzle Piece 6 Wealth and Money

The "DNA" of money (**r>g**, Thomas Piketty) is compelling money and wealth to steadily flow from the "99%" to the "1%". Over time, this leads to extreme inequality that from time to time brings out the pitchforks, guillotines, and the Bolsheviks leading to bloody societal upheavals.

Money is a practical thing. After the war in 1945, my mother and I would go shopping for food in the farmer's market where vendors displayed their fruits and vegetables over straw mats on the ground. The economy had collapsed during the war, so there was no money. We carried with us meager clothing and household items such as old shoes (some with holes in the soles) and worn, raggedy clothing. They still had some value we could use to barter for potatoes, fruits, and vegetables. That was not as practical as bills and coins in the pocket. The advantage of the barter items is that they function when money does not, and they don't leak, evaporate, or become corrupted as money often does.

#### **Follow the Money**

Fast forward to my life in Los Angeles. One of our tenants brought to my attention a deepening pothole at the end of the driveway on the street. I reported it to the city and asked them to please fix it. Nothing happened. I called again. Days and weeks passed; still nothing happened. Then, I had a brilliant idea. I went to the building supply store, bought a few bags of pavement mix, and filled the pothole in less than an hour. This was years ago and the fix is still holding.

Aha, self-reliance! It is the essence of the Holigent community. What we have instead is taxation and reliance on government. Here is how it works on the federal level. From the pockets and accounts of individuals and businesses, tax money takes a long trip to the federal coffers. From there money is doled out to the many departments. Local and state taxes take a similar trip in shorter pipelines. But we know that wherever there is plumbing, there can be leaks.

From the federal holding tank, the money is channeled into a complicated pipeline to reach all the federal agencies. From some of the departments such as the Department of Defense, part of the nearly 800 billion dollars every year goes on a one-way trip around the world to support the United States military bases. Other complicated money pipelines from federal, state, and city go back to Americans where that long round trip began, and after some leaking and evaporation, a trickle arrives — not enough to fix the potholes and sidewalks or to house the homeless.

The centralized taxation-based money system reminded me of some of the rusted and leaky iron water pipes that used to exist in some of our old buildings. But that led to another brilliant idea, and we replaced all the old iron with copper pipes that don't rust. Now there are no more slow leaks inside walls that cause mold and rot the wood frames; and no more emergency calls about burst rusted pipes causing floods in buildings.

Yes, "re-piping" the old tax-and-spend system is a big job. And so is re-piping the water connection of every sink, shower, tub, and toilet in a multi-story building where plumbers crawl and climb in narrow spaces in back-breaking, sweat-and-blood work. To me, that is heroic work. (I know because in my younger years I did some of that work myself.)

Retrofit: This project will be just the opposite; re-piping the old tax-and-spend system will happen effortlessly as a result of Holigent reconstruction of society, a community at a time, to introduce a hybrid economy that will make communities self-organized and self-reliant, assuming much of the work in physical and social maintenance — and so reducing the burden and size of governments.

This is also a proposal for the voluntary redistribution of wealth in the form of donations and grants. This allows Holigent communities to purchase real property on which to build urban villages with hybrid economies. The arrangement reroutes part of wealth migration back to the "99%" without confiscation or impeding wealth generation. The Holigent hybrid economy reduces full reliance on money as it works to secure quality of life.

# Puzzle Piece 7 The Philosophical Foundation

Inspecting the philosophical foundation of Western ways of doing things, gone global in the form of extractive capitalist consumerism, I found some additional flaws. Reductionism, as it relates to the physical world where parts and their relationships are rational, can be fastened together with nuts and bolts. They are predictable and generally well behaved.

Human beliefs, thoughts, ideas, and emotions are often irrational, unpredictable, and not always well behaved. So when people and their techno-industrial societies organize themselves along the reductionist concept, the results are a mixed bag of compartmentalization, high specialization, and deep fragmentation. This is incompatible with nature's language of holistic-emergent organic connectedness without conflict with itself and without waste.

Let me illustrate this real but abstract subject with a metaphor: Humanity is a wrong-way driver on evolution's one-way boulevard. To understand that metaphor you need to know that evolution moves on its one-way boulevard from simple past to complex future and has been doing this with great success for billions of years. A simple example: Nature takes two hydrogen atoms and binds them to an oxygen atom from which a more complex yet stable water molecule emerges.

Wrong-way humanity begins with natural complexity, the water molecule (in this example), and "reduces" it to hydrogen and oxygen in an attempt to better understand nature. The result is diminishing stable complexity, but increasing unstable complication (more disconnected parts).

Looking at reductionism from outside the BOX, it appears not only as the foundation of Western ways of doing things, but also as the seed of dysfunction, disconnect, and depletion.

This may also illustrate how humans reversed billions of years of sustained evolution on this magical and most habitable planet to unsustainable disconnected dysfunction, trashing Earth in just a few industrialized centuries — less than a blink on evolution's time scale.

Retrofit: Human ingenuity and innovations from the industrial revolution, the splitting of the atom to the digital revolution, have put humanity on the track that leads to the depletion of Earth's life-support capacity and to the collapse of civilizations and the extinction of much of the natural world. Why more of the same will not change our destination? Albert Einstein (paraphrased) once again points to the answer: *A problem* 

*cannot be solved by the same mindset that created it.* Clearly, we need a new mindset with new understanding.

It is the purpose of the proposed Holigent campuses in Budapest and in Los Angeles to develop and perfect the new mindset and apply it to retrofit and reconstruct society, a community at a time, to be compliant with nature's building and sustainability code.

It took nature billions of years to experiment, evolve, and come up with solutions a success formula that created and evolved the universe from the simple to the complex. Variations and natural selection are part of the engine of evolution. However, giving humans free will and the ability to break the natural rule is a kind of mistake. Misfit 21<sup>st</sup>century humans are the end of the line for our species, because human conduct is noncompliant with evolution's building and sustainability code, therefore not sustainable.

However, we can use our free will to decide differently. We can accept evolution's mistake as an invitation for humans to make partnership with nature, and to reexamine and adjust our thinking and actions that may allow us to continue to survive and thrive on Earth. The requirement of the partnership is to learn and follow nature's sustainability formula and reconstruct societies in compliance with nature's building and sustainability code. This will require an Awareness Revolution to develop a new mindset that Holigent Solutioneers will learn and practice in action.

**Prevent the rise of authoritarians.** In the 21<sup>st</sup> century the world has entered the Age of Hyper-Complexity. In this age the unresolvable complexities are predictably elevating global socioeconomic stress. Rising collective societal stress is diminishing critical thought processes and depressing reasoning ability (an evolutionary legacy), increasing human misbehavior and social turmoil. In the vertical and centralized societal organizing structure, peaceful governance becomes near impossible. In such conditions democracies fail; one-party systems turn authoritarian; and dictators turn to repression, terror, and war in desperate attempts to hold on to power.

The remedy is gradual hybrid cellular societal reconstruction, one community at a time, to secure universal quality of life reducing societal stress, allowing society to return to reason and initiate transformative societal reconstruction. It is not simple and not inexpensive, but it is doable. The alternative is collapse and extinction. The Holigent reconstruction provides a doable action plan. Voluntary transfer of capital in the form of private and public grants and donations to the Holigent commons will be the key.

# Searching for a new philosophical foundation of a sustainable civilization

Collapse is about to arrive sooner than we could comfortably contemplate. But there is a big hurdle because society is facing the big problem of dysfunction. We repeatedly return

to Albert Einstein reminding us that a *"problem cannot be solved by the same mindset that created it."* And we continue to draw wisdom from Socrates telling us that the *"unexamined life is not worth living."* 

And it is an emerging 21<sup>st</sup>-century reality that life will not be livable with the unexamined old mindset, such as *business as usual, globally conflicted, techno-industrial, extractive capitalist consumerist military industrial complex* that is producing mountains of non-biodegradable and toxic waste depleting Earth's life-support capacity.

Rising complexity of our world soon will overwhelm democracy's societal organizing capacity at which time civilizations will slide into fascism, totalitarianism, or gangster-ism; rising global socioeconomic stress on our conflicted and nuclear-armed planet, on which a stressed twitchy finger will likely push the nuclear button, will start a chain reaction to MAD (Mutually Assured Destruction). One may conclude that nothing less than universal quality of life, global peace, and systemic sustainability will secure the future of human habitation of Earth.

And here comes the mother of all problems: Humanity has a ways to go to developing the mental and philosophical instruments with which to correctly examine and pursue sustainable life on Earth. Even the word, which could correctly express the concept, does not yet exist in our vocabulary.

We coined the word "Holigent" (*holistic-emergent*); it stands for a concept of human societal reconstruction compliant with nature's building and sustainability code in pursuit of social, economic, and environmental justice; quality of life; and systemic sustainability. It is the purpose of the Holigent Project to examine life with a new mindset and organize experimental communities that are compliant with nature's building and sustainability code to guide a multi-generational project toward a future of universal quality of life, global peace, and systemic sustainability.

### New Mind and New Ways: Five-Dimensional Thinking and Living

Evolution had it easy: it randomly threw the pieces at the puzzle and the pieces had billions of years to find their places in that picture. The human species does not have the luxury of playing random variations and natural selection for billions of years.

We have one or two generations at best for solving the puzzle to get our sustainable habitation of Earth right. Good luck with that! I take that back...luck will have little to do with it. At best we will have time for brief parallel experiments pursuing well-designed projects based on complying with nature's building and sustainability code, as closely as humanly possible. Our aim is to secure universal quality of life, global peace, and systemic sustainability.

This will require a new way of thinking. We need to see our life in the universe, not as a two-dimensional picture puzzle to be solved, not as a three-dimensional puzzle, and not even as a four-dimensional puzzle (3D + time). I call the challenge of our lives a "five-dimensional puzzle" to be solved.

Undoubtedly it is three-dimensional and moving along in time; therefore, it is fourdimensional. So far it is easy. Then comes something else: *Complexification* — also a book title by John L. Casti. This process is at work through billions of years of evolution as the universe begins simple and evolves to become more complex. Life on Earth continues to evolve from simple to complex, and for humans the rise of complexity becomes exponential, arriving at today's hyper-complexity.

This is an inseparable aspect of being; therefore, it must have its own dimension — the fifth dimension. (This speculation has no relationship to the scientific/mathematical concept of the fifth dimension.)

This unconventional aspect deserves more illustration. Let's take the example of two hydrogen atoms bounding with an oxygen atom. The result is an emergent new substance — a water molecule.

One can ask, where did the water come from? Our conventional depository of ideas acknowledges reality, but that is not the same as providing answers with extended understanding. Our 3-D space (without time) would provide room for the H2 and O atoms to exist without movement. An additional dimension of *time* allows the H2 and O atoms to move and even bump into each other, bound, and make water. But the emergence of water is both new and more complex, yet more stable than the freely moving atoms from which water emerged.

The emergence of new substances makes evolution possible, and the rise of complexity supported by commensurate rise of self-organizing capacity enables natural selection to promote the sustainable and terminate the unsustainable.

Trying to understand life without considering emergence and the rise of complexity leads to false concepts that will not fit into the extended puzzle and therefore will not be sustainable. As we examine life with the new (five-dimensional) mindset and attempt to solve our puzzle to sustain life and civilization on Earth, we will begin to see our true 5-D possibilities for the future.

Holigent Societal Reconstruction is offered as an action guide to move ahead with the reexamination and reconstruction of life with a new mindset on our eminently habitable and amazingly beautiful, but endangered, planet Earth. Puzzle Piece 8

**Stress** 



Global socioeconomic stress is feverishly high and rising.

Why is it that the last time global stress was as high as it is today, during the 1930s, it led to fascism and World War II?

How can we stop history from repeating itself?

Back in the 1960s, after I was done with Maharishi and Transcendental Meditation, I began to widen my search to understand how life should work. In the 70s I developed an interest in trying to understand how the mind works. That's the same time period when I stumbled upon Hans Selye's book, *The Stress of Life*. By this time a good deal of frustration had built up within me. It seemed that the more I searched for answers about life, the larger and more complex the puzzle became. There was science, medicine, psychology, social norms, law, politics, religion, materialism, Eastern spiritualism, and numerous other ideas and practices. It just got more complicated and confusing. There was no harmony among them and no organizing principle. Instead of getting closer to understanding how life should work, I was only learning how hopelessly complex life is.

It was an early summer weekend in Palm Springs, California. I was sitting alone on the motel's lawn in the shade of a tangerine tree, reading *The Stress of Life*. Everyone else had escaped into the air-conditioned indoors. Under my tangerine tree the air was still and quiet — and about 105° in the shade. I did not notice the heat. I could not put this book down. I was excited because stress explained so much about health and human behavior. I thought that I had finally found the trail that may lead to what I was looking for.

Hans Selye's book gave me insight into the stress processes of the body and brain and also helped give me a direction in my search. Beyond body and brain chemistry, Selye's book, along with some others, helped me to move on to understand how stress explains so much about human health and behavior: how internalized stress is a factor in the diseases of the body, from the common cold to heart disease and cancer, and how stress is a factor in mental health, from common tension to anxiety and depression. Using the stress model, one can also understand, even predict to some extent, the behavior of groups when collective stress levels are gauged. I got very interested in the possibilities of working with stress.

Stress is a neuroendocrine arousal of the body to fight, flee, or resolve challenges in the course of self-preservation. It is our essential survival mechanism. When we talk about undesirable stress we generally mean chronic elevated stress. The sources of stress may be internal or external. The potential internal stressors are physical, physiological, or mental. The potential external stressors are work-related, social, political, economic, or environmental. Stress arousal follows the perception of the stressor, which can be any challenge to the individual. In response, the hypothalamus of the brain stimulates the autonomic nervous system and the production of stress hormones through the endocrine system. The arousal process elevates muscle, heart, lung, and metabolic functions to prepare the body for a heightened response in an attempt to overcome the stressor. In a normal and beneficial response, the stressor is eliminated or resolved and the stress hormones of the body return to their healthy base level. Stress-related problems arise when the response is inappropriate or ineffective and the stressor goes unresolved. This leads to chronic elevated stress, which is often a factor in physical and emotional illness and dysfunction.

High stress impacts our lives in many ways. We need to remember, however, that stress is not anything in itself, but is a response. The effects of stress, therefore, are indirect and complex, and vary according to an individual's psycho-physiological response to any particular stressor.

The neuroendocrine stress arousal mechanism equips the individual to fight or flee a threat in the interest of self-preservation. In the critter-eat-critter evolutionary jungle, life or death decisions had to be made in split seconds. Fast reflexive action had higher survival value than slower thought processes. Millions of years of evolution perfected switching on aggression and switching off thought processing to improve the speedy reflexive action under stress in order to better serve self-preservation.

Stress is an ancient and primal survival mechanism in the animal kingdom of which the human species is a member. While this mechanism was effective in the evolutionary jungle, it is counterproductive for modern humans. Yet we are stuck with this evolutionary legacy. This explains why humans again and again regress to the primitive and reflexive "reptilian" responses of anger, fear, aggression, and conflict when under high stress. War is an expression of high collective socioeconomic stress. Under such conditions lasting peace will not be achieved by diplomacy.

Understanding our stress mechanism is critical in this wired/wireless 21<sup>st</sup> century in which nearly everyone is connected to social media on the Internet. Merchandisers,

promoters, politicians, gangsters, and dictators are figuring out how to take over the minds of individuals on "autopilot" (a developmental and evolutionary legacy) influencing their opinions, associations, behaviors, and actions.

We cannot change this evolutionary legacy and we cannot surgically remove our neuroendocrine stress arousal system. To secure peace, we must prevent the rise of collective stress, and we can do that by securing quality of life. Securing universal quality of life on a globalized, over-populated, and resource-depleted planet is a challenge that conventional concepts and institutions are not equipped to handle.

The Holigent experiment, through its local to global proposal, has the potential to develop universal quality of life, thus building an infrastructure for permanent peace. It is essential as well to understand the stress, conflict, and hope correlations in the work of securing peace. The Holigent program will also serve as a multiplying factor in generating and projecting hope. We know that hope is a powerful mitigating agent of collective stress and anxiety. We also know that when collective social and economic stress is reduced and collective energy is focused on constructive projects, social disorder and war can be avoided.

In the work of building an infrastructure for permanent peace, we must pay close attention to several significant factors. One is vertical wealth migration from the "99%" to the "1%"; another is the horizontal transfer of wealth in recent decades from the West to the East. In addition to rising inequality due to economic tilt, the world is facing a new challenge — the gridlocked and vulnerable "old age" of democracy that is inherently under-equipped to handle the hyper-complexity of the world in this 21<sup>st</sup> century.

Western civilization, rooted in the concept of democracy and steamed up by the Industrial Revolution, is reaching its old age. The United States with diminished wealth will not be able to effectively fill the role of liberator and guarantor of peace as it did during parts of the 20<sup>th</sup> century. It is not likely that the emerging economic powers of the East will peacefully fill the developing vacuum of global order.

The other significant development is the realization that the current global economy, in a world of depleting resources, is a zero-sum game in which a win-win outcome is not an option. The high friction created by the eastward migration of wealth and the competition for diminishing resources will at some point overwhelm all good intentions and diplomatic efforts, and the preservation of peace will not be possible. Overcoming this challenge demands a qualitative solution, an awareness revolution outside of existing concepts and institutions. Developing the Holigent program to a global scale will generate hope and reduce collective stress and channel human energy to the peaceful construction of hybrid Holigent communities.

Reduced collective socioeconomic stress and projected hopefulness are the essentials that nurture peace. Global peace ultimately will rest not on diplomacy or promises but rather on reformed societal arrangements securing quality of life. The Holigent hybrid socioeconomic infrastructure will facilitate the process toward universal quality of life and peaceful systemic sustainability.

#### Puzzle Piece 9

# **Artificial Intelligence**

I could not fit AI into my cartoon of our bridge to the future. It would be more like haze over the bridge rather than a part of it. Nevertheless, it is real and we have to deal with it. Let's look around and acknowledge two kinds of intelligence: natural and artificial. Natural intelligence is nature's building and sustainability know-how. In other words it is cosmic and biological evolution that evolved the simple to the complex from the Big Bang to the big brain during the 13+ billion-year lifetime of the universe.

Here on Earth, during 3.5 billion years simple organic matter evolved to complex animal life. Humans came along with their big brain and acquired free will. With their doas-I-please free will, humans are making their own rules and that put an end to natural intelligence. In a couple of industrialized centuries human intelligence brought the collapse of our civilizations and the extinction of much of the natural world to the brink. It seems everything humans did since the dawn of free will is not compliant with natural intelligent and not sustainable — therefore artificial.

Artificial Intelligence is not new. Everything humans invented and everything we do is artificial. The invention of the steam engine; burning coal, oil, and gas; clogging streets with cars and sending jet plains into the air; inventing extractive capitalist consumerism that produces billionaires; sending hordes of people to sleep on the sidewalks while spewing non-biodegradable and toxic waste to fouling fields, rivers, and oceans depleting Earth's life-support capacity — this is all artificial.

AI is merely the latest layer of unsustainable human activity. If you outlawed AI, climate change would kill us just the same even while brilliant people gather in big rooms to "blah, blah, blah" (as Greta Thunberg put it) about global warming. And even if you blew away the dark clouds of climate change, our bridge to the future would continue falling down because of old, worn, and failing pillars and parts such as capitalism and democracy.

There is a cure to protect humanity against AI. It is same as the cure for climate change and for all the artificial harm brilliant minds dreamed up throughout history. The cure is Holigent Transformative Societal Reconstruction.

In mid-2023, I sent hundreds of hard copies of the Holigent Quality of Life, Peace, and Sustainability Initiative to senators and representatives in Congress encouraging them to establish the Department of Homeland Reconstruction. It is to provide ongoing funding for Transformative Societal Reconstruction experiments to find ways to get away from all things and ideas that are artificial (not sustainable) and develop communities compliant with nature's building and sustainability code.

This book also has a not-so-secret mission in addition to activating young people. It is to arouse the curiosity of billionaires and suggest the idea that they can participate in Holigent societal reconstruction experiments. They can build their own Holigent Village anywhere they please, and think of it as investment in their life and wealth preservation portfolio. And it is perfectly okay to have fun and satisfaction while doing it.

# Part 3 How to Save the World

#### The Challenge Briefly Stated



The challenge is to help the "naked ape" graduate from the evolutionary jungle — also from the techno-industrial jungle — and build a peaceful and sustainable world. That will take, among other things, examining life with a new mindset and reconstructing society to follow and comply with nature's building and sustainability code. In other words it will take an Awareness Revolution.

#### From Impossible to Doable

Saving the world is a tough job, that's never been done before; there is no roadmap, no beaten path. We need to outline a strategy, draw a roadmap, then follow it fearlessly. Over the years Holigent.Org sent countless grant proposals to foundations. We received zero grants. Then it occurred to me that foundations make grants to education, hospitals,

research, and everything in between but don't make grants to "save the world." That is because "saving the world" is an unrecognizable, large, and shapeless concept.

A central purpose of this book is to give "save the world" a shape and put handles on it. When that is accomplished young and old, private and public, organizations and institutions will find their handle. Then collectively we can move this concept from a realm of nebulous nowhere to a well-defined doable domain of the here and now.

#### **Our Choices**

Three steps to collapse and extinctions or, fourteen steps to quality of life in peaceful systemic sustainability. You will decide through choice or by default!

We have only a few years to take action before the "collapse of our civilizations and the extinction of much of the natural world" arrive at our doorstep. Young and old, rich and poor, public and private, all have an active role in this Holigent proposal. In essence we need to fully graduate from the evolutionary jungle by learning to examine life with a new mindset and follow up with action building a better bridge to our future of universal quality of life in peaceful systemic sustainability.

#### Three steps to collapse and extinctions

#### Step One.

Continue merely talking about carbon reduction while global extractive capitalist consumerism spews out climate-changing and non-biodegradable toxic waste depleting Earth's life-support capacity.

#### Step Two.

Perpetuate an arms race in the context of a dangerous convergence of high global socioeconomic stress, increased levels of aggression accompanied by diminishing collective reasoning capacity (an evolutionary legacy), and new high-speed nuclear weaponry under AI controls that are outpacing reasoned judgments. Our world is silently drifting toward willful or accidental Mutually Assured Destruction.

Step Three.

Fail to examine and alter our unquestioned belief in the current *business-as-usual, globally conflicted, techno-industrial, extractive capitalist-consumerist, military industrial complex* — while on our post-pandemic, burning, flooded, stressed, conflicted, angry, and nuclear-armed planet, the runaway complexities of life are overwhelming democracy's societal

organizing capacity. This outcome is not surprising given that this ancient Greek invention has not had a significant update in recent times. This is our time to update! The fourteen steps below are proposing such a retrofit through hybrid, high-capacity, transformative societal reconstruction.

# Fourteen steps to universal quality of life in peaceful systemic sustainability

#### Step One.

Learn that nature builds and functions through cellular construction and organic collaboration. Your body is the closest example: Cellular construction built your organs, and your collaborating organs sustain your life. In other words, networking heart cells built your heart just as networking lung cells built your lungs. Once built, your heart beats for the heart and for all the other organs, your lung breathes for the lung and for all the other organs, and so on. The governing rule within a system, in a sentence, is: *One for all and all for one without conflict.* 

#### Step Two.

Understand that during evolution of life on Earth for billions of years, before humans arrived, every living organism of millions of species through countless generations have made their flesh, leavings, and remains available as food and as a resource for other organisms without waste. Total recycling is nature's rule of sustainability. In a sentence: *Do the essential most using the least of resources without waste.* 

#### Step Three.

Remember that billions of years of natural evolution on Earth is the only success formula for sustainability. We have to relearn and follow that model as closely as humanly possible.

#### Step Four.

Follow the Holigent concept of societal reconstruction that mimics nature's ways to be compliant with the natural building and sustainability code:

Cellular construction and organic collaboration, one for all and all for one, doing the essential most, using the least of resources, without conflict and without waste.

#### Step Five.

Learn and practice this skill like any other, through repetition. As with riding a bicycle, you cannot learn this skill from books alone; you need to practice it by doing and living it.

#### Step Six.

To that end, enroll in a Holigent house/campus (when available) in which you can live, learn, and work practicing nature's building and sustainability skills in pursuit of quality of life and systemic sustainability.

#### Step Seven.

Work on enlarging the sustainability campuses to become an experimental live/learn/work Holigent Village perfecting compliance with nature's sustainability code. Such communities will also create socioeconomic resilience and protect Earth's life-support capacity. Accordingly, a Holigent Village will be a decentralized, self-organized, self-reliant, cellular, live/work, all-green, human-scale, pedestrian community with hybrid economy and social contracts.

#### Step Eight.

Persuade the European Union to assist in building an experimental facility in central Europe, to become the **Holigent Global Village**. It is to be a permanent living world exposition and learning center of true systemic sustainability. Invite all to participate.

#### Step Nine.

Expand the successful Holigent experiments to a large scale. Realize that for the United States the scope and cost of building a future of global peace and systemic sustainability will demand a commitment no less than what it took the United States to win World War II and the Marshall Plan helping rebuild Europe.

#### Step Ten.

Educate and lobby the United States Congress to establish a **Department of Homeland Reconstruction** to secure funds for building a sustainable future. The Department is to fund Holigent/compliant community constructions on a national scale. Such a program would provide jobs and homes — in time creating a hybrid socioeconomic system that would elevate the quality of life of all the participants, also ending unemployment and homelessness for good.

#### Step Eleven.

Demand that the United States and the European Union work together not so much for winning a 21<sup>st</sup>-century world war but rather to avoid war altogether. Specifically,

encourage the United States Congress and the European Union to launch and fund a "Peace Offensive" in the form of **Global Peace and Sustainability Projects**.

Step Twelve.

Extend Holigent Societal Reconstruction to troubled regions of the world. Constructing compliant communities will give people jobs, hope, and purpose alternative to becoming rioters, refugees, migrants, or terrorists.

Step Thirteen.

Use the **non-political** Holigent Peace and Sustainability Projects to reach out to nondemocratic nations. Inspire and help them build nature-compliant communities — planting the seeds of hope, well-being, and social stability that even authoritarian leaders may value. Doing so would ease the level of global tension and conflict, thus diminishing the probability of nuclear world war.

Step Fourteen.

Remember that you are a member of this last living generation that has the option to choose between the Three Steps to extinction or the Fourteen Steps to universal quality of life in peaceful systemic sustainability. Nothing in our lives will be more important than making and acting on the right choice now, before the window of opportunity closes forever.

# An Outline of the Solution

Retrofitting Our Bridge to the Future

#### **Outside-the-Box Thought Process**

As the title of this book suggests, we need to participate in an Awareness Revolution. We need to begin by remembering, in the spirit of Socrates and Einstein, to examine the hypercomplexity of our 21<sup>st</sup> century life with a new mindset that allows us to consider potential solutions that at first may appear to be impossible.

There are two main competing events in the universe: One that builds and one that takes apart. The one that builds we call *evolution*; the other is the process of *entropy*. In this competition, the process of building is usually a step ahead of entropy — that's why we are here.

Cosmic evolution assembles subatomic particles to build atoms; atoms assemble to build molecules of matter; inanimate matter on Earth built organic matter; from organic matter springs life that evolved from simple to complex. From complex life evolved the human brain with free will. "Do-as-I-please" free will has the option not to follow nature's rules. Indeed, humans not only departed from the natural path but over time asserted that the new path is the right path. Thus developed concepts that regarded nature as a resource to be exploited without limits in the service of the newly invented concepts such as economic growth pursued through extractive techno-industrial capitalist-consumerism fueled by unrestrained burning of fossil fuels.

Many human concepts are irrational fantasies because they are disconnected from the natural building code and are therefore not sustainable. If the philosophical foundation of everything we are doing is on a dead-end track across our bridge to the future, then our task is to retrofit our near-to-collapse bridge in compliance with nature's building and sustainability code, so we can continue our ride toward our desired destination of peaceful systemic sustainability.

To do that, first we need to realize that we have locked ourselves into a box of unsustainable concepts, and we threw away the key. Once that is realized we must find the key or break out of that box to examine life with a new mindset and rediscover truly sustainable ways of living. Remember reducing carbon emission is not nearly enough. There is urgency because we are the last living generation who has the option to do this work before the window of opportunity closes forever.

*The Holigent Initiative* proposes a number of outside-the-box experiments. Individuals, groups, and institutions may pursue some of the experiments that could lead to a destination of universal quality of life, global peace, and systemic sustainability.

Among the proposed experiments are some that start small and then grow to wider societal reconstruction; not as a political command and control system, but rather something that evolves gradually, with self-organized communities established one at a time complying with nature's building and sustainability code as closely as humanly possible.

Our most urgent task is to diffuse the probability of catastrophic conflicts fueled by high global socioeconomic stress and the competition of the superpowers for the diminishing resources.

First, we need to get over the misconception that we can reduce human stress in a stressful world any more than you could change the shape of a shadow without changing the shape of the thing that casts the shadow.

Stress is the "shadow" cast by human suffering — the lack of quality of life. When we secure universal quality of life, individual and collective societal stress will remain dormant — preserving peace.

I once had a not-so-good car mechanic who didn't really understand cars; he just kept replacing parts randomly until it solved the problem. This method will not work for fixing broken societies. The reason: The whole of interconnected parts of a society is far more complex than a car. Here is a brief summary.

For creating universal quality of life, global peace, and systemic sustainability, you need to do the following. You need to reform capitalism so that it does not fuel wealth inequality that leads to bloody revolutions every few generations. You need to redistribute wealth, but without outright confiscation as in communism, or democratically legislated confiscation through heavy taxation. You also need to reform capitalism so that it does not fuel wasteful consumerism that is depleting Earth's life-support capacity.

After you have done all that, you will provide **food**, **shelter**, **employment**, **community**, **and security** to every individual in your Holigent community. Here are the brief justifications: Without shelter you will freeze in the winter, without food you will starve, without employment boredom will kill you, without community loneliness will kill you, and without security you may lose all of the above all at once. The Holigent reorganization of life and society will do all that because without it there will be no quality of life. And you remember that without secure quality of life the stress of life will be elevated, generating high socioeconomic stress that leads to collective bad behavior such as urban riots, bloody revolutions, storming of the Capitol, fascism, and war.

This issue is complicated because high stress changes human behavior — the human brain shifts gears from reasoned thoughts down to our primitive brain of fast reflexive "reptilian" action without critical thought process. This is a survival skill we learned in the dangerous world of the evolutionary jungle millions of years earlier where life or death action had to be decided in split seconds; there was no time for thinking. This mechanism is deeply embedded in our neuroendocrine system. Our only option is to keep our stress arousal system dormant; and that can be achieved by securing universal quality of life.

After you have accomplished the above, you need to think about sustainability. This means more, much more, than reducing carbon emission. It means you need to create interconnected social, economic, and environmental justice, reason, and quality in pursuit of systemic sustainability.

When Holigent Transformative Societal Reconstruction is diligently pursued, it will accomplish all of the above. If it seems like utopia, that is because to some extent it is. In other words, we have seen nothing like it in our highly specialized and deeply compartmentalized reductionist-minded world. Yet it is a doable societal experiment; unlike all previous high-risk experiments, the Holigent project is without high risk. All of history's social organizing experiments such as monarchy, Nazism, communism, socialism, and democracy were and are centralized, top-down systems; therefore, their failures are system-wide, touching the lives of all in those societies.

The Holigent Project begins as a seed or cell with one piece of real estate, a Holigent house, occupied by a handful of people, followed by several other Holigent houses forming

a collegium/campus. In time the Holigent campus is enlarged to form a Holigent Village. The project grows one Holigent house at a time, building self-maintained and self-directed communities that connect and collaborate like cells and organs of a living organism. The various Holigent communities will calibrate their hybrid socioeconomic arrangements (Holigent Delta Plan) with varied inputs. This is to create variations of outcomes from which the best practice will emerge for societal reconstruction to multiply, a community at a time, in America, Europe, and beyond.

Will this rearrangement of societies take years or generations? It will depend on how well we demonstrate and how soon we convince billionaires and governments, regardless of liberal or illiberal, that Holigent societal rearrangement is a *nonpolitical solution* to create and maintain quality of life, stability, and peace that would benefit all participants.

Part of the community service obligation of every resident of a Holigent Village is to spread the good news about life in such a community; in other words, to project a high beam of hope and encourage all to come visit, learn, and participate in community service programs; all and all building a better bridge to quality of life in a peaceful and sustainable future.

When funding becomes available, the purchase of real properties and organization of a cluster of homes to form a Holigent collegium can be accomplished in a matter of few months.

#### Learn and Follow Nature's Sustainability Formula

Nature/evolution has been perfecting the art of sustainability for billions of years here on Earth. Humans have been polluting on an industrial scale only for a few centuries. In less than a blink on the evolutionary time scale, humans managed to bring nature to the brink of exhaustion. So it will be wise for us to learn nature's sustainability know-how to secure a future for humans on our planet.

**Learn** that nature builds and functions through cellular construction and organic collaboration. Your body is the closest example: Cellular construction built your organs, and your collaborating organs sustain your life. In other words, networking heart cells do the work of your heart just as networking lung cells do the work of your lung. Once built, your heart beats for the heart and for all the other organs, your lung breathes for the lung and for all the other organs, and so on. The governing rule within a system, in a sentence is: *One for all and all for one without conflict.* 

**Understand** that during evolution of life on Earth, for billions of years before humans arrived, every living organism of millions of species through countless generations

made their flesh, leavings, and remains available as food and a resource for other organisms without waste. Total recycling is nature's rule of sustainability. In a sentence: *Do the essential most using the least of resources without waste.* 

**Remember** that billions of years of natural evolution on Earth is the only success formula for sustainability. We have to relearn and follow the natural model as closely as humanly possible.

**Follow** the Holigent concept of societal reconstruction mimicking nature's way to be compliant with the natural building and sustainability code. While competition may exist between organisms the sustainability code of no conflict and no waste applies within resilient systems and organisms.

### **Universal Quality of Life**

I want to repeat this because this is the key for the Holigent program to achieve success in transformative societal reconstruction. Our existing socio-political infrastructure is not able to provide quality of life for a wide segment of society. To secure universal quality of life, society needs to be reconstructed to satisfy the essential needs of human beings while protecting Earth's life-support capacity.

There is no shortcut to universal quality of life without transformative societal reconstruction, a community at a time, to follow nature's building and sustainability code of cellular construction and organic collaboration among the parts with the frugality of Mother Nature's economy. Let's consider nature's full building and sustainability code once again in a sentence:

Cells construct organs, organs collaborate to sustain life, one for all and all for one, doing the essential most, using the least of resources, (with love and laughter) without conflict and without waste.

Oh yes, I snuck in the line "with love and laughter." Love, smiles, and laughter generate endorphins, our happy and healthy brain chemistry that displaces stress hormones — the chemistry of fear, aggression, and to some extent illness. With this you can build and maintain your health and quality of life.

This can be your mantra to prevent dysfunction and collapse by mimicking nature's building and sustainability code. Humanity has experimented with left, right, and center politics with results ranging from fragile to catastrophic.

We understand that nature has been perfecting sustainable self-organization of species through billions of years of evolution. The wise thing for us to do is to mimic and follow nature's ways. The first thing we need to note is that nature has a building and sustainability self-organizing code that is strictly enforced. The fine point here is that while non-conforming organisms will be terminated, *participation is voluntary*. Organisms participate by filling an attractive niche that promises to satisfy their needs.

Similarly, participation in a Holigent Project is voluntary. Furthermore, each Holigent community designs its own contract (Holigent Delta Plan) to allow for variations out of which best practices and continuous improvement will emerge.

# Step-by-Step Local to Global Holigent Societal Reconstruction

#### **Step 1: Instructive Demonstrations**

Protests of the past, expecting politicians to fix big problems, have not worked well because it is outside of politicians' and institutions' skillsets to build a peaceful and sustainable future. I encourage people of all ages to, instead of protests, organize Instructive Demonstrations, wherever you are, and deliver this "instruction manual" into the hands of responsible leaders. You can do Instructive Demonstrations on the streets and in public places, exercising your first amendment rights.

#### **Step 2: The Holigent House**

When donations and grants become available, the Holigent program continues with the acquisition of suitable real properties. The properties may be renovated to serve as live/learn/work arrangements for people studying and practicing Holigent hybrid socioeconomic reorganization of life and community.

Residents of Holigent houses will enter a three-way agreement (The Holigent Delta Plan) with their participating employers and the managing nonprofit organization to create a hybrid economy that provides housing, food, employment, community, and security as outlined in the following.

#### The Holigent Delta Plan

- the core of the Holigent Hybrid Economy



The Holigent Delta Plan is a three-way agreement between participating employers, their participating employee-residents of the Holigent community, and a nonprofit developer/management organization. Economic security is achieved through the Delta Plan by self-organized self-reliance, maintaining balance between and sufficient separation of local and global economies. The Holigent arrangement helps generate and retain local value and wealth, providing a "firewall" to protect participating communities against the unpredictability of the general/global economies even during recessionary times. With these three-way agreements, the nonprofit management organization is able to secure business continuity, employment, housing, food security, and quality of life for all occupants of a Holigent community. Three general scenarios are highlighted below to illustrate the key aspects of the hybrid economic arrangement:



#### **Plan A:** Normal conditions

Under normal conditions an employee-resident's time is allocated between employment and community service according to their basic agreement. All residents, while working full time at their jobs, allocate a certain number of hours weekly participating in community service for which they earn community credit used to pay a portion of their housing cost.

#### Plan B: Variable conditions

During moderate economic downturns, affected employees' commitments would be varied according to a negotiated scale. In accord with those agreements, affected companies would reduce some or all employees' work hours. Affected employees would work more hours in community service and pay an increased portion of their housing cost with earned community credit. This option provides the opportunity for employers and employees to calibrate their variable agreements securing housing, work, and income under deteriorating conditions of the general/global economy.

#### Plan C: Dormant conditions

During severe economic downturns, an affected company would go into a dormant state rather than shut down. Its employees would go on unpaid furlough rather than be laid off and would be recalled when work became available. Increased community service allows furloughed employee-residents to retain their housing and pay most or all their housing cost with earned community credit. Participating employers, in order to avoid permanent shutdown, must be debt-free, insured, subsidized, or otherwise able to reorganize or freeze obligations to be covered for the dormant period. This plan would preserve a company's physical, business, and workforce assets as well as its employees' jobs, housing, and essential quality of life.

#### **Step 3: The Holigent Campus Community**

The Holigent house will be further developed and additional properties acquired to provide live-in/learn/work collegium for students, self-employed entrepreneurs, and for small companies and their employees. They will each participate in the Holigent Delta Plan.

The campus community will nurture the development of Holigent Solutioneers to reexamine life with a new mindset as they learn and practice the art, science, and skills of societal retrofit or reconstruction to comply with nature's building and sustainability code.

#### Step 4: The Holigent Urban Village

The expansion of the campus will lead to the creation of The Holigent Urban Village that is a proposed human-scale, pedestrian community that may consist of low-, mid-, and highrise; all-green; mixed-use residential and commercial structures retrofitted or built to comply with the latest green technology. The Village generates most or all its renewable solar and wind electric power, grows a significant portion of its fruits and vegetables in vertical farming, and does all its reclaiming and recycling. Residents in these car-free pedestrian communities use no or minimal personal mechanical transportation. The Village will provide office, light industrial, and commercial spaces, a shopping promenade, and parks with recreational facilities. Such "live/work" multi-purpose communities will bring places of employment within close proximity to residences. Holigent Urban Villages will not sprawl beyond their designated capacities, thus preserving their walkable human scale. To satisfy growing demand, additional villages will be built and joined by electric rail mass transport.

#### **Step 5: Regional Development**

A cluster or string of Holigent Urban Villages will be built to form a Holigent town. Such regional development will provide the opportunity to fine-tune the hybrid socioeconomic system and demonstrate its large-scale potential.

Each village would feature efficient light mass transit to facilitate movement between and outside Holigent communities. Living comfortably in these safe, economically secure, well-maintained, and healthy communities with parks and recreational facilities and without the burden of car ownership or long commutes allows for greater social interaction, physical activity, and stress-free living.

Stress-free living is a significant factor of greater individual and collective health and happiness. Holigent communities will also prevent rather than fight crime by providing outreach, training, and jobs for adjacent neighborhoods with special attention to their atrisk youth. Furthermore, Holigent Villages will be developed and managed by nonprofit organizations and will be income generating and self-maintained. An inherent aspect of Holigent projects is ending unemployment and homelessness.

#### **Step 6: Continental Programs**

According to the vision, at the time of this writing, the experimental seeds of this Holigent project will be planted and nurtured to maturity in the United States and in central Europe. When politicians on all sides understand that Holigent projects are nonpolitical stabilizers of societies that can become a massive means of job creation as well as a solution to the multidimensional challenges facing communities around the world, and when funding is forthcoming, the regional project will expand.

Holigent projects expanded to continental scales in America and in Europe would build energy independence, balanced budgets, and economic security; they would reduce the burden on governments and provide quality of life at a sustainable rate of consumption and minimal carbon footprint.

#### Step 7: Global Outreach

Holigent Solutioneer graduates would take their new skills and help locals plant the seeds and nurture new community reconstruction projects around the world. Holigent programs could be models for global community networking and socioeconomic reconstruction that would promote universal quality of life, global peace, systemic sustainability, and project hopeful goodwill worldwide.

# The Proposed United States Holigent Peace and Sustainability Project

The commitment to promote *universal quality of life, global peace, and systemic sustainability* would require that America understand that building global peace and sustainability will require the magnitude of commitment similar to the scale and cost it took to win World War II. To that extent the United States Congress needs to establish a **Department of Homeland Reconstruction** to provide funding for ongoing societal reconstruction experiments in building communities compliant with nature's sustainability code, then replicate such successful experiments across America, Europe, and beyond. This would widen the circles of Holigent/Compliant Societal Reconstruction and project a bright ray of hope into the dark and hopeless regions of the world. Providing opportunity for people in those regions would allow for an alternative to becoming refugees, migrants, or terrorists.

We need to remember that societal renewal in the Holigent spirit is systemic reconstruction that includes social, economic, and environmental aspects of society. When we accomplish such systemic synergetic rearrangements of all aspects of society, there is a "holistic-emergent" higher order outcome that secures universal quality of life, peace, and true sustainability for all the residents of such societies.

A sudden gust of reality hit me on the ground in the Westside of Los Angeles less than a year from the next election that may result in the Make America Great Again crowd occupying the White House by votes or by force. If by force, the danger is particularly high because America will slide toward fascism. I repeat my earlier reasoning here: An American fascist leader can't Make America Great Again any more than a German fascist leader could make Deutschland Über Alles (Germany above all) during the 1930s. Their option is to direct the unhappiness of the angry crowd on beating up minorities. When that doesn't deliver the promises made, they give the angry crowd a big fight they don't know they don't want — they make war. In the conflicted, highly stressed world of the 21<sup>st</sup> century, conventional war among superpowers will likely escalate to nuclear conflict.

Here is an outline of a proposal that could avoid such a dark scenario, and in the process America could lead the way to build a better bridge to our future. If you have the

means, you are welcome to pursue any number of societal reconstruction programs suggested in the Basket of Experiments.

Here, I outline in **five steps** my proposal for societal reconstruction to comply with nature's building and sustainability code to move society toward a future of quality of life in peaceful systemic sustainability.

#### Notes before the five steps...

It would be a major miracle if lawmakers in Congress would establish the Department of Homeland Reconstruction and federal money would flow into societal reconstruction programs — much the same way as the yearly budget flows into all the federal departments such as the Department of Homeland Security (\$82 billion in 2023) or the Department of Defense (over \$800 billion for 2024). Think about this: 1% of the DOD budget or \$8 billion could build about 20 full size Holigent Urban Villages every year.

According to present reality Congress is not capable, therefore not likely, to make such a leap. A more realistic approach (in my neighborhood) is that the city of Los Angeles plants the seed of the concept by developing an experimental Holigent campus; followed by the state of California pitching in to expand the campus — pioneering the development of a Holigent Urban Village. This could be a showcase to demonstrate to Congress the art and science of societal transformation from the unsustainable, globally conflicted, technoindustrial, extractive capitalist-consumerist, military-industrial complex **to** cellular reconstruction forming communities with hybrid economies and social contracts. This would be a grand experiment to build a better bridge from the brink of collapse, extinctions, and the depletion of Earth's life-support capacity **to** a bright and hopeful future of social, economic, and environmental justice; quality of life; and systemic sustainability.

**Step One.** When private and public funds become available, I will utilize my nearly 50years of experience in the real estate renovation craft. We will buy and renovate **residential properties** for Holigent.Org in one of the lower priced, yet desirable parts of Los Angeles for this proposed project. The area I have in mind is the light rail corridor along the Expo Line adjacent to the University of Southern California. For example, ten homes, at an average of about \$1.2 million each, would cost \$12 million total.

The ten homes would house about thirty to fifty young people, provide roof surfaces for solar energy generation, and provide the yard space for growing food in vertical farming.

**Step Two.** The ten homes will form a **collegium/campus** in which young Americans will live and learn the art, science, and skills to become Holigent Solutioneers for cellular societal retrofit and reconstruction (one community at a time). Resident Holigent Solutioneer students will learn to examine 21<sup>st</sup>-century life, because *the unexamined life is not worth living* (Socrates). They will learn to examine life and its problems with a new mindset, because *a problem cannot be solved with the same mindset that created it* (Albert

Einstein). And so will the pioneering class develop and test in practice a new philosophical foundation on which to reconstruct society, a community at a time, to be better aligned with nature's building and sustainability code. Their mission is to avoid *"the collapse of civilizations and the extinction of much of the natural world"* (Sir David Attenborough), and begin building a future of universal quality of life in peaceful systemic sustainability.

**Step Three.** As it matures, the campus will grow to become a **Holigent Village** organized to comply with nature's building and sustainability code. This will be a grand experiment in systemic sustainability based on a new philosophy as well as a demonstration project to show Congress the advantages of investing in systemic solutions rather than fighting endlessly escalating problems.

**Step Four.** As part of Holigent Village residents' **social contract** (see the Holigent Delta Plan), they will build and install solar and wind power generators, will grow a significant portion of their fruits and vegetables in vertical farming, and will learn to get around using minimal mechanical transportation as well as reprocess and recycle waste.

**Step Five.** Holigent Solutioneers will travel to Washington, D.C. to introduce hybrid cellular societal reconstruction plans to achieve peaceful systemic sustainability. We will encourage Congress to establish the **Department of Homeland Reconstruction** to fund the construction of nature-compliant communities. We will remind Congress that building global peace and sustainability to save civilization and the natural world will require the magnitude of cost and effort no less than winning World War II and the Marshal Plan that helped rebuild Europe. When the U.S. Holigent project is successful, we will grow the program around the world and nurture the expansion of universal quality of life, global peace, and systemic sustainability in the interest of averting collapse and extinctions and allow humanity to survive and thrive on our one and only habitable and amazing planet in the known universe.

# The Proposed European Holigent Peace and Sustainability Project

Holigent Solutioneers will organize Instructive Demonstrations and road trips across Europe to inform and promote Holigent Transformative Societal Reconstruction in the interest of building their future of quality of life in peaceful systemic sustainability. The purpose of the Holigent road trip across Europe from Budapest to Brussels is to deliver hard copies of the Holigent Peace and Sustainability Proposal to officials of the European Union, urging them to help fund the Global Village project in Budapest and elsewhere, and to work with the United States to advance the Peace and Sustainability Initiative around the world.

We remember that twice in the 20th century, Europe sparked world wars that dragged America into the conflicts. America, no matter how reluctant, most likely would again be involved in a 21<sup>st</sup>-century war in Europe — the probability of which is heightened by the elevated global socioeconomic stress in this climate-changing, post-pandemic, conflicted, and nuclear-armed world. Among others, the Holigent concept proposes that America and Europe commit to a joint program, working together not so much on winning the next war but rather to avoid war altogether by planting the seeds and nurturing Holigent Transformative Societal Reconstruction in America, Europe, and around the world.

The European Union is already aware of the fact that it is fragile. This has deep and fundamental causes that are beginning to be understood. If business continues as usual, the disintegration of the European Union is a near certainty in the coming years. A fragmented Europe in a conflicted and nuclear-armed world will once again be a dangerous place — endangering lives, civilization, and the treasures of art and architecture so painstakingly repaired and restored after World War II.

With all that in mind, we hope that the European Union will generously support Holigent projects and nurture its seed and development: The Holigent Global Village in Budapest, Hungary.

#### Notes about any negative views associated with the current politics in Hungary...

The Holigent project is a nonpolitical, nonprofit undertaking. We do not support or oppose any politician or political party. To secure a peaceful and sustainable future is a Holigent experiment in securing universal quality of life and reducing socioeconomic stress pursued entirely outside of politics. It may also be viewed as part of the experiment to test if illiberal or authoritarian-leaning governments will see the advantage in projecting and building social stability in such systems. This is important because in time the Holigent Global Village, a permanent world exposition, will invite Russia and China, among others, to participate. World peace and systemic sustainability are hard to imagine without allinclusive participation.

However, if the Holigent Peace and Sustainability Project runs into obstacles in Hungary, we will be prepared to transplant the project to any neighboring central European nation.

If all goes well in Budapest, the project will progress through the steps of the Holigent Societal Reconstruction Experiment in pursuit of universal quality of life, world peace, and systemic sustainability.

#### Part 4

# Who Can Save the World?

All through history, civilizations attempted to solve complex socioeconomic problems with the simplistic "solution" of war — defeat the enemy and all problems will go away. This rarely worked, but more often created different and bigger problems. If the caveman mentality did not work in earlier times, it will surely fail to solve problems in this 21<sup>st</sup>-century world of hyper complexity.

We now urgently have to reexamine our problem-solving strategies, because war never truly solves problems, but a 21<sup>st</sup>-century nuclear world war will most likely end it all. So let's draw up a collective scenario in which nearly everyone can and will need to participate.

# Young people can save the world!

Here is a general idea. If you are a high school or university student or older, organize to form a group. Exercise your First Amendment right by taking your Instructive Demonstrations to public places weekly. Call it "BBB-Fridays" or something people will easily remember — Build a Better Bridge to your future with this book in your hand.

Journalists and the media will take notice of your Instructive Demonstrations (they need a new story every day). When they do, they will write and talk about it.

Billionaires are curious people and they will not be able resist reading about you wanting to save the world. This is their world, too, and they are smart enough to figure out that in a nuclear "Armageddon" the radiation clouds will find them on their remote island hideaway. In that light they may consider a few million dollars donation to your project as a worthwhile investment in their life and wealth preservation portfolio. Besides, they will

realize that escaping to Mars, a dead rock in cold and empty space could be a real pain in the ass.

**Politicians** will take notice when they see your first experimental nature-compliant (Holigent) community demonstrate the hybrid socioeconomic arrangement that secures quality of life for its residents. Politicians will understand that supporting projects building a peaceful and sustainable future is more satisfying than fighting never-ending everyday problems. In this light, with your encouragement, they will be inclined to establish a Department of Homeland Reconstruction (DHR) to fund the continuous development of nature-compliant communities across America and beyond.

Congress established the Department of Homeland Security in response to the 9/11/2001 terror attack on the United States. For example, the 2023 budget of the DHS was \$82 billion. The Department of Defense budget for 2023 was over \$800 billion.

Imagine a new **Department of Homeland Reconstruction** receiving the equivalent of 1% of the DOD budget; that would amount to \$8 billion per year; that could buy, on average, about 4,000 homes that would make five Holigent Villages yearly. In 10 years this would secure housing for about 160,000 people and the project would become self-sustaining and continue to grow.

## More specific steps

#### Step One

Spread the message: It's your future. We can save the world. If we don't do it, no one will. Lets get to work!

#### Step Two

Organize Instructive Demonstrations. Protests don't work because creating a peaceful and sustainable future is beyond the skill-sets of politicians and institutions. They have no clue — you must instruct them. Carry this instruction book visibly along your Instructive Demonstrations.

#### **Step Three**

Meet regularly every week at the same place and time. This way people can develop a routine of participation. See *Instructive Demonstrations* and *Street Act* below.

#### **Step Four**

Form your organization that can accept tax-deductible grants and donations. Engage in vigorous fundraising and grant writing.

#### **Step Five**

When money arrives, your organization can purchase real estate in a part of your city with light rail, metro, or other public transportation.

#### **Step Six**

Start up your (Holigent) Quality of Life Community.

## **Instructive Demonstration** Street Act in Q&A to Heal Los Angeles (or Your City) and Save the World

Your group can exercise your First Amendment right by walking on the sidewalks, say in front of City Hall, with this book in your hand. Allow anyone to scan the QR code on the back cover to be taken to the Holigent.Org website to learn more.

Perform the Street Act. Have one in your group read aloud the questions and someone else read the answers.

# **Proposal in Q&A**

This Proposal in Q&A form is unconventional and playful, yet it is serious in that it provides a doable plan to solve a very complex problem that cannot be solved by conventional methods. The problems of Los Angeles (and so many other cities in the world) can be solved by systemic "holistic emergent" solutions that yield synergetic "more than the sum of the parts" result (Buckminster Fuller). It is meant to be a grand societal experiment. If it works to heal Los Angeles, then we can plant the seeds of this innovative societal reconstruction in Europe and beyond to save the world from the collapse of civilizations and extinction of much of the natural world.

The city of Los Angeles may set up a 501(c)(3) nonprofit organization to build a Holigent nature-compliant community and conduct this proposed societal reconstruction experiment. Or...

Holigent.Org, a 501(c)(3) nonprofit organization, will acquire some suitable real estate to open the first Holigent house — the seed of a Holigent campus where students will live/learn/work, forming the first Holigent community, developing a hybrid

socioeconomic arrangement, and demonstrating nature-compliant living. When grants and donations arrive, I will put into action my 40+ years experience of buy, renovate, rent and manage residential properties.

So begins Transformative Societal Reconstruction, building a better bridge to the future of social, economic, and environmental justice; quality of life; and systemic sustainability. The Q&A below answers many more questions about building a future of universal quality of life, global peace, and systemic sustainability for humanity to survive and thrive on Earth — our one and only warm, wet, and green habitable planet in the known universe.

Q. There are traditional ways for submitting proposals, so why this Q & A format?

A. Traditional ways and conducting business as usual are ushering our civilization to the brink of collapse. I am looking for ways to get off that track.

Q. How would you define "business as usual" that is so harmful?

A. To sum it all up, I define business as usual; *globally conflicted, techno-industrial, extractive capitalist-consumerist, military-industrial complex.* Regardless of politics, to some extent, nearly every nation is practicing it. This is unsustainable. Sir David Attenborough summed it up at the 2018 U.N. Climate Conference: *"If we don't take action the collapse of our civilizations and the extinction of much of the natural world is on the horizon."* This is my attempt to step outside the "box" and follow the spirit of Albert Einstein who said, *"A problem cannot be solved by the same mindset that created it."* 

Q. What would you do with a new mindset?

A. I would also follow the spirit of Socrates and examine life, because *"the unexamined life is not worth living."* 

Q. Life is what it is; why does it need to be examined?

A. I could write a 500-page book to answer that question, but don't worry...I'll answer it in a few sentences. The basic reason is that every moment in the universe is different than the moment before. That is because time and evolution are unstoppable. The evolution of inanimate matter in the cosmos from the simple to the complex took about 13 billion years.

Our planet was a product of that cosmic evolution; on Earth, inorganic matter evolved to organic from which simple life emerged. That was followed

by the evolution of life from the simple to the complex during the latest 3.5 billion years.

Humans developed free will and the capacity to examine life, but instead humans chose to follow their primitive impulses. Now we must examine STRESS that is a primitive legacy from the evolutionary jungle — accelerating the process to collapse and extinction.

Q. Where are all the brilliant men and women, credentialed by higher educational institutions, to come up with solutions to build a peaceful and sustainable world so that humanity could survive and thrive on our one and only habitable planet in the known universe?

A. They locked themselves into the "box" or ivory tower. They failed to build a better bridge to our future and flunked the test of saving humanity.

Q. So why is this Q & A your preferred format to offer a proposal?

A. Q&A is probing. It helps to keep alive the spirit of Socrates and Einstein. It is a way to examine life with a new mind in the moments of the present in which we live as time speeds by from past to future.

Q. Why does Los Angeles need to heal itself?

A. Los Angeles has homeless encampments on the streets all over the city, while billionaires are living in mansions on the hilltops. The city is gridlocked in traffic. And the rising cost of living is forcing some people out of the city. At the same time, some high-earning professionals with young families are also leaving the city because of rising stress, fear, and embarrassment having to explain to their children why people sleep in filth on the sidewalk.

Q. Why does the world need saving?

A. It is evident to thoughtful people that Earth's finite life-support capacity will soon be exhausted by the near-infinite demand of eight billion reproductive and wasteful humans. Jarred Diamond's book *Collapse* tells the story of why ancient civilizations are not here anymore. The common reason for their collapse was the exhaustion of resources.

Q. Why does creating a peaceful and sustainable world seem nearly impossible?

A. Because it is complicated.

Q. How complicated?

A. Not nearly as complicated as making a small flat digital machine that you can whip out of your pocket and use to talk to somebody hundreds of miles away.

Q. So, why can't we build society to work as well as a smartphone? Especially when societal dysfunction and conflict may result in dangerous collisions between the superpowers and lead to nuclear "Armageddon"?

A. Because we use our frontal brain to build smartphones, but use the primitive 'reptilian' part of our brain, leftover from the evolutionary jungle, to organize human societies. This has much to do with STRESS.

Q. Sounds like a sickness. What is stress, really?

A. It is psycho-biological preparation to respond to challenges.

Q. How do we get rid of it?

A. You can't get rid of it. There is no pill for it, and it cannot be surgically removed because it is deeply embedded in our neuroendocrine system.

Q. When and how did we contract the inconvenient "disease" of stress?

A. Millions of years ago in the evolutionary jungle.

Q. Why?

A. Because in the critter-eat-critter jungle, our predecessors had to make split-second decisions to fight or flee to stay alive. There was no time for thinking.

Q. That was a long time ago. Why can't we change and stop reacting that way?

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A. Because the fast reflexive response without thinking is embedded in the primitive part of our brain. It was our survival mechanism during our early evolution, and now we are stuck with this legacy. Fear and aggression are the primitive tools we still use to try to solve complex socio-economic-political problems that often result in conflict and lead to war.

Q. So what's the solution?

A. Examine life with a new mindset using the same part of our brain that gave us the smart phone.

Q. How would that work?

A. Remember, stress turns on aggression and turns off rational thought processes. Remember also that the neuroendocrine stress mechanism in the body cannot be surgically removed. The only rational option is to secure quality of life so the stress response is not triggered, but remains dormant in the individual's brain and body.

Q. Do you suggest securing quality of life for eight billion people on Earth?

A. Yes!

Q. Isn't that an impossible proposition?

A. No. It is less complicated than building a smart phone if you use the right tools.

Q. What will it take?

A. It will take an Awareness Revolution; learning to examine life with a new mindset, engineering, acquisition, construction, and money.

Q. Where would the money come from?

A. The wealthy 1% may realize that it would be a wise investment in their life and wealth preservation portfolio; and politicians realize that investing in resilient communities is a better idea than pouring money into a bottomless pit of perpetual problems.
Q. How would we start?

A. When money arrives, build an experimental demonstration Holigent Village.

Q. What is Holigent?

A. The word "Holigent" is a merging of the terms "holistic" and "emergent". It is a concept that follows nature's building and sustainability know-how.

Q. What is a Holigent Village?

A. It is a decentralized, self-organized, self-reliant, all-green, pedestrian community with hybrid socioeconomic arrangements, built in compliance with nature's sustainability code that secures quality of life for all its residents.

Q. Let's assume \$12 million is donated to Holigent.Org. What would happen next?

A. We go house hunting and buy about ten homes for Holigent.Org in the Jefferson corridor along the Expo light rail line near the University of Southern California in Los Angeles.

Q. What do you do with the homes?

A. Upon closing escrow on each of the houses, Holigent.Org takes possession and after renovation and additions, we invite about 50 people to live, learn, and work in the homes, forming a Holigent campus that will be the seed of a Holigent Village.

Q. What will they be learning?

A. Among other things, they, too, will learn to follow Albert Einstein's advice and develop a new mindset, because "*a problem cannot be solved with the same mindset that created it.*"

Q. What would they be doing with their new mindset?

A. Learning to follow the advice of Socrates and reexamine life, because *"the unexamined life is not worth living."* Students will also learn to build solar energy generators, grow food in vertical farming, and manage waste through repurposing and recycling.

Q. What's next?

A. Holigent.Org will engage in ambitious fundraising from private and public sources.

Q. What will Holigent.Org do with the money?

A. Enlarge the Holigent Village to demonstrate a new hybrid socioeconomic organizing system in which the pillars of our bridge to the future, *capitalism* and *democracy*, are retrofitted in the interest of building a future of social, economic, and environmental justice; quality of life; and systemic sustainability.

Q. What's wrong with capitalism; why does it need to be "retrofitted"?

A. In capitalism the rich get richer and the poor get poorer. Carl Marx tried to fix it, but succeeded only to spark the Bolshevik Revolution that turned into mindless and murderous communism that managed to collapse under the weight of its own stupidity (I grew up in that system in Soviet-occupied Hungary).

Thomas Piketty explained it with the formula  $\mathbf{r} > \mathbf{g}$  (return on capital is greater than growth). Think of it as the DNA of capital that relentlessly drives wealth from the 99% to the 1%. History has shown that, from time to time, the resulting inequality brings out the pitchforks, the guillotines, and the Bolsheviks leading to bloody upheavals and war.

Q. How will Holigent retrofit capitalism?

A. All grants, donations, and income generated by the Holigent Village will transfer wealth from capitalism to the Holigent commons, reducing housing rates and improving quality of life for its residents.

Q. What's wrong with democracy?

A. Built-in opposition makes democracy corruptible. That is contrary to the natural rule of organic collaboration of the parts that make resilient systems. The higher the socioeconomic stress in a democracy, the greater the probability of drifting toward fascism and ultimately war.

Q. Why does fascism likely lead to war?

A. Because fascist leaders make grand promises such as "Deutschland Über Alles" in 1930s Germany or "Make America Great Again" in our time. When they can't deliver, they deflect anger by telling the angry crowds to beat up on minorities. When that doesn't deliver the promise, the fascist leader has no choice but to give the angry population a big fight they don't know they don't want — and make war.

Q. How would you retrofit democracy?

A. Each Holigent Village community exists as a nonprofit organization — a decentralized cell of society. Members of the board of directors are elected from the community, and they collectively look out for the best interests of the community, securing quality of life for every resident.

Q. What's next?

A. We introduce the idea and invite the mayor of Los Angeles to be a partner in the project of building Holigent Villages.

Q. Why would the mayor opt in?

A. Each Holigent Village would own the housing units purchased with grants, donations, and income generated by the commons. Holigent Villages would offer housing with significantly reduced rent. This may provide affordable housing to some homeless people. Those who can't afford even the low rent would be offered housing in exchange for doing low-skill work in general maintenance. The less capable will be taken in and provided mentoring by residents performing their social service obligation that is part of their contract — earning community credit that reduces their housing cost. All along, stress and the burdens of life are reduced while quality of life is elevated for all residents of a Holigent Village.

Q. What's next?

A. Introduce the Holigent Proposal to the governor of California.

Q. Why would the governor be interested?

A. California's culture and history are all about pioneering and innovation. It would be a good fit for the state to be at the forefront of this innovative Societal Reconstruction experiment to build a future of universal quality of life, global peace, and systemic sustainability.

Q. Next?

A. We will continue our tireless public and private fundraising efforts to take Holigent Transformative Societal Reconstruction to every corner of America, Europe, and the world.

Q. Why is that necessary?

A. For about the same reason an apple mustn't have even a small rotten spot. If it has, soon the whole apple will be rotten.

Q. This sounds like an expensive proposition. Where will that kind of money come from?

A. Remember, in the 20<sup>th</sup> century the U.S. spent treasure and blood to win World War II and save Europe from fascism. We will remind politicians that in this 21<sup>st</sup> century, the U.S. urgently needs to spend treasure, but no blood, to save democracy from drifting to fascism and save the world from wars and a probable nuclear "Armageddon."

Q. And just how do you plan to do that?

A. We will send politicians emails explaining all of this.

Q. What if they delete the emails without reading them?

A. Then we will organize road trips from Los Angeles and other major U.S. cities across America, converging in Washington, D.C.

Q. Will you protest when you get there?

A. Protest alone doesn't work, because building a peaceful and sustainable future is beyond the skill sets of politicians and institutions. We will participate in **Instructive Demonstrations**, explaining in detail what to do and how to do it.

Q. What do politicians need to do?

A. Members of Congress need to establish a U.S. **Department of Homeland Reconstruction** to secure funds for building Holigent Villages across America. Then we'll proceed to take the program to Europe and around the world.

Q. Will Holigent societal reconstruction programs become bottomless pits for grants and donations?

A. At some point in time, Holigent Transformative Societal Reconstruction for building a future of social, economic, and environmental justice; quality of life; and systemic sustainability will achieve a critical mass. From thereon the internally generated capital of the Holigent communities will assure continued expansion of the program, even to the dark and hopeless corners of the world.

Q. Why would people want to live in Holigent Villages?

A. For about the same reason large numbers of people take high risks migrating to Europe and to America — hoping to improve their quality of life.

Q. How would a Holigent community improve quality of life for its residents?

A. Living in a Holigent community begins with signing on. It is no ordinary lease or rental agreement, but a unique contract called the Holigent Delta Plan to become a member of the community.

Q. What is the Holigent Delta Plan?

A. It is a three-way agreement among employers operating in the Holigent community, residents, and the managing nonprofit organization.

The Holigent economy has a hybrid engine that can be powered by money and/or by moneyless social service input of the residents. The ratio of

the power input driving the economy is variable, depending on the general conditions of the economy. Living in a Holigent community secures at least five essentials that will improve and secure quality of life.

1) *Food*. Residents will grow much of their food in vertical farming.

2) *Shelter*. The community will purchase all housing units with grants, donations, and money generated by the community. Owing no mortgage, the community is able to enter into hybrid agreements to provide housing ranging from much-reduced rate to free in exchange for community service.

3) *Employment*. Residents may be employed by commercial firms or engaged in community service by the Village, or any mix between the two employments.

4) *Belonging*. A resident will never be alone and insecure. The Holigent community is like a large and caring family.

5) *Security*. In the Holigent hybrid arrangement, no one ever becomes unemployed, homeless, hungry, or lonely.

Q. Does Holigent want to house, feed, and nurture humanity to raise their quality of life and diminish stress levels so that peaceful sustainability around the world can become a possibility?

A. People will arrange all that for themselves guided by the Holigent building and sustainability code.

Q. How will that work in places like Russia and China?

A. The Russian leader is slowly learning that attacking Ukraine to prevent it from joining NATO produced the opposite results. NATO is enlarging and fortifying its military. Many of Russia's best and brightest are leaving, and the brain-drain further impoverishes Russia; its diminishing resources are consumed by the war, and international sanctions are further punishing life in Russia.

The Holigent nonpolitical hybrid solution to elevate quality of life and create social stability may become a hopeful and irresistible alternative.

Q. How would Holigent convince China of that irresistible alternative?

A. Fortunately, the Chinese leader is a smart cookie. He may figure out reality before it's too late and understand that picking a fight with America is not a good idea. That would bite the hand that was instrumental in pulling China out of poverty and continues to be an important trading relationship.

So once again the Holigent nonpolitical hybrid solution to elevate quality of life and create social stability may become a hopeful and irresistible alternative.

Q. How long will it take for the world to transition to peaceful sustainability?

A. It may take generations. However, if at least one billionaire (out of over 3,000 in the world) and Congress buy into the idea of Holigent Transformative Societal Reconstruction, the global transition from war-making and depletion to peace-building and sustainability can be accomplished in a decade or two.

Q. Before we close our Q & A session, I want to revisit the question of whether we really have to undertake societal transformation and why?

A. The short answer is yes, we have to do it to reduce global stress, and to prevent the collapse of civilization and a probable nuclear world war.

Q. What are the probabilities of collapse?

A. It is a certainty, and sooner than we could comfortably contemplate.

Q. How can you justify that severe statement?

A. Remember, in the spirit of Socrates and Einstein we are reexamining life with a new mindset.

Q. Would you refresh my memory?

A. Humanity has not yet graduated from the evolutionary jungle; we are still guided by primitive impulses of the *fight-or-flight stress response*. It is a certainty that our dominant civilization — a *globally conflicted, techno-industrial, extractive capitalist-consumerist military-industrial complex* — is rapidly depleting our planet's life-support capacity. That is a major source of rising global stress. Democracy predictably ends in a high-stress world.

Q. Why would democracy end predictably?

A. High stress activates our primitive stress response; it turns on aggression and turns off rational thought processes. People become helpless and hopeless; they cannot reason; they will believe lies and will follow a charismatic leader who gives them hope with big promises. Fascist leaders then take control of government by vote or by force. When they cannot deliver the big promise, the fascist leader has no choice but to give the angry population a big fight and make war.

Q. Would you give me a step-by-step summary of how the Holigent Project would fix all that is wrong with the world?

A. Build a better bridge to a peaceful and sustainable future.

Step One. In the spirit of Socrates and Einstein, examine life with a new mindset to understand the invisible but real forces and under currents that drive events.

Step Two. Go live in a Holigent Village when it becomes available. Regardless of where you work, as you pay (reduced) rent in your village, you are transferring a trickle of wealth from the capitalist system to the Holigent commons. Give it time and the trickle will grow into a river. Then, while there continue to be billionaires in hilltop mansions, there will be no homeless on the sidewalks.

Step Three. As nature-compliant transformative societal reconstruction expands around the world, universal quality of life will rise, reducing global stress. This will strengthen democracies and lower the probability of societies sliding into fascism and war.

Q. Why should all of this start in Los Angeles, California?

A. The plan is not simple, but it's a doable prescription to heal Los Angeles and save the world. The people and culture of Los Angeles and the state of California are capable and have a history of innovation in movie making, space technology, digital technology, and more.

Holigent Societal Transformation will reduce global stress to a safe level. Then our world can achieve: universal quality of life, global peace, and systemic sustainability. Let's work diligently on the Holigent Project so that humanity will survive and thrive on Earth our one and only habitable planet in the known universe:

# **Billionaires can save the world!**

Dear Billionaire,

My name is A. Nicholas Frank; I survived Nazism and World War II, grew up in mindless and murderous communism, and in 1956 — following our defeated uprising against Soviet occupation — I escaped communist Hungary across the partially dismantled Iron Curtain to the West.

I am writing to you from prison. It is not an ordinary jail, but a civilizational prison on death row. My inmates are ordinary people, politicians, bureaucrats, and the greatest problem-solvers in the known universe with countless brilliant minds credentialed by higher educational institutions that collectively failed to solve the existential puzzle of humanity to survive in peaceful sustainability on this only habitable planet we know in the universe.

I am worried about you and about our beautiful planet Earth. Scientists have been sounding the alarm for decades. And in recent years the alarm got louder. Remember Al Gore's *An Inconvenient Truth*? More recently, teenage Greta Thunberg went on school strike, because, *"Why go to school if I don't have a future?"* And the alarm goes on:

Did you hear 90+-year, wise Sir David Attenborough at the 2018 U.N. Climate Conference? "If we don't take action, the collapse of our civilizations and the extinction of much of the natural world is on the horizon."

Did you read The Uninhabitable Earth by David Wallace-Wells?

Did you hear Mikhail Gorbachev in 2019? "The conflict between Russia and the West is putting the world in colossal danger."

Did you pay attention to Emmanuel Macron's warning in 2019? *"Europe is on the edge of a precipice."* 

Did you follow UN Secretary General António Guterres' The State of the Planet Report? "*The state of the planet is broken; humanity is waging war on nature — this is suicidal.*"

Do you know that in January 2021, the atomic scientists advanced the Doomsday Clock 100 seconds to midnight?

*The Economist* published the summary of an eight-hour conversation with Henry Kissinger in their 5/20/2023 issue. One takeaway from that conversation was, "*The rivalry between the United States and China may spark a catastrophic conflict in less than ten years.*"

So what are the chances of a nuclear world war in the 21<sup>st</sup> century? You can estimate the probability for that. Remember that in 1945 the United States was the only nuclear power with two ready atom bombs — both dropped and detonated. Today the world has nine known nuclear powers with an estimated total of 14,000 nuclear weapons. Remember to factor in the perceived winning option: first strike.

The superpowers are staring at each other across the continents and will detect ICBMs as soon as they rise into the atmosphere. If the opposite side fails to launch a counterattack during the available minutes before arrival and detonation of the ICBMs, there may never be another chance. This will provide the impulse to launch many more counter ICBMs and the making of MAD (Mutually Assured Destruction)

Why am I telling you all this? Well, during big trouble you may be inclined to jet to your remote island. So you will not be among the lucky ones to perish instantly in a nuclear blast. Instead you will suffer a horrible, painfully slow death in a radiation-poisoned world.

So you see the only true escape is fixing the world we have. The big question is who is able and willing to do it? The reality is that throughout the evolution of our civilizations, the brightest minds were busy building walls that now define the big BOX we all live in. The saddest fact of our reality is that the greatest problem-solvers in the known universe, with brilliant minds credentialed by higher educational institutions, have all flunked humanity's existential test to build a peacefully sustainable world on this most habitable planet on which humanity could survive and thrive.

Dear billionaire, you are the only one in the world who could save us. That is because you live bravely outside the "box" and you have the key. The key is examining life with a new mindset because "the unexamined life is not worth living" (Socrates). A new mindset is needed because a problem cannot be solved with the same mindset that created it (Albert Einstein).

The combination of the key that can open the gate to a future of social, economic, and environmental justice; quality of life; and systemic sustainability is complex. You have

part of the combination and I have the other parts. Together we could unlock the gate and be on our way to save the world.

# The U.S. Congress can save the world!

At the heart of Holigent Societal Reconstruction is the recognition of an inverse relationship between stress and quality of life. This spiraling feedback loop is fueling feverishly high and rising global socioeconomic stress that is depressing quality of life around the world and deteriorating world order. There is no known cure for this condition. If left untreated it will lead to the catastrophic collapse of civilization.

The United States needs to make an historic decision similar to the one that aided Europe in winning World War II and helped reconstruct much of the old continent. This decision is to plant the seed and nurture transformational societal reconstruction — developing social, economic, and environmental justice; quality of life; and sustainability. This will require heroic efforts and the outlay of treasure, but no bloodshed.

The first phase of that effort is for Congress and the President of the United States to establish the **Department of Homeland Reconstruction**. This is to secure funding for experimental societal retrofit and reconstruction programs (one community at a time) to search and find ways to comply with nature's building and sustainability code.

All of this is part of a long-range program to reduce socioeconomic stress around the world while building universal quality of life, global peace, and systemic sustainability — securing life and well-being for people, our planet, and for the natural world.

#### The State of Our World

"IT IS WORSE, MUCH WORSE THAN YOU THINK" begins the book, *The Uninhabitable Earth* by David Wallace-Wells.

We live in an over-populated, climate-changing, resource-depleted, dysfunctional, conflicted, angry, and nuclear-armed world. Reducing carbon emission is not enough — not nearly enough!

Extractive global capitalist consumerism fuels destabilizing inequality and spews out climate-changing, non-biodegradable, and toxic waste — damaging and depleting Earth's life-support capacity.

If that wasn't deadly enough, our world is in a cyber war in which there are open societies and closed societies in conflicts. In this new cold war, democratic open societies with large surfaces of vulnerability are at a disadvantage against authoritarian closed societies. A new arms race and conflict over diminishing resources are heating up among the nuclear-armed superpowers — a catastrophic conflict is predictable.

To understand the human circumstance is to know that evolution from the simple to the complex is a labor-intensive process bordering on magic. I devoted twenty years solving that puzzle in my head and collected my thoughts in my third book, *The Holigent Solution*. The essence of this fascinating process is an upstream race of evolution's emerging complexity against the downward pressure of entropy.

Think of the salmon in the run against the torrent of the river in which at times the salmon has to leap into the air to overcome the rapids — all in a heroic effort to reach the spawning ponds to secure the future of its species. Long preparation goes into a successful run that includes accumulating fat to fuel the run and exacting energy management. Any misallocation, and the salmon will be washed back by the torrent. Similarly, any mismanagement of the human system on Earth will result in *entropy*, putting an end to the human "run."

In the natural world, instinct guides obedience to nature's strict rules. Humans lost that instinct when they developed *free will*. Now our "do-as-I-please" free will is breaking nature's rules. It is our existential challenge to willfully relearn the rules; retrofit societal infrastructure; and reorganize the ways we live, work, commute, produce, consume, educate, and govern ourselves in the interest of securing our future of quality of life in peaceful systemic sustainability.

In our current broken mode, the overload of converging challenges is predictably elevating global socioeconomic stress; we have no more than a few years until societal stress may reach a tipping point. We urgently need to reinvent civilization and avoid a turn toward fascism and a 21<sup>st</sup>-century nuclear world war.

However, the work of building a peaceful and sustainable world is outside the skill set of existing concepts, politics, and institutions. To secure peaceful systemic sustainability, we need to reconstruct societies to comply with nature's building and sustainability code. We are the last living generation having the option to do this work before the window of opportunity closes forever.

The challenge is to develop a new mindset and begin the reconstruction of societies — building a new world of universal quality of life, world peace, and systemic sustainability. Humanity has no other option to survive. This book offers an outline and action guide to achieve that goal.

Join this brave societal experiment and become a Holigent Solutioneer.

### January 6, 2021

Solving puzzles and connecting dots are games we can all play seriously. No matter how abstract the problem is, with practice you develop a sharp eye to see if a piece fits into your picture puzzle. If enough pieces fit, a clear and convincing picture will emerge even if the developing picture is missing some pieces.

I was working on the puzzle of my disappointment with "grownups" that started when I was eight. That disappointment got deeper the more I got to know "grownups" and their institutions, and my determination to solve that puzzle just got stronger.

I was in that state of mind working on an early draft of this book when January 6, 2021, exploded on my TV screen. I was in disbelief, like so many others. America was a dream all through my youth in communist Hungary. In 1963 that dream came true; I arrived and started to live my American dream on day one as I began absorbing the sundrenched beauty of the beaches, mountains, and deserts of southern California and the exotica of Los Angeles, my new hometown.

As soon as my disbelief gave way to registering reality, I began hearing the echoes of my eight-year-old self, asking the questions that I have devoted much of my life to answering. This time the question was different but had a familiar ring to it.

Why is it that so many Americans cannot find their dreams in this rich and beautiful land?

It is second nature to me to shift gears back to my puzzle-solving mode whenever facing a complex problem. So once again I see a pile of puzzle pieces in my head. I see pieces such as Nixon, Kissinger, China, outsourcing, unemployment, hopelessness, anger, Trump, and many other pieces that may or may not fit into a coherent picture. I won't know until I pick them up one by one and try to fit them into a puzzle picture that may give me an answer.

And so, I begin. I pick up the piece that reads "Nixon" on the front. Then, I read the story on the backside. In 1971 president Nixon sent his National Security Adviser, Henry Kissinger, on a secret mission to lay the groundwork for the president to visit China. In this puzzle picture, while there were other considerations, I see the Nixon–Kissinger project as opening China's potentially vast market for the myriad of products of the United States' industrial output.

My sense is that in the fervor of "opening" underdeveloped China, a few critical pieces were overlooked. China, while overpopulated, poor, and underdeveloped at the time, nevertheless was and is a rich and vibrant civilization that gave many inventions to the world.

For those who overlooked that, it would be easy to miss the high probability that the Chinese people are fast learners and will surprise America years later. The surprise is that the fast learning combined with the low-wage competitive advantage offered an irresistible attraction for American manufacturers to outsource and offshore productions to China. No doubt Americans began enjoying the accessibility of all sorts of household and consumer goods at never before seen low prices. However, the hidden price was that manufacturing jobs in great numbers left America for China.

When I arrived at Los Angeles in the early sixties, I would occasionally see a handful of drunks on the streets of the east side of downtown. But outside of a few of those spots, the streets of Los Angeles were clear and clean — "homelessness" was not in the vocabulary. As years and decades passed, I began to see scattered homeless tents in the

city. Then, the scattered tents became rows of homeless encampments. All that happened well before Covid-19 arrived. No doubt the pandemic aggravated the problem.

As I am looking at this puzzle picture, it seems to me that the rise of homelessness and the many depressed towns in middle America are related to the great outsourcing of manufacturing jobs. In addition to increasing the number of unemployed, the outsourcing diminished the tax base, which made the United States federal and state governments poorer. One of many results was that government institutions could no longer house and take care of the homeless, many of them needing physical and mental health assistance.

As sad and regrettable as this is, there is a greater consequence of the outsourcing of jobs and industries — it is the diminishing of the American dream.

When I pick up the puzzle piece "Trump," I can see how it connects with many other pieces in the *January 6, 2021*, picture. The loss of manufacturing jobs may be the critical puzzle piece. Human beings will experience high degrees of stress as the loss of work impacts the quality of their life and the affordability of food and shelter. And there is another factor: the pain of lost dignity and pride that is further inflamed by the 9/11 terror attack on the United States in 2001 that triggered the Iraq and Afghanistan wars that ended in a monumental loss of blood, treasure, and dignity. The false remedy offered for all that is "Make America Great Again."

As we put more of the pieces in place, it is not surprising that the loss of jobs generates the primitive stress response of fear, anger, and aggression (an evolutionary legacy).

As you help me put the pieces in place, it will be obvious why there are so many people in America whose dreams have sailed away. Another question is, why do they so readily believe false promises and lies? That is also related to our evolutionary legacy by which critical thought processes diminish under high stress — a survival advantage during primitive times in the evolutionary jungle. The neural part of this fight-or-flight neuroendocrine mechanism is housed in the primitive parts of our brains and largely unchanged since earlier times of our evolution.

We can continue to place more pieces into this puzzle, and a rather unsettling picture will emerge. This is because in addition to outsourcing, the Covid-19 pandemic caused further job losses. Also, additional massive job losses and food interruption, due to climate change, are on the horizon and closing in.

As several major stressors are expected to converge in the coming years, humanity will face a sharp rise of socioeconomic stress around the world. When a nation full of people turn angry, their collective behavior becomes predictably violent. This raises a new question: *Could America in the coming years go the way of Germany of the 1930s?* 

I hear the chorus of deniers loud and clear, proclaiming that we are *moral* people; we could not do anything the Nazis did. Before we accept that argument, we need to put more pieces into place. It is enough to repeat once again that in the competition between morality and stress-induced fear and anger, even if a few brave and moral people try to hold the line, aggressive bad behavior will predictably dominate.

In any case, January 6, 2021, was a game changer that triggered thoughts of urgency trying to understand deeper connections and a sharper image of where we are heading.

# **Educators can save the world!**

Dear Educator,

Follow the spirit of Einstein in developing a new mindset because *a problem cannot be solved by the same mindset that created it.* Teach the spirit of Socrates to examine life, because *"the unexamined life is not worth living."* 

Set up an experimental class and make the Awareness Revolution part of the curriculum. In time expand the teaching of the Holigent concept of mimicking nature's building and sustainability know-how in societal reconstruction — all in the interest of preparing students to become "solutioneers," retrofitting communities; building a peaceful and sustainable future.

Be ambitious and assume a new role in society. Instead of turning out "captains and crew" for sailing the ship of extractive capitalist consumerism that is depleting our planet's lifesupport capacity, turn part of your campus into an experimental nature-compliant village for students in which to live, learn, develop, and demonstrate their skill of building our future of quality of life in peaceful systemic sustainability.

# The European Union can save the world!

Fund the construction of an experimental and demonstration Holigent Global Village — an international campus and permanent world exposition in central Europe, such as the proposed Holigent campus in Budapest, Hungary.

Invite nations of the world to participate. Make a heroic effort to see that Europe never again sparks a world war. Rather, in the 21st century, help Europe become the pioneer and cradle of world peace and systemic sustainability.

# Journalists can save the world!

### Dear Journalist,

You may have heard Sir David Attenborough's warning at a UN Climate Conference: "If we don't take action, the collapse of our civilizations and the extinction of much of the natural world is on the horizon."

Environmental events and humanity's behavior around the world are telling us that the reality of the human condition is alarming. The convergence of multiple flaws in the human systems project hopelessness for our future. The eight billion reproductive and generally wasteful human population of our planet places a near-infinite demand on the finite resources of Earth, heating the planet and causing climate change. Our extractive techno-industrial capitalist-consumerist military-industrial complex is spewing non-biodegradable and toxic waste, depleting and poisoning Earth's life-support capacity. All along, democracy in the U.S. is fraying at the edges and may even slide toward fascism.

The nuclear-armed superpowers are in a deadly competition for the diminishing resources. Global socioeconomic stress is rising to dangerous levels. Under such conditions, somewhere a stressed and twitchy finger sooner or later will push the nuclear button. In a nuclear holocaust of mutually assured destruction, the lucky ones will die instantly; most will die a slow and horrible death in a radiation-poisoned world.

Unlike undisturbed nature, our world is heading toward collapse and extinction without a self-correcting mechanism. If humanity is to avoid "Armageddon," the correction must be initiated by a few fast-moving, brave, and heroic individuals pioneering the way to build a better bridge to a peaceful and sustainable future before the window of opportunity closes forever.

Who might be some of those brave and heroic individuals? Please look into the mirror and decide.

# The Pentagon can save the world!

The government can establish a section within the vast Department of Defense with the assignment to start a **"Peace Offensive"** in the form of a Global Peace and Sustainability Initiative — deploying not armies but builders; not weapons but tools; not ammunitions but building materials to assist natives in constructing sustainable nature-compliant

communities; providing jobs, homes, and know-how to build and organize resilient selfdirected and self-sustaining communities.

It is time to understand that the United States believes that the nuclear arms race to a probable Mutually Assured Destruction is an old concept we inherited from the Cold War. That concept is corrupt to its core and must be abandoned.

The United States in this 21st century is to follow a new guideline; global peace can be secured by mimicking nature's wisdom in compliant societal reconstruction, lowering global tension by securing universal quality of life, thus encouraging the emergence of world peace and systemic sustainability.

The Pentagon could be a facilitator of this new concept. There is no other way for humanity to survive on our rare and eminently habitable but endangered planet Earth. With its vast resources and global footprint, the Pentagon is perhaps the only institution in the world that, with the right spirit, could turn the course of global events away from probable nuclear mutually assured destruction toward world peace and systemic sustainability.

### A Monumental Failed Experiment (In Nation Building)

Let's do some quick math. Let's assume that the U.S. would want to do some real nation building in the interest of building a peaceful and sustainable world. Take for example the \$2 trillion that was wasted on twenty years of failed nation building in Afghanistan. That would average \$100 billion per year for the twenty-year period.

In our proposed Holigent cellular retrofit of an existing neighborhood in central Europe, where on average a home costs \$250,000, one million dollars could buy four homes. At that rate, \$100 million could buy 400 such homes; in time, that would make an ideal Holigent Village. (Currently over 2,000 homes are listed for sale in the southern districts of Budapest, Hungary.)

Continue with that math and we find that \$1 trillion (half of what the U.S. spent in Afghanistan) could buy 4,000,000 such homes that could make 10,000 Holigent Villages in east and central Europe. At that rate Holigent societal transformation would reach a critical mass and become self-perpetuating — like a powerful benign social virus, it would spread and penetrate most regions of the world. If we formulate a lesson from this bit of calculation, then we could come to a conclusion that a U.S.- and EU-combined project could take \$1 trillion, spread it over ten years, and it would kickstart Holigent Transformative Societal Reconstruction without delay. This would give Europe a project to build a new continental spirit and quality of life in resilient, peaceful, systemic sustainability. This would save the EU from further disintegration and save the continent from ever experiencing war again.

A similar societal reconstruction experiment this side of the Atlantic could give democrats and republicans a common project that could keep them busy making America truly great by improving quality of life for the participants, raising hope for many others, and preventing America from drifting toward fascism that would, with near certainty, lead to a 21<sup>st</sup>-century world war.

We would continue sprinkling the Holigent societal reconstruction concept around the world in places where it would do the most good. In other places where it would not immediately create peace and sustainability, it would do the next best thing; it would project a high beam of hope that would turn the energy of anger and conflict to collaborative community construction and set the next generations on a course to build universal quality of life, world peace, and systemic sustainability. We do have to understand that nation building begins at home. Understand also that attempted nation building abroad with military force and weapons is counterintuitive. Engineers, instructors, builders, and building materials might do a better job.

What to do with terrorist groups? The U.S. tried to eliminate them. That did not work. Why do such groups exist? They exist because that is the only employment available in their desperate communities. Invite them to construct their homes and compliant communities in which their quality of life will be secure and where they can raise their families. They will very likely trade in their weapons for construction tools.

# The United Nations can save the world!

We ask the United Nations to support the construction of experimental nature-compliant communities in America such as the proposed experimental and teaching Holigent campus in Los Angeles along the Expo line in proximity to the University of Southern California. Nurture that project to become a nature-compliant global village. Then plant the seed and help expand such successful societal reconstruction programs around the world. Or partner with Holigent.Org so that together we could pursue building a future of universal quality of life, global peace, and systemic sustainability.

## Mothers will save the world!

I am a father, and I love and adore our children dearly. Yet my ability for expressing my love dwarfs that of their mother's passionate love and adoration that radiates with force, yet with natural, joyful ease.

This brings back memories of my mother, who was widowed in 1942 when we lost my father to illness. With no spouse to rely on, she became fiercely determined to protect

her children. Throughout 1944 and the years that followed, she bravely saved my sister and me from the Nazis, from the bombs of the war, from hunger, and from the mindless deprivation of communism in Hungary.

In 1956, following our defeated uprising against Soviet communist occupation of Hungary, life became hopeless. We all knew that there was a bleak future for the children in our country, so Mother escorted me through an arduous journey to the Austrian border to see me off safely to the west. As darkness fell I was ready to cross the partially dismantled Iron Curtain. In our tearful parting I promised to be careful not to step on a land mine.

She was arrested on her way back to Budapest on a mere suspicion. Yet, a few weeks later, Mother repeated this act of selfless heroism for my sister. Years later she died alone, thousands of miles from her children. We could not even go to her funeral in 1962. In communist Hungary, we would have been arrested and imprisoned for our crime of escaping.

Mothers rise! Build justice, love, and peace on the ruins of this wretched world. The force of nature is with you! No one can stop you now. No one dares stand in your way. Victory is within your reach!

Mother, your spirit lives on and will triumph!

## **The Reward**

All of the above, in essence, is an action guide. If we all do our part, the reward will be that we trade in stressful and miserable lives in collapsing civilizations on a burning and dying planet, and receive in turn the joy of living with quality of life in peaceful sustainability on our most habitable planet in the known universe — our magical, warm, wet, and green planet Earth.

## Part 5

# **To Be Smart or To Be Wise?**

This is humanity's existential question in this 21st century.

### What is the difference between *smart* and *wise, a Q&A*?

In the first paragraph of "Notes Up Front" of this writing I promised to return to the subject of mental exploration of the cosmos in my relentless search for answers. It all begins with looking up into the night sky and letting my spirit wander among the stars. You can do it too.

The eight-year-old kid in me is still throwing interesting questions at me, like:

### **Q** What is *smart*?

**A** The smart will memorize the content of textbooks, and remember enough to pass all the tests, then will go on to become one of the countless "brilliant" minds credentialed by higher educational institutions. Then the smarts will build organizations; build engines for industries; build cars (all 1.47 billion in the world) to carry people to work and everywhere else; make and use all the consumer goods that end up in waste dumps around the world; extract fossil fuel to fire up all the engines; split the atom to make nuclear weapons, all 14,000 of them guarded by nervous people with twitchy fingers on the buttons.

### **Q** What is wise?

**A** The wise understand how the universe works and build a new civilization so that humans could fit in and live in partnership with nature without conflict and without waste in peaceful sustainability.

Nature is like an orchestra with many instruments playing together in harmony. Humans are late-comers to that grand symphony and out of tune.

**Q** Does that orchestra have a conductor to make all the parts and pieces play together?

**A** Indeed, there is harmony among the atoms that make matter out of which galaxies form. In the Milky Way galaxy our Sun is one among countless stars orbited by planets. The third one from the Sun is our home Earth, the one and only habitable planet in the known universe.

The beautiful order in the cosmos suggests that there must be a conductor to create such magical harmony. When we find the cosmic conductor, we could offer our help.

**Q** Why would the cosmic conductor need our help?

**A** Because the endless "complexification" of evolution gave humans free will. Human do-as-I-please free will is out of tune and out of reach of the natural order. We must seek and develop a partnership with the cosmic conductor so that we could return and be part of the glorious symphony of the universe and be in harmony with nature, and continue to survive and thrive here on Earth.

The following, in spite of some vague resemblance, is not exactly science. It is my personal wondering with the kid on my shoulder still whispering questions into my ear. If you want to come along, fasten your seatbelt; it will be a long and bumpy ride. It will be worthwhile, because at completion, you may count yourself among the wise and go on to build a better bridge to our peaceful and sustainable future.

### It's Personal

One morning in February of 2023, after the usual routine, I went to the kitchen for breakfast. I glanced through the window to take a look at the rising southern California sunshine, and just then a bit of magic happened.

I stopped to marvel at the brilliance of the Sun and its capacity to spread its energy into the void of space in the universe where, by good fortune, a tiny fraction of it fell on Earth where it fueled the evolution of life, and among countless living creatures, created me.

This sparked a cascade of thoughts going back to Budapest, Hungary, where, as a young curious teenager, I attended lectures and peered through a big telescope in the astronomic observatory near my home.

Escaping mindless and murderous communism to the West in 1956 opened a bright clearing over my gloomy memories. I enjoyed that brightness from the moment I began walking the pavement of Vienna through the chill of Montreal's winters, to this day in sunny Los Angeles, California.

Yet over the years an increasing overcast is clouding my spirit. This is caused by the progressing realization that there is something deeply wrong with the human world even here in America.

I began to search for explanations that began with the late evening walk in the Westside of Los Angeles in 1972. The search continued in 1985 with the year-and-a-half

thinking and camping trip around Europe. And that was followed by putting my reasoning and thoughts into four books during the past fifty years.

This fifth book is meant to clear up, at least in my mind, the haze and confusion of our Western civilization with its globally conflicted techno-industrial, extractive capitalistconsumerist, military-industrial complex.

*Capitalism* is only one of the failing pillars of our bridge to the future. The other pillar is *democracy* that is falling down in many parts of the world. I spent some ink reasoning why both pillars are destined to crumble. And why the question is not if, but how soon.

As I was musing about our brilliant life-giving Sun, my mind took the opportunity to slip deeper into questions about understanding our cosmic origin. Even in the brilliant sunshine, my mind has long been in a slight haze about the origin of all things, including me. So I went to work searching for answers.

### What I Learned about the Universe

To get closer to understanding life and human consciousness, I begin by highlighting what I learned about the universe, hoping to anchor my thoughts in natural realities. Trying to understand the nature of the universe poses serious problems for most of us; not only because the pieces are hidden, but also because they are not recognizable simply through common sense.

If the complete range of nature is represented by a "pie" of reality (see figure below), common human perception can recognize only a slice somewhere in the middle between the very large structures of the cosmos and the very small world inside the atom. Our common everyday experiences occur within this middle segment of reality. A very large region of nature lies outside of human experience, beyond our recognizable horizon.



In the early part of the 20th century, Albert Einstein came to an understanding of the universe very different from the mechanistic that dominated for centuries prior. Einstein's theories of relativity describe space-time and other large-scale interactions in the natural universe. Later, other great scientists developed an understanding of quantum mechanics, which describes the small-scale world inside atoms. The large-scale universe, described by the general theory of relativity, and the small-scale universe, described by quantum mechanics, are not open-ended, separate laws. These two aspects of nature join to form a continuous ring of physical reality. Scientists are certain of that, though no one yet has been able to describe nature at that depth of completeness. Scientists are searching for the missing link between the theory of relativity and quantum mechanics with the hope of developing a unified theory.

But even if science discovers all the physical laws of nature, the underlying nonphysical self-organizing know-how that energizes the evolution of the cosmos remains to be understood. That is what I am looking for.

If we could understand, at least in principle, the underlying self-organizing process, we could then use that as a model for social transformation to attain sustainability on our planet. In our journey toward that understanding, first I want to review what I learned about the physical universe.

### **Discoveries in the Large Structure of the Universe**

Human curiosity has been looking for the pieces of understanding the universe since the dawn of consciousness. Mysticism, rituals, and religion, however wise, rarely advanced the true understanding of nature. It is the domain of science to discover the laws of the universe. The roots of science go back millennia, beginning with men looking into the night sky wondering what may fill that deep darkness. However, the greatest volume of valid and verifiable scientific knowledge was discovered in the 20th century. Let's take a quick look at what the pieces are, who found them, and the best picture science can put together of the universe as we see it today.

We can trace the greatest impact on the development of European/Western civilization to ancient Greece. Among the often-mentioned early Greek thinkers is Socrates (c 469-399) BCE. His idea of self-examination perhaps planted the seed of curiosity and the need to examine all else in life and nature. Democritus (460-370 B.C.E.) and the atomists perceived the universe and all things in it as made of elemental particles, or atoms. They believed that the form and behavior of all things could be explained by the form and behavior of the individual atoms. While holism developed later, there are references in the writings of Aristotle (384-322 B.C.E.) of holistic views of the universe, in which the parts cooperate in a synthesis to fulfill a purpose. Holism holds that the universe must be studied in its undivided whole to preserve its unique properties. The atomistic view came to dominate and persist to form the foundation of the reductionist scientific approach, which came much later.

There was no perceptible advance in the understanding of the universe in the first millennium (C.E.). An early notable discovery came in 1514, when a Polish astronomer,

Nicholas Copernicus, proposed that it was not the Earth but the Sun that was the stationary center of the then-known universe. He claimed that Earth and the planets moved in orbit around the Sun. Copernicus first circulated his proposal anonymously, in fear of persecution by the Church.

Nearly a century later, in 1608, Hans Lippershey invented the telescope in the Netherlands. In the same year, the Italian Galileo Galilei constructed an astronomical telescope and began observing the planets and their orbits. A contemporary of Galileo, Johannes Kepler, discovered that the orbits of the planets are elliptical, not circular as Copernicus first proposed.

The French philosopher René Descartes had a considerable impact on the development of scientific thinking during the first half of the 17th century. The Cartesian (after Descartes) worldview one can think of as an extension of the ancient Greek atomistic philosophy. According to Cartesian thinking, atoms, as well as planets, were parts of a mechanical universe. The structure and movement of any part, or even the whole universe, could be described on the three perpendicular Cartesian coordinates of X, Y, and Z.

These developments paved the way for a great scientific leap forward. In 1687, Isaac Newton published his *Philosophiae Naturalis Principia Mathematica*. In this monumental work, Newton described the law of gravitation and the movement of bodies in space and time. He also developed a series of mathematical formulas to support his theories. While Newton's formulas accurately described local events, they left larger questions unanswered. Newton himself realized that if gravity is always attractive, stars could not remain static forever. They would eventually fall into each other if there were less than an infinite number of stars in the universe extending evenly in all directions. But is the universe infinite, extending forever, or is it finite and did it have a beginning?

This grand question lingered until the 20th century when in 1905, Albert Einstein submitted his special theory of relativity. This theory opened a new window into the understanding of the large-scale universe; not only of the relationships of planets, stars, and galaxies, but also the relationships of matter, energy, space, and time. It is interesting to note that at the opening of the 20th century, science believed in a static universe.

Einstein's mathematical formula showed that the universe could not be static; yet the belief in the static universe was so strong that Einstein felt compelled to introduce an artificial negative gravity factor into his equation, so it would suit the deeply established worldview of his time. He later called this the "biggest blunder" of his scientific career.

It was in 1922 when Russian physicist Alexander Freedman first stated that the universe is not static. Not long after, in 1924, the American astronomer Edwin Hubble demonstrated that our Milky Way is not the only galaxy — there are many others with vast empty spaces between them. A few years later, in 1929, Hubble's landmark observation of the "red shift" in the light coming from distant galaxies confirmed Freedman's theory. The universe is not static. In fact, it is expanding with great speed.

Light is a high-frequency electromagnetic wave, and as such, it is subject to the Doppler effect. The Doppler effect is easy to observe at a car race. As the fast-moving race

car approaches, passes, then moves away from us, our perception of its engine sound shifts from a higher to a lower pitch. The sound waves reaching us stretch and slow as the car quickly moves farther away. This results in a shift of the observed frequency from a higher to a lower pitch. Similarly, the observed light waves coming from a galaxy that is moving away from us stretch and shift to a lower frequency, which is red (as opposed to blue, which is at the high-frequency end of the visible spectrum). The red shift has only one satisfactory explanation: The galaxies are all moving away from us and from each other. If the galaxies are expanding out away from each other, then at one time in the distant past, at a moment prior to the great cosmic explosion, they all had to be in the same place.

In 1965, Roger Penrose, the British mathematician and physicist, proposed that burned-out stars collapse under the effect of their own gravity. In other words, stars under such a condition disappear in a black hole. If the collapse of a single star can create a gravitational field strong enough to crunch matter into oblivion, what would gravitational force do if all the galaxies of the universe were in one place?

Stephen Hawking and Penrose took the next important step jointly. Hawking, the British theoretical physicist, was for thirty years the Lucasian professor of mathematics at Cambridge University — a chair once occupied by Sir Isaac Newton. Hawking and Penrose put the last convincing puzzle piece into the picture and supplied the theoretical proof that the universe, indeed, began in the Big Bang from a singularity. Accordingly, the universe had a distinct beginning in a great cosmic explosion about 13.7 billion years ago, and it has been expanding ever since.

It needs to be mentioned here that, as I understand it, Hawking at that time was unhappy with his theory of the singularity, perhaps because all aspects of the physical world — matter, energy, space, and time — disappear in the singularity. Along with all else, physics, mathematics, and science itself, break down at that point. Science has no way to calculate or trace events beyond the singularity. Naturally, for a scientist, it is uncomfortable to realize that the traditional tools of the profession do not work in that realm. By the 1970s and 80s other prominent physicists, philosophers, and cosmologists were looking beyond physics. Among them, David Bohm and Fritjof Capra were pointing toward a new direction and dimension of consciousness to explain the creation and underlying order of the universe. New generations of scientists are daring to look deeper into nature with novel ideas such as string theory, to attempt to explain the source of the universe.

I have mentioned the major discoverers who represent only the highlights of this grand investigation into the nature of the cosmos. Countless others have contributed and, with new technology, the data is pouring in as never before. For example, a 1987 supernova (burnout and explosion of a star) in the Large Magellanic Cloud, a neighboring galaxy, provided a wealth of data supporting the Big Bang theory and related processes of matter creation in the cosmos.

In 1991, George Smoot, an astrophysicist at the Lawrence Berkeley Laboratory in California, with the help of the Cosmic Background Explorer Satellite, detected details in

the cosmic background radiation that had not been seen before. These radiations began their journey 13 billion years ago in the Big Bang to arrive here at Earth in our lifetime. They are a direct observation of the birth of the universe and carry information that helps explain the formation of galaxies — the homes of stars, solar systems, and planets. And occasionally, if not exclusively, a planet like Earth bearing life.

### **Discoveries in the Small Structures of the Universe**

A string of discoveries in the small-scale structure of the universe and its descriptions in quantum mechanics were accomplished by a group of brilliant scientists spanning thirty years during the early part of the 20th century.

Classical physics before 1900 believed that energy radiation from a hot object was a continuous flow. This meant that at an infinitely high frequency, an object would have to radiate an infinite amount of energy. This, of course, is impossible. A German scientist, Max Planck, suggested in 1900 that radiation is not continuous but is emitted in very small packets that he called quanta. In 1905, Einstein advanced this idea and suggested that a quantum is a particle of light, which he named a photon. A particle without mass was a rather strange idea at the time. Nevertheless, Einstein and Planck established the particle theory of light.

There were problems with the understanding of the atom at that time. According to the old logic, as electrons lose energy, they would spiral and crash into the nucleus, which would mean the collapse of the atom (not a comforting thought). In 1913, the Danish scientist Niels Bohr solved this problem by proposing that electrons cannot orbit at any arbitrary distance, but only in certain specified distances from the nucleus of the atom.

There were more problems. The particle nature of the photon, which Einstein had suggested earlier, did not quite satisfy the behavior of light. In 1924, the Frenchman Louis de Broglie suggested that in addition to photons, all particles (such as electrons) not only behave like particles, but also possess wave-like qualities. Thus, a principle of quantum mechanics was established in the recognition of the particle-wave duality. In other words, a photon or particle can behave and move as a bullet and it can spread broadly as a wave.

By the mid-1920s, a great deal was known about the atom; however, still unknown was the law that prevents the particles within the atom, such as the quarks that form the protons and neutrons in the nucleus, from collapsing into each other. Wolfgang Pauli, an Austrian physicist, solved this problem in 1925 by what is called Pauli's Exclusion Principle. He discovered the relationships between the particles preventing the collapse of the nucleus.

The behaviors of subatomic particles do not resemble anything that we see around us in everyday life. Subatomic behavior, therefore, is often described with adjectives such as bizarre. We need to remember that subatomic particles are not rare things found in exotic places.

All things, including humans, are made of them. However, they do behave strangely. Subatomic components are particles and waves at the same time. Particles and waves are extremely different ways and qualities of existing. From this stems much difficulty in pinning down and measuring a particle-wave. In 1926, the German scientist Werner Heisenberg explained that it is not possible to measure the exact position *and* velocity of a particle. There is an inherent uncertainty in the probabilistic life of a particle due to its double life as a particle-wave.

This discovery put to rest forever the deterministic clockwork universe of Newtonian classical physics. The only thing certain in the subatomic world is uncertainty (order is achieved, but not by a determined blueprint). This key principle was soon followed, in 1928, by another major advance. The Englishman Paul Dirac explained mathematically the nature of the electron and that it should have a counterpart: an antielectron, or positron. Today it is known that all particles have antiparticles with which they can mutually annihilate.

The essence of the quantum world within the atom can be summed up in three principles: duality, uncertainty, and probability. Duality is the multiple identity of a particle-wave. Uncertainty is the possibility of anything in particular being anywhere in particular. And probability suggests that things will happen, but only with some likelihood, not as a certainty. Is this the perfect prescription for complete chaos? It is. Yet out of this chaos, a highly ordered, surprisingly sturdy and complex world is built; the world of what we are and what we see around us.

As in the case of relativity, the dazzling technology of the second half of the 20th century accelerated the quantity and accuracy of observation. As a result, both the general theory of relativity and quantum mechanics are regarded by scientists as the solid pillars of modern science; not only of theoretical, but of applied science as well. The relativity theory, in particular, the mass-energy convertibility according to Einstein's much celebrated E=mc<sup>2</sup> equation, led to the development (for good or evil) of the atomic bomb and nuclear power. And quantum mechanics led to the development of microelectronics.

There remains an undiscovered area in our "pie" of reality. How large is this area? That depends on what we consider reality. If we only consider physical reality, then the ring may soon be closed. Scientists are hard at work to solve the last few mysteries of the physical laws of nature. The complete description of the physical universe, as science understands it today, is expected to be achieved through unification of the theories of general relativity and elementary particle physics (including quantum mechanics).

However, there are new developments. Science currently estimates that normal matter, the stuff that we and all visible things are made of, makes up less than 5% of the universe. About 70% is dark energy and about 25% is dark matter that science does not yet understand. If dark matter and dark energy are considered as part of the physical universe, then science has a great deal more work to do.

I will do my own speculation to explore if any of that may have an impact on my model of cosmic evolutionary self-organization, the concept of which I hope to understand for its use as the guiding principle for socioeconomic/civilizational transformation.

The larger puzzle still has more pieces. If we consider as part of reality the unseen metaphysical forces that lie beneath the physical, then the gray area in our "pie" of reality is much larger than we think. Indeed, if and when scientists succeed in describing the physical universe completely (including dark matter and dark energy), they will have answered only the question of how the physical universe works. Then we must ask what are potentiality, order, intelligence, and consciousness? These elusive nonphysical concepts lie at the core of our reality organizing the physical structure and driving the physical processes of our world.

### Heat: The Fuel of Life

Human beings, while made of atoms and living in the universe, function somewhere in midscale, between the very large and the very small. There are different forces and processes dominant at the various regions of the physical scale. On the large scale, gravity is the dominant force. On the small scale, quantum mechanics rule in which uncertainty, probability, and the duality of particle-waves are the important features. In the mid-scale, where life evolves, the dominant processes are those of thermodynamics, the flow of heat. Heat fuels development and life. Decay and death are also heat-related processes. Thermodynamics moves both the organization and the disorganization of systems.

Thermodynamics is a relatively new science, having developed in the early 19th century. The first significant discovery was made in 1811 by Jean-Joseph Fourier. His discovery that heat flow is proportional to the difference in temperature between neighboring molecules was an important opening into understanding and quantifying heat as a physical property of nature. In 1824, Sadi Carnot gave us a more complete description of the behavior of heat, which led to the formulation of the second law of thermodynamics. The essence of the second law prohibits heat from being converted to work without resulting in heat loss. This was a revolutionary discovery in the age of classical physics.

In Newtonian classical science, mechanical processes were symmetrical in time; therefore they were considered reversible. The dynamics of heat, on the other hand, are such that heat always flows from the higher to the lower temperature and always with loss in the conversion.

These discoveries led Rudolph Clausius, in 1865, to conclude that thermodynamic processes are irreversible and heat loss is unavoidable. He named the product of heat loss *entropy*. Entropy has a broad implication. While the total energy of the universe is conserved, local events lead to unavoidable and irreversible loss, a relentless advance toward disorder.

In my search for nature's self-organizing order of the universe, I frequently mention entropy. It is helpful to have a clear definition of this term. Heat is the coiled spring that energizes all organizations, particularly living and evolving systems. Entropy is the loss of energy, the unwinding of the spring. When a system has lost all its energy, it is in thermodynamic equilibrium, a maximum state of entropy. Entropy can be considered a state of disorder as well as the process that results in an increased state of disorder.

Forgoing further details of the development of thermodynamics, I make a great leap into the mid-20th century. Along with the other sciences, the science of thermodynamics is making great advances.

Ilya Prigogine's work on the thermodynamics of non-equilibrium systems won him the Nobel Prize in 1977, and his concept of self-organization helped link general systems theory and thermodynamics. Human beings, as all life, are heat-driven systems, making thermodynamics quite relevant to our personal and societal lives. Having some awareness of the thermodynamic process, particularly entropy and chaos, will be helpful in understanding the self-organization and entropy relationship.

At the maximum state of entropy, what was a system would be completely unwound and disorganized and no longer a system. Its parts and particles would be in a condition of chaos. Both entropy and chaos refer to disorganization. Entropy is best understood as energy depletion, while chaos refers to the disassociation and disorganized behavior of parts and particles.

It takes both association and energy to build and hold systems together in a functional condition. The higher the complexity of a system, the greater its need for energy and self-organizational capacity. Entropy and chaos are clearly the enemies of all systems. The question is how to overcome these relentless disorganizing pressures of nature to sustain systemic integrity and quality of life.

### **The Missing Piece**

We can conclude that science has uncovered most of the mysteries of our physical universe. Relativity theory explains the relationships among the large structures of the universe. Quantum mechanics explains the structure and relationships among particles in the world of the very small inside the atom. Thermodynamics explains the rules of heat that energize life and the middle world between the very large and the very small.

A mysterious piece is still missing and remains to be explained. To a great extent we know how the universe works, but we do not know *why*. The laws of nature that science has discovered explain the working mechanism of the universe but not the underlying unifying energetic intelligence that empowers every part and particle to self-organize so effectively as to overcome the near-inescapable and dominant process-conditions of the universe, chaos and entropy. That great mystery of nature is the one that energizes the cosmos as a whole to overcome the forces of disorganization and empowers the upward

mobility of the cosmic evolution of matter and life from the simple and homogeneous to the complex, varied, and ultimately conscious.

The core of this mystery was there "before" the Big Bang, before the universe turned physical and complex, and therefore before the physical/scientific laws had any place or meaning in the cosmos. This core holds the primal intelligent know-how to create the physical universe out of the near-nothingness of a cosmic vacuum. It contains the underlying organizing knowledge that orchestrates the immense diversity of the universe into the superb symphony that continues to create life and consciousness. Every part and particle of the universe is in possession of this primal cosmic intelligence — except the human mind. In the process of gaining free will, do-as-I-please humans lost it. By some flaw in the process of transfer along evolution, the human species failed to inherit this vital information. The core piece of evolution's building and sustainability code is not inherent in human consciousness. To survive and thrive, each of us has to rediscover and learn it.

Like a salmon in the run that must swim against the torrent of the river to reach the spawning ponds where it can reproduce to assure the continuation of its species, so must all things in the universe "swim" against the torrent of entropy to survive. Evolution of matter and life from the near nothingness of cosmic vacuum to its present complexity and diversity was possible only because nature figured out that through a certain code of self-organization it could advance faster and more efficiently than the powerful downward pressure of entropy.

Warm-blooded living organisms require more energy and higher efficiency than cold-blooded or simple organisms to stay sustainably in the race a step ahead of entropy. Humans require the most energy and we are the most wasteful — not a promising combination.

### **Synergy: Making Connections**

At this point in my self-education and quest for answers, I understood clearly that I needed to learn how complex systems, particularly human systems, work. My eyes lit up when I came across Buckminster Fuller's big book *Synergetics: Explorations in the Geometry of Thinking*.

The concept of synergy was intriguing and exciting because it appeared it might be the key to how nature overcomes entropy. In general, synergy can be understood as a reciprocating relationship or interaction between multiple entities from which emerges a new or improved quality or ability not found in any of the individual parts. (This definition is commonly phrased, "the whole is greater than the sum of the parts.") To really understand the synergetic sum, I knew I had to go way below its surface. The most obvious parts that comprise human systems are big, complex, and numerous. They include science, economies, politics, production, consumption, environment, and everything else that makes life in an advanced technological society function. I had already explored many of these big parts; now I needed to understand the softer, even more elusive parts before I could hope to understand how all the components could work together in that special relationship that would create synergy.

The conclusion of my twenty years of studying synergy and the result of the stress test of our human condition is now at hand: Evolution, by creating the human species, has hit a glass ceiling.

With our existence, evolution has exhausted its ability to outsmart entropy. Like an exhausted salmon in the run that cannot swim fast enough to overcome the flow of the river, the torrent of entropy will wash us all back to perish. While "greening," recycling, and all the effort of environmentalists will not change that underlying reality, their good work can buy time. Gaining just a few years may be critical to see us through the transition to sustainability that may be ahead if we do our homework with diligence. Part of our homework is to understand and measure every part of our complex socioeconomic system so that we can rethink and redesign life, work, and community.

### About Weights and Measures

Human consciousness will be the most significant aspect of any socioeconomic system on which a sustainable global society might be built, yet consciousness is unmeasured. Since we do not know the exact nature of consciousness, we cannot measure it directly. We can, however, measure manifestations of the human mind related to the self, society, and our planet. Here I recall what I have learned about weights and measures.

As a young boy I loved going to the open-air market with my mother. Peasants from small farms brought their fruits and vegetables and displayed them over straw mats on the ground. They used hand-held scales to weigh the produce, and I would watch with curiosity as they balanced the scales with weights. Those were simple transactions involving straightforward counting of weights and of money.

Later in my life, I worked in various laboratories concerned with instrumentation and measurements. For many years, I worked in the calibration room of a major commercial airline. Part of my work involved the maintenance of primary standards and the calibration of secondary standards. The secondary standards were used, in turn, to calibrate the aircraft instruments from the cockpits of passenger jets.

The reason why calibration is necessary is rather obvious, but let me give you some perspective. Take, for example, a New York-to-London transatlantic flight. Cruising altitudes in such flights range generally between 35,000 and 45,000 feet. Often above or in the clouds, the pilots have no ground reference. Even if there were no clouds, the water below has no distinguishing features. It is obvious that looking out from the cockpit, pilots find no reliable reference for navigation. They fly blindly into clouds and darkness at speeds exceeding 500 miles per hour, relying on instruments. If keeping an aircraft in flight and getting it to its destination safely depends entirely on instruments, then those instruments must be accurate and reliable.

To assure the required accuracy, we followed a tedious process. The flight instruments were routinely removed from the cockpits after so many hours of service and taken into the instrument shop. After any necessary repair, they were calibrated against secondary, or shop, standards. But how did we know if the shop standards were accurate? We knew because they were routinely tested and calibrated against a primary standard. A primary standard is primary because its accuracy is derived and grounded in selfcontained, non-variable primary factors. The particular instrument I used during the 70s, serving as primary standard for altitude measurements, relied on the non-variable factor of the weight of purified mercury, which is an element. This primary standard was able to sense and display atmospheric pressure change due to as little as a foot change in altitude near sea level.

This high accuracy for primary standards is necessary because at each transfer of calibration, error is unavoidably introduced. After a couple of transfers from the primary to the secondary standard and then to the flight instruments, we want to be sure that the potential maximum error that might be introduced still leaves sufficient truth in the data to fly with confidence in its reliability and accuracy.

This is just a peek into the business of weighing and measuring all the necessary variables that airline instrument maintenance shops and labs routinely perform to assure the safety of flights. (Technologies have much advanced since that time.).

Reflecting on my experience with airplane instrument calibration, many questions come to mind: Am I taking such thorough preparations in my life, as I travel through time from day to day, month to month, and year to year? What is my destination? Where do I want to be five, ten, or twenty years from now? Do corporate managers make such detailed and thoughtful preparations? Are they staying on course to assure that you and I will have a good job for as long as we need one? Do the leaders of our nation govern with that kind of accuracy? Do they have the data and tools to avoid danger and move toward a destination of social, political, economic, and environmental justice and security to assure global well-being for our children and for generations to come?

No, we are not taking such thorough preparations to steer our lives individually and collectively. We cannot because we do not have the necessary data. Human consciousness, the driving force of individual and collective life, is unmeasured. Individuals, organizations, and society are flying through time, in all kinds of weather, toward an uncertain destination on an uncharted course, relying on arbitrary data, ungrounded in anything that could be called primary. If a jetliner were piloted by the same rules and practices by which we conduct our lives and the collective human enterprise, that craft would be on its flight of doom. Does a jetliner rely more heavily on weights and measures than other systems? Are weights and measures essential for social evolution? I want to take a closer look at this issue.

The history of weights and measures reaches back to a time long before early humans began counting pebbles, beads, or beans. In the earliest moments of the Big Bang, matter creation was possible only as a result of the natural "weighing and measuring" of subatomic components. In cooking up matter, nature "measured" the ingredients to absolute accuracy: three quarks, two "up" quarks and one "down" quark, make a proton; two "down" quarks and one "up" quark make a neutron. Neither proton nor neutron amount to ordinary matter. For matter creation, you need electrons as well. One proton and one electron make one hydrogen atom, the simplest form of matter. Two protons, two neutrons, and two electrons make a helium atom. Eight protons, eight neutrons, and eight electrons make an oxygen atom. These are elements. Science has identified 106 elements; most, but not all, are found on Earth.

When elements combine in chemical unions, they create new substances called compounds. Such chemical unions are created by the exchange or sharing of electrons among the atoms. One of the best-known chemical compounds on Earth is  $H_2O$ : The union of two hydrogen atoms and one oxygen atom makes a water molecule. This and all other chemical unions are possible because of the precise accounting of electron sharing or exchange among the participating atoms. This is nature's way of weighing and measuring to keep the books balanced. It is the natural accounting of matter creation to the accuracy of quantum precision. Quantities are naturally sorted and counted to the smallest available subatomic unit; no higher accuracy is possible or conceivable.

A similarly precise accounting takes place in all other physical events in which nature weighs and measures forces and energies in interactions to an absolute quantum precision. Weights and measures of natural economy are the instruments of nature that allow the metaphysical intelligent cosmic order to be translated into the material of the physical world. Without a natural accounting of the physical (mechanical, chemical, electromagnetic, and thermodynamic) events, an ordered, evolving physical world could not exist.

The quantum accounting of data that arises from the weights and measures of the processes of all physical events is highly ordered and accurate, therefore cosmically intelligent. Animal life weighs and measures instinctively: the amount of food ants and bees gather for the colony to survive; the amount of fat bears store under their skin to sustain life in hibernation through the winter; the fat similarly stored by salmon to provide the energy to make the run upstream and reach the spawning ponds. Weighing and measuring is inherent in natural processes.

The earliest humans lived hand-to-mouth, no different from most animals. Instincts, such as hunger and thirst, took care of the fundamental measuring of life's basic needs. That, however, changed (and the change was revolutionary) when humans began to consciously weigh and measure aspects of their environment, their physical possessions, and what they exchanged with others. The earliest evidence we have of such a conscious practice of weighing and measuring coincides with the end of the hunting and gathering way of life and the beginning of planting crops and domesticating animals for food. The

need to weigh grain and count sheep became necessary to measure one's possessions. When surplus was produced, trading was the next stage, which required more accurate weighing and measuring. In trade, both barterers had to agree on the measures, for example, of how much grain for how many sheep.

Simple counting was the first measure to develop. Beads, pebbles, or marks carved in wood or stone helped keep the count. As commerce developed, measuring things like the length of pelts and the height of horses became necessary. The first instruments of measuring length were the body parts: fingers, hands, arms, and feet. Weighing was slower to develop. The Hebrew word for weight, in the Biblical reference, is *even*, meaning stone. The early Babylonian, Egyptian, and Roman weights were also made of stone. Weighing was more difficult because it needed not only weights but also an instrument of comparison, scales.

There is evidence that the manual comparison of the weights of two items, one in each hand, was used up to the 18th century (the word *weigh* comes from the Anglo-Saxon word *wegan*, to carry or bear). The hand was also the instrument used to measure volumes to fill early medicinal prescriptions: a handful, a pinch.

However, it eventually became obvious that one man had longer or larger fingers, hands, arms, and feet than the other. The marketplace became the scene of many arguments. To avoid lengthy and disruptive arguments, city governments of major markets established standard weights and measures. Such standards became law, and government agents sealed scales and marked weights with exclusive symbols. Anyone caught using double standards was punished. When trading goods for goods was replaced by trading for money, commerce was much facilitated.

The early monies carried their value in weights of gold and silver. The mints were careful not to put more precious metal into a coin than it was worth. This demanded the development of more accurate weights and more precise scales. Trade became quite orderly within each city that had standard weights and measures, but trading between cities presented a problem. Not only did various trades have their separate measures, but also each city had its own standards. As commerce expanded between cities, kingdoms, and nations, merchants must have had nightmares. It is easy for us to make comparisons now, since we can express each weight in standard metric grams and kilograms, but here is a sampler of what merchants had to deal with in earlier days of commerce before the decimal metric system was introduced. (From: Kisch, Bruno. *Scales and Weights: a Historical Outline*. New Haven: Yale University Press, 1965.)

Abas (weight unit of pearls in Persia) = 0.175 g Akey (gold and silver weight in Sudan) = 1.3 g Arroba (weight in Spain) = 11.522 kg Baquila (Egyptian, "bean") = 4 samuna = 12 girat = 2.34 g Calfa (gold and silver weight in Mocha) = 3.167 g

- Carat (gold and silver weight in Bologna) = 0.108 gm; in Florence = 14.15 g; in Genoa = 13.22 g; in Milan = 9.8 g; in Venice = 0.2 g
- Cargo (Spanish market weight) = 2.5 quintal = 10 arrobas = 240 libras majores = 360 libras menores = 124.52 kg
- Deusquin (Dutch) = 1/2 troisquin = 1/2560 troy marc = 0.097 g
- Drachme (Polish) = 1/4 lutow = 1/8 ounce = 1/128 funt = 3 skrupulow = 24 granow = 132 granikow = 3.15 g
- Funda (Russian gold and silver weight) = 96 solotniks = 409.16 g
- Grain (weight in England) = 1/24 pennyweight = 1/480 ounce = 1/5700 troy pound = 0.065 g
- Gros (French) = 3 deniers = 72 grains = 3.9 g
- Himl (Islamic, a camel load) = 300 mann = 600 ratl = 250 kg
- Mozetta (salt weight in Corfu) = 1/2 sacco = 1/60 centinajo = 995.1 g
- Parah (rice weight in East India) = 1/8 candy = 16 adowlies = 64 seers = 128 tiprees = 20.322 kg
- Stein/stone (market weight in Amsterdam) = 3.952 kg; Berlin = 10.285 kg; Sweden = 13.556 kg; Vienna = 11.202 kg
- Wage/vague (weight for iron or lead in France) = 85.665 kg; Bruges = 79.980 kg; Sweden = 69.85 kg

The birth of the idea for the decimal metric system can be traced back to the French Revolution. Out of the turmoil of the revolution came the desire for greater equality and order. In peacetime, the greatest source of disorder was the chaos in trade and commerce. Everyone could gain much if uniform standards of weights and measures were introduced. Such a uniform system was first suggested in France by M. de Talleyrand to the Assemblée Nationale in 1790.

The fathers of the decimal metric system realized that if they were not to offend the pride and sensitivities of other nations they must not choose as standard anything arbitrary or found only in France. They had to choose something global. So a daring team of surveyors undertook the arduous task of measuring and calculating the length of a meridian of Earth.

A 40-millionth of that length was designated as one meter. That length was finely engraved into a platinum bar and safeguarded in a vault at Sevres, France. The standard for weight/mass was derived from the meter. One kilogram is the weight of one cubic decimeter of distilled water at freezing temperature in a vacuum.

Old habits, no matter how cumbersome, die hard. Decades of persuasion followed, but complete change to the decimal metric system came only when King Louis Philippe decreed it as law on January 1, 1840. The government of France sponsored an international metric convention and invited all countries to send delegates to the meeting. After much delay, the first meeting of the convention took place in 1872 in Paris. By the beginning of the 20th century, nearly all but the Anglo-Saxon world had adopted the decimal metric system for commerce. Science adopted it completely, and all scientists of the world use the decimal metric system as the international standard of measurement.

The Industrial Revolution required more accurate standards. The discovery and application of electricity, chemistry, heat, pressure, and radiation all created a need for new standards of measurement. To meet the mounting need to develop and safeguard new and uniform measurements in science, industry, and trade, the United States Congress established the National Bureau of Standards in 1901.

By 1925, the Bureau of Standards had nine sections: weights and measures, electricity, heat and power, optics, chemistry, mechanics and sound, structural engineering, metallurgy, and ceramics. The nine sections had a total of 62 divisions. For example, the section of weights and measures had nine divisions: length, mass, time, capacity and density, gas-measuring instruments, thermal expansivity, weights and measures law administration, investigating and testing of scales, and gauges. The section of electricity had ten divisions: resistance measurements, inductance and capacitance, electrical measuring instruments, magnetic measurements, photometry, radio communication, electrolysis prevention, safety engineering, electro-chemistry, and telephone standards.

It makes you pause and think that until 300 years ago, the best way to tell which of two objects was heavier was to hold one in each hand and subjectively weigh them. Most industrial and trading nations adopted the decimal metric system only about 100 years ago. We are now in the nuclear, space, microelectronic, high technology, information age. The fine old platinum bar at Sevres, France, is too crude for our taste. The meter is currently defined as the distance that light travels in 1/299,792,458th of a second. In order to have confidence in that meter, we must be able to measure time with much higher accuracy. Mechanical clocks can no longer do such a job. Atomic clocks must keep the time for us now. The standard second is defined as the duration of 9,192,631,770 periods of the radiation emitted in a transition between two specified energy levels of the cesium-133 atom.

Many of the new standards are incomprehensible to the nonscientist. It is enough to say that science has measured the largest, smallest, fastest, coldest, and hottest aspects of the physical universe, in many cases to the absolute quantum accuracy. We know the mass of the electron (9.1095 x  $10^{-31}$  kg) and the mass of the proton (1.67265 x  $10^{-27}$  kg) inside the atom. To a lesser degree of accuracy, we also know the size of the observable universe (13.7 billion light years).

But what do we know about the most significant force and factor on our planet? What are the weights and measures of human consciousness? Tests of education and intelligence are measures of specialized knowledge and of memory-recall; they are not a direct and absolute measure of consciousness. The substance of consciousness is not physical. It has not been identified by science; therefore, no weights and measures could have been developed for it. The chaos of consciousness among ideas, customs, laws, beliefs, religions, identities, and desires is the major source of human conflict today. The raging arguments and wars across streets, towns, and nations are reminiscent of the arguments and conflicts in the marketplaces before the metric standards of weights and measures were introduced.
In retrospect, it is inconceivable that socioeconomic evolution would have taken place without a progressive development of the weights and measures of all the significant physical factors of human life and society. Without weights and measures, humans would most likely still live in clans and tribes, hunting and gathering. Anything beyond that requires organizing, constructing, manufacturing, trading, administering, and transporting, all of which need counting, weighing, and measuring.

Why am I rambling on about weights and measures? Because it is evident that any advance in social evolution needs a commensurate advance in the standards of weights and measures. I strongly suspect that continued human evolution, indeed our very existence on this planet, is contingent on developing weights and measures not only for our physical possessions and activities but also for the intangibles of human consciousness and quality of life.

#### This Puzzle Is Way Bigger Than I Thought

My intuition and the progressively discovered evidence formed the conclusion in my mind that humanity on our planet has reached numbers and socioeconomic complexity that are beyond the organizing capacity of our system. Our current ways of life are unsustainable; therefore, civilization as we know it will come to end. I understood that the fundamental philosophical foundation of Western civilization (significantly gone global, mostly in the ways of extractive capitalist consumerism) could only yield solutions that are themselves unsustainable. It seems to be beyond general comprehension why any amount of recycling, renewable energy, greening, innovation, and "sustainability" can gain us time only for two or three more generations, but not beyond.

I realized at some period in my search that the solution must lie outside of conventional concepts, institutions, and practices and that I will not find answers on any bookshelf. My search, therefore, must be a solo enterprise most likely without peer support or criticism. I must pick up and identify every piece of this large puzzle in hopes of assembling a clear and convincing picture.

# **Nature's Building Code**

So far, much of this story has mostly been "me" and "I," starting with the eight-year-old kid climbing out of the bomb shelter at the end of the war, seeing his world in ruins and asking, *why?* — a personal search for answers.

From here on it will be progressively more "we" and "us." The solution to our human troubles will require most, if not all, of us to learn new ways and participate in building a new reality if we are going to have one. And for that we must understand how the underlying mechanisms of our complex reality work.

Given the dismal history of human ideologies and socioeconomic organizing systems, I am looking to nature for a tried and tested organizing principle to pursue successful and sustainable quality of life and human habitation of our planet.

I do not need to rediscover science, but I do need to answer the question that science has not quite answered yet. How do simple (brainless) parts and particles "know" how to build the universe? In other words, how do parts and particles know the process in building evolving structures, and how do they know their functions to fuel the process of evolution? What is the nature of that seemingly magic force that is stronger than the universal and inescapable forces of decay toward entropy? How do simple particles synthesize their atomistic structure and holistic processes to produce the emergent qualities that are the engine and essence of cosmic and biological evolution?

This engine powers the upward mobility of systems from simple to complex matter to simple life, then simple life into complex life, and into human beings with the latest evolutionary technology in the cosmos: human thought and consciousness. While we have gained this new and truly amazing evolutionary technology (consciousness with free will), it is missing an essential chapter of the true sustainability code. Consequently, humans are an endangered species. We need to find, relearn, and live by the sustainability code.

The challenge we face is more than "greening" everything and replacing nonrenewable with renewable resources. No doubt we need to do that because it can buy time, which we will need to apply the real solution. Stated briefly, the true problem we face is how to overcome entropy. I knew that evolution solved that problem; therefore, it is not impossible. It was encouraging that I did not have to invent anything, only to discover, learn, and understand. Once I understood it, I had to formulate a model of nature's building code detailed enough to see how it functions, and then adapt it to a formula that would work for people. We must ask the question: Can cumulative generations with their infinite demands survive on our planet with finite life-support capacity? Even when we factor in our best behavior, can the answer be anything other than *no*? So what hope do we have for a reasonable sustainability factor (carrying capacity left for a certain number of future generations)? At our present behavior I estimate a depressing Sustainability 2.0; in other words, two generations before social-economic-environmental collapse. "Greening" of capitalist consumerism is an idealistic, not a realistic, notion that likely will not significantly improve the sustainability index. A realistic view of this issue tells me that collapse will come with high probability before the middle of this century, unless we do something truly wise.

The idea kept buzzing around in my head: If nature could produce the universe out of the near-nothingness of a cosmic vacuum, could we humans do similar "magic" to save ourselves? I knew answering that question would not be simple. First I needed to understand cosmic evolutionary self-organization; in other words, I had to "break" nature's building code. Then with the understanding that human beings do not behave like atoms or molecules, I needed to translate that code to a socioeconomic self-organizing system that people would willingly accept and live by.

Some words of caution about "magic": We must be clear-minded about using that word. The cosmic "magic" that created the universe is *rational magic*; everything else is slight of hand and other forms of irrational fantasy. I spent twenty-five years out of fifty immersing myself in that paradox, trying to gain a degree of functional understanding of nature's creative magic. Rational magic is a truly loaded pair of words. I will do my best to take you inside that magic, explaining its rationale, so that you too may gain a degree of functional understanding of nature's building code. Why is that important? Because nature cannot be fooled by slight of hand. Only the real thing will buy us true sustainability to survive and thrive on our planet. You and I will have to give our honest best, because nature is a beautiful and wonderful artist, and a heartless and unforgiving bitch.

I invite you to join me on this trek across some steep and hidden but fascinating cosmic landscape. Most of this takes place at the edge of science. Remember that science and math do not work at the earliest moment of our universe before the basic forces — matter, space, and time — are fully formed. Our exploration originates "before" the Big Bang in the "twilight zone" between nothing and something so there is no science that can help us. (I have not studied string theory or other developing theories of the origin of the cosmos, so any partial or faint resemblance to such theories is coincidental). However, while physical science cannot cross the epochal boundary into that pre-material zone, amazingly, rational thought processes can, and the unprejudiced human mind can be a companion and observer of that process. Our journey cannot be a superficial sightseeing tour of the infraphysical realm; we need to go far below the surface and become intimately acquainted with its unusual landscape and occupants. So buckle up and let's fly!

#### Nature's "Magic" is Our Model

I suspect that the natural magic that was able to create the universe out of the material near-nothingness of cosmic vacuum is the same know-how that builds extremely complex natural systems such as life. Science explains physics, electricity, chemistry, and much of the material and functional details of nature; yet there is an underlying intelligent wisdom that orchestrates all the laws and potentialities of the cosmos. That underlying wisdom energizes a process of self-organization that is able to overcome seemingly impossible odds.

When I examine life, one question stands out above all: How is it possible? To make life possible, protons, neutrons, and electrons have to be precisely assembled to form the atoms of various elements. Atoms have to be assembled to form molecules, molecules to form cells, and cells to form organs; furthermore, the organs have to work together in a flawless reciprocal rhythm to sustain life. In an analogy, evolution might be the equivalent of erecting buildings billions of stories high. It is counterintuitive; it should not be possible. Yet we are here — cosmic and biological evolution works! How is the seemingly impossible made possible?

As I contemplate the impossible odds of creating sustainability for humanity on our planet beyond just a few generations, I realize that there is one way it may be possible. If we could come to understand the cosmic self-organizing know-how, we might use nature's magic to reorganize the way we think, live, and work and we may just find the key to true sustainability.

Science tells us that the universe was born in the Big Bang 13.7 billion years ago. From a simple and homogeneous state, the universe has evolved over time toward the increasingly complex.

What we need to do is follow the path of cosmic evolution, or as I like to call it, *cosmic construction*, back to its beginning and carefully observe every minute step to see how nature has done it. In principle we might find the self-organizational building code anywhere in nature, because it is at work within all natural systems; however, our chances will be slim if we try to sort it out from the immense complexity that surrounds us. Our only hope is to take a mental journey to the beginning of the cosmic evolutionary process and examine the first primal steps of self-organization, the foundation of cosmic construction.



The nonlinear rise in complexity from the Big Bang to the present.

I reason that *nature's building code* has to be the ultimate primal simplicity in selforganizational instruction. After all, every part and particle of the cosmos possesses and utilizes it. How else could atoms and molecules come together in self-organization to build the complex universe?

In our journey backward from the complex to the simplest, we might begin by taking a tiny scraping of skin, say from my finger. Under a powerful microscope it would appear as a multitude of dead cells. If I took a single cell out of that cluster and put it under an electron microscope, I would see that it is made of many different types of molecules. In a single molecule from the skin cell I would find, among other things, iron atoms with atomic number 26, oxygen with atomic number 8, carbon with atomic number 6, and the lightest atom, hydrogen, with atomic number 1. Hydrogen is the simplest matter in the universe, with one proton in its nucleus and one electron around it. A hydrogen atom, however, is not indivisible. When the proton and electron are separated from each other, we no longer have matter but something "softer" than ordinary physical matter. Protons are not indivisible either. A proton is made of three quarks. A quark is so soft and elusive that there is no humanly sensible way to relate it to everyday matter. Quarks and electrons are not the indivisible building blocks either; they were created during the Big Bang out of even softer components. Scientists are building giant particle accelerators to discover these more basic sources of matter. The discovery of each new and more basic particle requires a larger and more expensive accelerator. Clearly there is a physical limit to detection, with no guarantee of discovering the ultimate, indivisible building block that may not behave anything like the detectable particles of matter.

The laws of physics do not apply at the early moments of the Big Bang, so the very earliest moment of cosmic construction is not physical but metaphysical, or more appropriately, *infraphysical*, below the physical. The basic building block in that infraphysical phase is so soft that it must resemble information or pure intelligence more than it resembles anything that could be called a particle.

Scientific instruments have limitations no matter how advanced they are; unencumbered consciousness, on the other hand, is a weightless instrument without physical limitations. Consciousness can cross epochal/dimensional boundaries with ease. For example, your consciousness can "fly" into a potential future and project things that are not yet open to physical interaction. Your consciousness can also cross the boundary between present and past which is forever closed to physical interaction. Consciousness can cross the dimensional boundaries between space and time, and between the physical world and the infraphysical. Let's remind ourselves that we do not want to rediscover what actually happened as science has done much of that already. We want to discover the primal rule, *the concept and representation of self-organization*, that underlies the physical and chemical laws of nature and drives cosmic evolution. In other words we are looking for nature's building code and a model with which to represent it.

# Process

At the beginning there was a cosmic vacuum devoid of any process or structure. The universe must begin with a process that builds the first structure. Following that logic we will start our journey by searching for the primal *process* that begins cosmic construction.

Our consciousness travels backward in time from the present to the earliest moment of the Big Bang. We are looking for a concept, not a thing — the primal order of self-organization. In this search it is not important to find the actual primal building source, particle, or entity. We need only to identify its character to be able to conceptualize and model it.

Let's call the primal "particle" of all things, the indivisible conceptual "atom," integrity-singularity or *integrity-virtuality*. It is not difficult to describe such an entity because it has to exist between something and nothing. If it were less than that, it would be absolute nothing, from which the universe could not evolve. If it were more than that it would be at minimum a duality, which could then be disassembled into its indivisible singularity. If it is indeed the indivisible primal entity it can possess only internal information about its own existence, which I call *integrity*. It is a virtual entity. *Integrity* is the "insideness" only, an informational monopole that is imperceptible to anything in the universe outside of itself.

When by some spontaneous impulse virtual integrity momentarily projects its existence outside of itself, it becomes conceptually perceptible. We can call this projection *affinity*. Affinity is the part of the duality that communicates existence. With that, the integrity of cosmic virtuality takes its first step in self-organization and projects an affinity to become the minimum *coherent duality*.



to primal coherent duality.

Once integrity has spontaneously conveyed its affinity, further self-evidences are predictable. If integrity contains the inherent assets and needs of an entity, and affinity communicates the potential exchangeable surplus, then a give-and-take *reciprocity potential* may self-synthesize and emerge as the third bit of sub-information projected by the self-organizing entity.



Integrity, affinity, and reciprocity potential project a fruitfulness probability.

Integrity, affinity, and reciprocity potential represent the availability and potential exchange of assets. There exists an inherent probability that such an exchange will take place and the result will be fruitful. Consequently in the next step of primal self-organization, integrity-affinity-reciprocity potential project a self-generated *fruitfulness probability*.

When by chance, our conceptual entity (among countless) encounters another similar entity emerging from the cosmic vacuum and projecting a compatible reciprocity potential, the two spontaneously bond and exchange their fruitfulness probability upon which *fruitfulness actualizes*. Fruitfulness is the common bond that connects the two entities and it is the first conceptually sustainable product to emerge from the process of cosmic evolutionary self-organization.



Two compatible entities unite in a partnership producing a common fruitfulness.

There are advantages to formalizing this thought process through tetrahedral geometry rather than mathematics. While math can handle quantities, we need to model weightless and volume-less qualitative entities. Tetrahedral geometry is visual and easier to understand than any formula mathematics could provide.

The tetrahedron also provides self-validating reliability: If I take away a single element, the three-dimensionality of the tetrahedron collapses into two-dimensionality and then to one-dimensionality and into nothingness, because one- and two-dimensionalities are not self-sustaining. If I add even a single element, it will become something else and easily recognized as no longer a tetrahedron. Thus, I use the tetrahedron as the incorruptible minimum geometry to illustrate evolutionary self-organization from the simplest to the most complex development along cosmic and biological evolution. Evolutionary self-organization is a nonlinear process of systemic reciprocity among parts that yields fruitfulness with emergent qualities. It is a model that helps explain to me how the universe evolved from the simple and homogeneous to the complex and diverse. Importantly, it illustrates how systems of any complexity need to be self-organized to be sustainably successful.

We have to pause here to answer a question. If the first-order units, by joining, fulfilled each other's reciprocity potentials — in other words, if they mutually satisfied each other's needs and surpluses — why did the process of cosmic evolution not come to a halt? Common sense would suggest that since all potential give-and-take was satisfied and exhausted, the spring of cosmic evolution had unwound and the process should have ended. The universe should be filled with a homogeneous soup made of great numbers of those happy little couples and nothing else. Yet, since we are here to pose this question, we know with certainty that cosmic evolution did not come to a halt. To understand how nature overcame this apparently serious roadblock, we need to probe deeper into the "magic" of the nonlinear process of self-organization.

When the reciprocity potential of each unit was played out in the union of the two entities, at the point of fruitfulness an unexpected nonlinear event occurred. Remember that the process began with a dimensionless virtual point that grew into a minimum evolvable unit of coherent duality, which self-developed a third component expressing the unit's exchangeable potential. We can represent this with a triangle (integrity, affinity, and reciprocity potential). When that potential was played out, the process of self-organization matured into an entity with four components that can be represented by a tetrahedron (integrity, affinity, reciprocity potential, and fruitfulness probability). When fruitfulness probabilities actualize with the unification of two entities, we can use two tetrahedrons to represent the two first-order units that have joined to create a first-order partnership. Each unit was separate and unique; consequently, the integrity, affinity, and reciprocity information are unique and cannot be common. Fruitfulness is the only common point the two units share. However, since the two units, in joining, did not annihilate each other, the first-order partnership continues to exist. Since it can exist only in and through the point of fruitfulness, and since fruitfulness cannot occupy any of the previous and unique points of integrity, affinity, or reciprocity, it must therefore occupy a conceptual space that is simultaneously separate from those points and yet common to both units. Thus, in some way, the point of fruitfulness must be separate from, and yet include, all the points of both units.

Here is a way to visualize this hard-to-imagine nonlinear event: Since fruitfulness has to be separate from and yet inclusive of all points of both tetrahedrons, we can visualize the point of fruitfulness inflating like a balloon at the moment of union to include within its bubble all the integrity, affinity, and reciprocity points. At the moment of inflation, a qualitative emergence takes place to satisfy the need of the union to be distinct from and yet inclusive of all the components of the constituent units.



A conceptual inflation of fruitfulness produces the integrity of the emergent entity.

What a moment ago was fruitfulness, through the qualitative emergence, has become the integrity information of the new higher complexity entity. Since it is conceptually real, and not a virtual thing, its higher integrity projects a higher affinity and a higher reciprocity potential. This newly emergent thing, no doubt, will sooner or later meet a compatible mate and produce a new union with higher complexity fruitfulness, promptly inflating into an even higher complexity system. And so this powerful nonlinear process of evolving complexity continues, driving self-organization to construct the universe.

I want to make a note here: While nature works in seamless sweeps, we have to compartmentalize all this to accommodate the human brain's ability to process and try to understand nature's holistic sweeps. The whole of cosmic/natural self-organization is the magic formula, but I am particularly fascinated with the sub-step of fruitfulness "inflating" to encapsulate all the participating parts and emerge as the higher-complexity integrity of the next step up the cosmic evolutionary stairway. The process of "inflation" from fruitfulness to the next level integrity is not a seamless transition but more like a micro explosion. It is a *leap*! It reminds me again of the salmon in the run that leaps out of the water to advance past the rapids and waterfalls, which it could not overcome simply by continuing to swim. *I see the micro leaps in cosmic evolution's qualitative emergence as the masterstroke in the process of nature's magic formula to overcome the torrent of entropy and make the upward mobility of evolution possible.* 

## Structure

I recall my earlier question asking how cosmic construction can build structures that are conceptual skyscrapers billions of stories high. What is the nature of the elemental universal structure that can begin with primal simplicity and sustain structural complexity to build the universe and life?

We must look deep into process and structure to understand how the universe builds itself. Let's take another tour of evolutionary self-organization and this time focus on the structure that emerges from the primal process. We must keep in mind that nature does not compartmentalize, but works in a seamless holistic-systemic sweep. However, we need to separate parts and aspects of the self-organizational code in order to comprehend it.

But what can we know about the structure of reality? As we look around today, 13 billion years after the birth of the physical universe, we see a dazzling array of forms in nature. To make sense out of all the variety around and within us, we would have to catalogue nearly all things, closely examine them, and try to determine nature's most preferred way of structuring. This would be an overwhelming task. To simplify our search for nature's fundamental structuring, we will do as we did while looking for the universal *process* of cosmic construction. We need to find the *minimum structure* that is common to all structures.

Nature had to construct exceedingly stable structures in order to build immensely complex systems such as higher animal life. As in the case of a very tall building, such a structure will stand only if its foundation is designed and built well. Evolution can conceivably move upward only to the extent that each previous structure is sturdy enough to support successively higher, more complex systems. This would mandate that the firstorder self-organized structure would have to be very sturdy, functional, and evolvable. It would have to be the fundamental design that could be found in successive higher-level systems. The fundamental conceptual structure of nature is what we are looking for, and our best chance of finding it is in the very early stage of cosmic construction.

Let's again visualize cosmic evolution as a stairway. The movement from one step to the next represents the process and each step of the stairway represents a progressively more complex structure. In order to be sure that we don't miss anything, let's examine the structuring at the very beginning of cosmic construction. The tetrahedron can again assist us in visualization, but this time we are looking for the pattern of conceptual structuring.

The minimum thinkable something-nothing, as we have seen earlier, is a point. It is something because you can think of it and it is nothing because it has only *integrity*. Integrity (without affinity) is an imperceptible virtuality without structure. But once our virtual point, by whatever spontaneous impulse or oscillation, projects its other half, *affinity*, it becomes manifest and potentially evolvable. We have, at this stage, the firstorder bipolar unit (coherent duality). It is the minimum conceptually perceptible something, the seed of dimensionless singularity expanded and having assumed one (conceptual) spatial dimension.



When integrity-virtuality expresses an affinity, the first dimension of substructure emerges.

From this stage, the bipolar informational unit inherently projects reciprocity potential. Geometrically, the one-dimensional integrity-affinity bipolarity expands into two (conceptual) spatial dimensions. This is a triangle, which can serve as the most solid two-dimensional foundation.



When integrity and affinity express a reciprocity potential, the second spatial dimension of substructure is projected.

Integrity, affinity, and reciprocity potential project availability and open the probability for partnership. The two-dimensional triangular foundation now pops up as it projects fruitfulness probability into a first-order probable three-dimensional structure, which can be represented by a tetrahedron.





When, by chance, two compatible conceptually tetrahedral units meet, by exchanging their give-and-take reciprocity potential in a binding fruitfulness, the partnership manifests in the first-order three-dimensional self-sustaining structure. With this event, the first sustainable and evolvable three-dimensional structure appears. Its conceptual geometry is a pair of tetrahedrons with one shared corner, a *bitetrahedron*.

Remember that all of this is happening in the "twilight zone" before matter creation in the earliest moments of or "before" the birth of the universe. Let's examine this primal structuring more closely in terms of our familiar geometric spatial dimensions. Each firstorder unit (single tetrahedron), while single, can be viewed only as one-dimensional since only its integrity and affinity are actualities.

Reciprocity is merely a projection, a strong potential but less than a self-sustaining actuality. This leaves the unit still in one dimension. However, the reciprocity potential expands the one-dimensional bipolarity into a projected triangular two-dimensional structure. The potential triangular foundation is the preparation to allow the unit to project fruitfulness in a potentially stable structure and enter the (probable, conceptual) third dimension.

The evolution of structure is not guaranteed. The life spans of first-order units are very brief, since one- and two-dimensionality are not self-sustaining. Furthermore, only complementary units result in evolvable partnerships. Less-than-complementary partnerships yield unstable short-lived unions. Non-complementary units ignore each other and units with an opposite "pulse" will annihilate each other. The key to entry into three-dimensionality is the consummation of the first-order partnership.



When two units merge in binding partnership, fruitfulness actualizes in a (conceptual) three-dimensional bitetrahedral structure.

At the instant of partnership and entrance into three-dimensionality, fruitfulness enlarges in a parallel emergence of at least two discernible events. One is the volume inflation (spatial expansion) as the partnership acquires its third dimension. The other is the qualitative emergence in which the emergent "bubble" of fruitfulness envelops all of the constituent components of both of the merged units. From the outside, none of the integrity, affinity, or reciprocity potentials of either unit are perceptible. Instead, from the moment of consummation the inflated fruitfulness will serve as the more complex integrity information of the emergent entity.

We can illustrate these conceptual events with an example from the physical world. The partnership of a pair of hydrogen atoms and an oxygen atom produces a new structure that is a molecule. This new structure will not display the separate and unique qualities of hydrogen or oxygen but only its emergent quality that is water. The higher-complexity integrity, in turn, projects a higher-complexity affinity, and integrity-affinity will project a higher reciprocity potential, which in time, and by chance, will meet and bind with a compatible counterpart and produce a higher-complexity fruitfulness. This process repeats countless times as evolutionary self-organization propels itself toward creating new emergent qualities in ever more complex structures.

The earliest moments of cosmic self-organization remind me of singles dance parties. As the party goes on, all the compatible singles pair up. Is that the end of the party? No, but the dynamic changes. Once all the singles are snapped up, first-order partnering is no longer available; however, there are new opportunities for *couples* to interact, creating more complex networks.

There is practically no limit in this new phase of self-propelled construction as to the size and variety of structures and systems that can emerge. Such networks come in all shapes and sizes. The fundamental connection of units of any complexity to units or systems of any size is the same as the first-order partnership — it is conceptually bitetrahedral.

Only the complexity of compounding integrity, affinity, and reciprocity content will change in the process of building more complex structures and systems.

#### **Holonomic Arrangement**

How is order maintained and systemic integrity preserved in the face of rising complexity? How is the self-organizational know-how distributed in a complex system so that each part and particle "knows" its place and function within systems? One could ask how a particular atom knows its place and function within a particular molecule, how that molecule knows its place and function within a particular cell, how that cell knows its place and function within a particular organ, and so on. In order to answer these questions, let's fast-forward through several cycles of natural evolutionary self-organization so that we can see the emerging picture of how order is preserved and distributed to every part and particle of a system. We will illustrate the sequences with the simplified representation of the tetrahedron.



Multiple sequences of evolutionary self-organizational process, structure, and emergence. The holonomic arrangement is preserved in the integrity memory of each emergent entity/system.

Again we begin with virtual integrity marked by X. When X projects its affinity (a), it becomes available and potentially evolvable. Integrity-affinity projects its exchangeability through its reciprocity potential (b). Integrity-affinity and reciprocity potential project a fruitfulness probability (c). When two compatible first-order units successfully join, their reciprocity potential plays out, producing a common fruitfulness; the first-order sustainable three-dimensional structure is born in a binding bitetrahedral partnership (d). Fruitfulness immediately inflates (e), producing a qualitative rebirth, which becomes enriched emergent integrity, projecting an enriched affinity (f). This begins a new cycle of process with an enriched reciprocity potential (g), projecting an enriched fruitfulness probability (h). When two such systems join, they produce a higher-complexity bitetrahedral structure (i), from which a new quality emerges with a higher-complexity integrity (j), which then projects a higher-complexity affinity and thus a new phase of the process (k). This new phase of the process again culminates in a still higher-complexity bitetrahedral structure of organization (l) from which emerges once again the integrity of a new cycle of still higher complexity process and structure.

When we look at this process, we see that each part and subsystem within any given system holds a record of its history within its respective "integrity memory." Thus a system of any complexity holds a complete record of its history in its *holonomic* integrity memory. This is analogous to a hologram.

## **The Hologram**

A hologram is an image that contains in a wave pattern the sum of its parts, and each part in some representation contains the whole. A holographic photograph of an object, let's say an apple, is produced in the following way. Laser light is split by a special mirror. One branch of the laser light is cast on the apple. Some of that laser light is reflected from the apple and captured on a photographic plate. The other branch of the split laser light is cast directly on the same photographic plate. The two laser lights, one direct and one reflected from the apple, create an interference pattern on the photographic plate. This interference pattern, while unrecognizable, carries in a simplified pattern the complete information representing the apple. If you cut the plate in half, each half would be able to reproduce an image of the whole apple. In fact, you could cut a small fragment out of any part of the plate and the fragment would be able to reproduce the picture of the whole apple. Each fragment has the complete information to reconstruct the whole picture. This is the essence of holographic or holonomic arrangement.

Perhaps the most convincing evidence that nature prefers the holonomic arrangement of the self-organizing code is the way it builds living things. The living body is made of many organs, each of which has a specific partnership with the body as a systemic whole. All the organs together make a fully reciprocating network. The heart beats for the heart and for all the other organs, the lungs breathe for the lungs and for all the other organs, and so on. Each organ is made of billions of cells. Each human cell (except the reproductive cells) contains forty-six chromosomes. Each cell, whether it is a liver, kidney, skin, or other cell, has a complete set of genetic instructions. Although in possession of the blueprint for the whole body, each part goes about doing its own business: liver work for liver cells, kidney work for kidney cells, and so on. We see that the whole body contains a systemic sum of the parts, which yields the emergent quality that is life, while each part, in some holonomic representation (genetic code), contains the whole. The human body is built in a fundamental holonomic arrangement.

Is it not wasteful of nature to deal out a full genetic code to each of the hundred trillion cells in the human body, when each cell only needs to perform one specialized function? The answer is that every cell must have a complete map/set of instructions. How else could each cell "find" and "know" its place and function in the body? In this light it becomes understandable why every part and particle of the cosmos must carry a complete

self-organizational code in a holonomic arrangement. It is the only way parts and particles can "read" the map and "know" their place and function in self-organized cosmic construction/evolution.

## Nature's Economy

Not all the salmon in a run will make it all the way to the spawning ponds. Similarly, not all systems that possess nature's self-organizational code will make it up the evolutionary staircase. In fact, the history of evolution is mostly one of failures. Out of countless start-ups only the best succeed. This is nature's way of doing business. While all systems are built by self-organization, not all are equally successful. Some fail after a short time; others can be very successful and enduring. Shouldn't systems that use nature's building code be equally successful? What separates sustained success from failure?

While the fundamental process, structure, and arrangement of self-organization are unchanging, the efficiency with which it is accomplished is variable, a function of *economy*. Economy is a factor that is built into all the components of the self-organizational code. In the tetrahedral model, for the corners we use spheres to represent integrity, affinity, reciprocity, and fruitfulness. The edges connecting the spheres of the tetrahedron represent the efficiency of resource use within and in the reciprocal exchange that holds together a bitetrahedral partnership or system. Shorter connections between the spheres mean higher efficiency, which indicates better economy. All the spheres touching each other result in a "closest pack" which represents the best, most efficient economy possible.



The "closest pack" (R Buckminster Fuller) represents the best economy: doing the essential most with the least of resources.

An important variable that separates sustained success from failure can be described with the key word *economy*. The primal code of economy carries a simple instruction: Seek the "closest pack" — *do the essential most with the least of resources!* 

## **Summary of the Model**

Nature's building code is a concept that helps us explain how the cosmos constructs itself and how systems self-organize with high efficiency/economy to be able to overcome entropy and continue to evolve. It is the rational, conceptual mechanism by which the cosmic know-how is transferred into every part and particle of the cosmos. It is this primal process by which simple and chaotic parts self-organize into complex ordered systems. Nature's building code is the surprisingly simple formula of cosmic evolution by which all the wonders of the universe are built.

The tetrahedron is helpful as a model; its elements illustrate how the parts and aspects of the code work together as the cosmically creative, nonlinear, self-organizing system. We recognize four parts and four aspects within the code. The four internal parts are *integrity, affinity, reciprocity,* and *fruitfulness.* The four aspects are *process* (tetrahedral), *structure* (bitetrahedral), *arrangement* (holonomic), and *economy* (variable).

#### The four *parts* of the self-organizational code:

*Integrity* is the informational content of an entity. It contains the entity's history, its needs, and its potential exchangeable surplus. But integrity is merely the inner half of the full bipolar (coherent duality) information of an entity. An entity without affinity is an informational monopole, a virtual entity not perceptible to anything in the universe outside of itself.

*Affinity* is the spontaneous outward manifestation of integrity. Integrity and affinity form a coherent duality. With few exceptions, integrity and affinity are the inseparable poles of a single bit of information. Affinity conveys the potential capacity to absorb and the potential surplus to be exchanged.

*Reciprocity potential* is self-generated by integrity and affinity. It contains the information about needs and surpluses from which the give-and-take for a potential partnership is self-synthesized.

*Fruitfulness probability* is projected by the reciprocity potential. When integrity, affinity, and reciprocity project a potential for interaction, a fruitfulness probability is self-generated. When two entities meet and exchange their reciprocity potentials, their binding partnership consummates in a shared and common fruitfulness.

#### The four *aspects* of the self-organizational code:

**Process** is a result of non-simultaneous successive events among related parts. Process takes cosmic evolution/self-organization through five sub-steps: (1) from virtuality to coherent duality, (2) from coherent duality to potentiality, (3) from potentiality to probability, (4) from probability to self-sustaining structure, (5) from self-sustaining structure to emergent system. We can model the synergetic process with the *developing tetrahedron* and the joining of two tetrahedrons.

*Structure* is the result of the consummation of fruitfulness probabilities. Two tetrahedral entities consummate their fruitfulness probabilities in a binding and mutually reciprocating partnership, producing fruitfulness in a self-sustaining *bitetrahedral structure*.

**Arrangement** is the way nature's self-organizational instruction is distributed and preserved throughout every part of an evolving system. At each level of complexity the code of process and structure is inherited and preserved in a *holonomic* arrangement within the integrity memory of an emergent entity/system.

*Economy* affects every activity of every system. It is the natural accounting of the resources used in the process of self-organization. The function of economy is to sustain self-organization and preserve the system with its rising emergent complexity in the face of entropic pressure. This is accomplished through "super-economy," striving for the "closest pack" by *doing the essential most with the least of resources.* 

#### **New Questions Arise**

Once I realized that the governing principles and mindset of Western science and civilization are built on flawed or insufficient foundations, all the existing rules and assumptions became questionable. In my reexamination of reality, I am searching for a connecting coherence in my existence. I have to examine my life because I do not have a copy of evolution's self-organizing code that all other viable systems in nature possess.

All parts and particles contain in their "integrity" memory a complete history of their origin and self-organizational code. So equipped, each part and particle "knows" its place and function in constructing the cosmos. I do not know my place and function in cosmic construction because my consciousness did not inherit the code, or if it did it got corrupted by free will. On the other hand, I have a complex brain that enables me to learn.

So that is what I have to do. I have to learn where I came from, what is my place and function on Earth and in the local universe, and what is my part in the larger scheme of cosmic construction.

A number of questions arise in my reexamination of reality: If the Big Bang is the source of all physical matter, then what is the nature of the potentialities that gave birth to the Big Bang? What is the source of the Big Bang and what is the source of intelligence and order? If cosmic construction gave emergence to consciousness, then what is the role of consciousness in cosmic construction? And the most pressing question: How do we construct a sustainable future so that intelligent life can continue here on Earth?

Since I think evolutionary self-organization may hold the key, I retrace the steps of cosmic construction using tetrahedrons to model self-organization and emergence. I am looking to fill gaps in my understanding of the universe. I want to see how my fellow humans and I fit into the complexity of nature and what part, if any, we have in cosmic construction. To get to the bottom of things, I realize that I have to get to the primal source of process and structure that builds the universe. I need to understand the source from which emerge order, intelligence, and the universe.

#### 'Before' the Big Bang

In my search to find the source, I must be sure that I travel backward in time and process to the absolute beginning. Only in the simplest first step will I be able to see the process unclouded by complexity. The Big Bang had to spring from its own source; therefore, it may not be the absolute beginning.

I must travel below the Big Bang until I reach the bottom of the process. This of course does not work if one assumes that there is no beginning, but only a bottomless infinity. Infinities, for the most part, are human inventions; in nature they would be self-contradictions. Nature may be perpetual, but always comes in measurable packages, sizes, and cycles. Science, as we noted earlier, has measured nearly everything in the physical universe. If cosmic evolution is not an infinite process, then it is finite, meaning it has a bottom, a beginning.

I imagine traveling backward in time through cosmic evolution, from today's complexity to earlier simplicity. As I approach the beginning of the process, I see a very simple entity that may be the "bottom piece." I imagine a simple conversation with it, and I ask the question, do you have a source? If the answer is yes, then I have to go another step down to its source and ask the same question again, do you have a source? I continue to ask that question until there is no answer. When that happens, I know I have come upon a very unusual entity. To be sure, I ask one more question, can you be divided? And the strange and shy little entity silently disappears. At this point, I suspect that I have reached the

bottom. If an entity cannot be further disassembled and has no origin, it must be the pure, indivisible source. The last orphan entity has a very brief existence and then disappears into the near nothingness of the cosmic vacuum, which cannot be further disassembled. My searching consciousness has reached the absolute bottom, the source from which cosmic construction springs.

The vacuum of nothingness produced the orphan entity; therefore, while it appears to be nothingness, it cannot be absolute nothing. I traveled here from the thirteen-billionyear-old complex leading edge of the expanding universe, and I know that the nothingness contains the potentiality with the inherent building code that constructed the universe and me.

Knowing that so much intelligence and potentiality is dissolved in the black nothingness, I am inclined to rename it. It is undoubtedly intelligent nothingness, but I think it would be more fitting to refer to it as *primal cosmic intelligence*. This fits, because intelligence is not matter, not energy, not a dimension by itself, and is not even active, but passive potentiality. So it can be imagined as the universe completely disassembled into its subatomic infraphysical (below the physical) potentiality components, with all its potentiality dissolved in this sea of passive primal cosmic intelligence. Cosmic intelligence can be considered as the *rational nothingness* of cosmic vacuum. Why rational nothingness? The cosmos is ordered and rational from the start. The cosmic vacuum must be rational because irrationality cannot self-organize and does not create order, evolution, and the universe. On the other hand, rationality is ordered; therefore, the nature of any such phenomenon or entity should be predictable. If cosmic intelligence is rational nothingness, then in principle, the rational thought process of my consciousness should be able to perceive its nature.

Using the tetrahedron model, I found that every entity and system, physical and metaphysical, begins with an integrity, the content of which can be represented by a bitetrahedron. This conceptual bitetrahedral content holds within it the history of the entity/system's process and structure. The bitetrahedral integrity is fruitfulness inflated and emerged from the synergetic union of multiple entities/systems a complexity-step below.

As we concluded above, if there are less than an infinite number of infraphysical evolutionary steps below the Big Bang, then the process is finite and there must be a bottom. The bottom piece cannot have a bitetrahedral integrity because if it did, it would indicate still another complexity-step below it. In other words, as long as there is a bitetrahedral integrity, it could be further disassembled and would not be the bottom. If it is the bottom of cosmic construction, it could not be disassembled any further.

I pose the question again, what is the nature of the bottom, and how could it evolve without a bitetrahedral integrity? I can approach this puzzle by taking stock of what the bottom can and cannot have. The bottom, since it lacks bitetrahedral integrity, has neither physical nor infraphysical structure nor process. In other words, it has no physical or metaphysical content, dimension, time, or process of any kind. It is the nearest thing to nothingness. Yet since it has produced the universe, it has to be more than absolute nothing. I can imagine this potential of potentialities as the softest of software from which the potentialities evolved that gave rise to the probabilities from which matter and the physical world emerged and evolved. Since the bottom has no structure or process of any kind, even its potentiality is removed. It is a mere virtuality of virtualities, a dimension-less, process-less, unevolving field I refer to as *primal cosmic intelligence*.

Let's visualize primal cosmic intelligence as a disperse field that is not necessarily uniform and has occasional pulses we will call *intellectons*. An intellecton still remains a virtual infraphysical monopole without an affinity, and therefore is not evolvable. How does an intellecton acquire an affinity and become evolvable? Well, below the complex combining abilities of electrons in the physical world, the simplest affinity one can imagine is attraction.

The only attractive field/force we know that existed before matter or even submatter particle creation is gravity. Now, I can imagine the intellecton as the smallest pulse in the field of primal cosmic intelligence creating the smallest possible ripple of attraction. I call this smallest ripple of attraction — the telltale sign of an intellecton — a *graviton*. Is my term graviton related to gravity or is it just a name that happens to sound like it has something to do with gravity? I believe it has to do with gravity, but I am not making scientific assertions; I am merely exploring probable rational explanations as to how the universe may have taken the primal first self-organizational step to begin constructing itself, as I search for nature's building code to satisfy my curiosity.



A virtual pulse in the field of cosmic intelligence produces a conceptual integrity and affinity, which can be called respectively intellecton and graviton.

The graviton becomes the affinity of the intellecton. The intellecton-graviton thus becomes the minimum manifest form of primal cosmic intelligence. An intellecton, the integrity, and the graviton, the affinity, create the essential primal *coherent duality*. This *intellecton-graviton* is the bottom piece, the most fundamental bipolar (coherent duality) bit of primal potentiality. It is the minimum evolvable entity even without a bitetrahedral integrity. The complementary pair of integrity-affinity attributes of an entity self-generates a potential for synergetic reciprocity with another entity (*reciprocity potential*) and a

probability that the reciprocity will result in a new emergent quality (*fruitfulness probability*). Thus self-organization and cosmic construction begin.

As I consider the intellecton-graviton as the foundation of cosmic construction that provides the primal cosmic intelligence and gravity/attraction that are built into the self-organizational code and into every part and particle of the universe. If they were absent from the building code, an orderly evolving universe would be hard to imagine.

Nevertheless, I still have a curious question. Where does cosmic intelligence come from? The simple answer is that it does not have to originate because it is the origin. It is the physical world disassembled into its software of potentialities, which are further disassembled into their infraphysical bit, the bottom piece, dissolved in a pure, virtual field of primal intelligence that is cosmic vacuum. This virtuality of virtualities comes as close to nothing as is rationally possible to explain nothingness, which is a vacuum that is void of any structure, process, or dimension of any kind. It is rational nothingness that is evolvable, yet nothingness that requires no origin.

#### The Nature of Cosmic 'Nothingness'

It is an extremely intriguing thought that you and I, life, and the universe all came from the near-nothingness of a cosmic vacuum. I need some rational explanation that may help me to digest this thought. I want to take a look at what happens to parts and particles when I systematically disassemble them. When I disassemble a water molecule by detaching a hydrogen atom from its commitment with the other hydrogen atom and the oxygen atom, that hydrogen atom will have greater chaotic freedom (disassociation) than the water molecule it helped form. If I further disassemble a hydrogen atom by detaching its proton from its electron, the proton will have more chaotic freedom than the hydrogen atom it helped form. I can continue disassembling the products of cosmic evolution until I get to the bottom. I find that as I continue to disassemble the parts and particles, the detached particles lose the commitment of systemic association and gain chaotic freedom. When I get to the bottom piece, I find that it has the absolute minimum association and the maximum chaotic freedom.

In a simple illustration, the center of a circle would represent absolute rest and all other positions outside of the center represent various degrees of freedom. If an intellecton, the bottom piece, is positioned in the center, it means that it is immersed in the field of cosmic intelligence, absolutely still, unmanifested and unevolving. But to be stuck in one position would represent a commitment, which is not in the nature of the intellecton.

Its nature is to follow the absolute rule of the cosmos, rationality. This rule does not allow an intellecton to stay in the center any longer than in any other position outside the center as it must exercise its maximum degrees of freedom. Because the intellecton is utterly disassociated, its nature is minimum commitment and maximum chaotic freedom. The probability for the intellecton to be in the center is very small; therefore, the probability for it to be outside of the center is great. When outside of the center, the intellecton is not still but creates a conceptual ripple in the field of primal cosmic intelligence, generating an affinity (the graviton). Any entity that possesses an integrity-affinity coherent duality is inherently and potentially evolvable.

I can, of course, still argue that if cosmic intelligence were not rational nothingness but absolute nothing, there would be no universe and I would not be here. But I am here to ask, what is the difference between absolute and rational nothingness? The answer, it seems, is that rational nothingness is primal energetic cosmic intelligence and it trumps absolute nothingness. It is in the nature of rational nothingness to emerge from its rest and evolve. Absolute nothingness is irrational and disorderly, therefore not evolvable. Absolute nothingness, as I see it, is irrationality that has no accommodation in the rational cosmos in which rational nothingness is the inherent texture of cosmic vacuum.

Earlier I mentioned that I would come back to speculate about dark matter and dark energy. Why do I need to? Because it makes me uneasy to learn that science understands (not fully) less than 5% of the stuff the universe is made of. Could the rules change fundamentally when science discovers and understands the other 95% of what the universe is made of? I emphasize again that I am not trying to dabble in science (I am not qualified). The following is merely my speculation to satisfy my own uncertainty and curiosity about the dark contents of the universe.

I need to do this, as best I can, to try to see if any of it may have an impact on the natural model of cosmic evolutionary self-organization that I intend to use as a template in formulating a sustainable socioeconomic operating arrangement in the interest of securing peaceful and sustainable quality of life for many generations to come.

What puzzles scientists is that the gravity apparent within galaxies is far greater than that which can be caused by their content of ordinary matter. The surplus gravity is attributed to the yet unidentified dark matter and dark energy. Surplus gravity in the cosmos would be more reason for the expanding universe to obey that gravitational pull and slow its expansion. Yet the opposite is confirmed — the expansion of the universe is accelerating. (Now, solve that crazy puzzle if you can!)

Albert Einstein was the first to suggest that empty space is not empty at all. Science, however, does not have a satisfactory explanation of what might fill empty space, so I embark on my own speculation. As I see it, the cosmic vacuum is packed with "rational nothingness" that I call primal cosmic intelligence. Cosmic intelligence is restless and every time a pulse of it emerges, it stretches space and creates a pulse of attraction, a graviton. Galaxies that are dense with matter are still mostly "empty" space in which this invisible "dark" activity is pervasive. Add up the attractive force of the immense number of gravitons and there you may account for the surplus gravity.

But how can one explain the **accelerating expansion** of the universe against all the extra gravity that is pulling to slow it down? Every pulse of cosmic intelligence creates an intellecton-graviton evolvable primal coherent duality. Most of those will be short-lived,

but the lucky ones that pair up with other compatible intellecton-graviton pulses go on to evolve, perhaps toward the creation of matter. These emerging (infraphysical) entities do not just move into existing space, they create their own space. Thus, while gravity is intense within galaxies, the vast spaces between galaxies are stretched by the activity of the restless cosmic vacuum creating space as cosmic intelligence is attempting to emerge and evolve. This may explain why galaxies are moving away from each other; in other words, why the universe is expanding with accelerating speed.

This explanation reasonably reassures me that whatever dark matter and dark energy turn out to be, if science identifies them, they will not fundamentally change the natural evolutionary self-organizing model that I like to call nature's building code. I propose *societal reconstruction that complies with that building and sustainability code — building a future of universal quality of life, global peace, and systemic sustainability here on Earth.* 

## **Cosmic Construction Continues**

A particularly fascinating aspect of cosmic construction is the fact that nature found it necessary to go from the software of potentialities to the hardware of matter creation and to continue cosmic evolution in the physical, only to go back to software from brain to mind and consciousness. Thus cosmic construction moves through three epochal phases. The story of cosmic construction is truly a challenging concept because we have no reference in our common experience to which we can relate cosmic self-organization and qualitative emergence. Yet it appears to be the natural mechanism that is able to build something out of the near-nothingness of a cosmic vacuum and continue to build ordered, systemic complexity to sustained and unimaginable heights.

It all begins with cosmic intelligence. From primal cosmic intelligence the intellecton-graviton emerges and the potentiality of cosmic intelligence begins to evolve.

In the infraphysical (below the physical) epoch, primal potentialities evolve from the simple toward the more complex through self-organization. This process moves cosmic construction through the infraphysical toward the probability of matter creation in the Big Bang. In the Big Bang, cosmic construction crosses an epochal boundary from the evolution of potentialities in the infraphysical into the evolution of matter in the physical epoch.

According to science, the physical universe begins with intense gravitation out of which the strong, weak, and electromagnetic forces emerge in the earliest moments of the Big Bang. From the four forces, quarks, then protons, and then electrons emerge, and within the first three minutes of the Big Bang protons and electrons self-organize in binding partnerships from which the simplest matter, hydrogen, emerges.



The three epochal dimensions/phases of cosmic construction.

In the physical epoch, nature found the medium in which to write programs to create new qualities in increasingly complex matter. Binding partnerships and networks of atoms and molecules made it possible to store the very complex information that was necessary for constructing structures progressively higher in systemic complexity. During the first few billions of years, gravity collected hydrogen into massive clouds of galaxies in which stars had formed.

In the belly of the stars, at high temperature and under great pressure, hydrogen fused to create heavier elements. When old stars died in explosions, called supernovae, even heavier elements were produced. Gravity collected the enriched material forming our solar system and many others. Earth formed about 4.6 billion years ago, life developed at minus-3.5 billion years, nature invented sexual reproduction at minus-2 billion years. The Cambrian period occurred about 542 million years ago, during which evolution went into high gear and the diversity of life exploded at an unprecedented rate.

While anthropologists are changing the date with new discoveries, the human presence on Earth is very recent on the time scale of cosmic construction. The emergence of the human brain has accelerated human development beyond anything our corner of the universe has ever seen. Agriculture is about 10,000 years old, the Industrial Revolution is little more than 200 hundred years old, the space age is just decades old, and high technology is breeding new generations of itself that are best measured in years and months. The advanced human brain is the latest new addition at the top of cosmic construction. But what strange thing happened at the boundary where the physical brain produces the supraphysical (above the physical) mind?

#### **Crossing the Matter-Mind Boundary**

Any process in which two or more parts are assembled into a system must be orderly. To drive and sustain cosmic construction, in which the universe evolves from the simple and homogeneous to the complex and diverse, a powerful building code must be at the heart of that process.

Cosmic construction is conceivable only if every part and particle of the cosmos is in possession of the self-organizing code. From the Big Bang (the birth of the physical universe) to the "Big Brain" (the present highest physical complexity), evolution is an unbroken chain of physical events building more and more complex physical structures. The self-organizing code has readily transferred itself to all emerging systems throughout cosmic construction.

Perhaps for the first time in all of cosmic history, there is trouble with the transfer. The trouble is at the matter-mind boundary. The human brain, together with the body, is perhaps the most complex physical system in our corner of the universe. On the other hand, the human mind and consciousness generated by the brain are no longer physical. The self-organizing code seemingly did not transfer automatically from physical brain to supraphysical mind. If the code did transfer but got corrupted, we will have to relearn it just the same.

The problem is compound, because very recently on the evolutionary time scale, human consciousness became the most significant force and factor on our planet. Human beings and society form a highly complex system, but one without a commensurate and sustainable self-organizing order. As any complex system, without an appropriate and commensurate self-organizing system, the human species is endangered and human civilization is subject to collapse.

As evolution advances up on the scale of cosmic construction, the human species finds itself on the epochal boundary crossing from the physical into the supraphysical epoch, the domain of mind and consciousness. This is a precarious crossing. At the mattermind boundary, cosmic construction may have arrived at its natural limit of complexity. Natural self-organizational skill apparently does not transfer across the mattermind epochal boundary; the self-organizational code is not inherent in the human mind and consciousness. Let's examine this issue.

On the matter side, it will take any number of neurons and synapses plus one to create the maximum matter fruitfulness that is just this side of the matter threshold of the matter-mind boundary. In the self-generated event of emergence, maximum matter fruitfulness becomes minimum mind integrity. The new emergent quality on the mind side of the boundary is no longer physical. Along a single micro evolutionary leap up the complexity stairway, maximum (complexity) brain-matter fruitfulness inflates and minimum (complexity) mind integrity emerges. In this analysis, it is that single evolutionary self-organizational sub-step that separates mind from matter.



From holistic inflation of maximum (complexity) brain matter fruitfulness emerges minimum (complexity) mind integrity.

This minimum mind integrity projects an appropriate affinity, reciprocity potential, and fruitfulness probability creating a minimum unit of mind. Anything less is just so many brain cells (matter, not mind), and anything more is a new emergent property/quality, weightless mind. Could I consider minimum mind as the smallest possible unit of thought?

In doing so, the smallest possible unit of thought, minimum mind, could then be considered the simplest building block of consciousness. While, by analogy, hydrogen is the simplest atom and unit in the material universe, it is nevertheless already a complex system of subatomic particles.

Similarly, while minimum mind may be the smallest unit of human consciousness, it is arguably a system of cosmic intelligence. Its integrity contains the compound history of the process and structure of its evolution that led to its emergence.

Above the high-complexity boundary of the physical world lies the supraphysical dimension of mind and consciousness. Minimum mind units should interact in synergetic partnering and networking to build more complex mind systems that would create the thoughts and emotions of consciousness. However, thoughts do not self-organize by the natural rules. It appears that the evolutionary self-organizing code failed to transfer from matter to mind.

In one scenario we can conclude that at the highest physical complexity, the human brain, nature's building code fails to transfer automatically because the tools of transfer are not readily available at this boundary. The physical laws do not transfer directly and fail to operate in the weightless dimension of the mind. The transfer of the evolutionary building code into human consciousness is no longer an inherent natural process and cannot take place as such. Another scenario would reveal that the code had transferred from matter to mind but was overwhelmed or corrupted by a sharp increase of complexity. Accordingly, the evolutionary complexity of our species has outgrown its inherent self-organizing capacity. Thus, in some ways human evolution may have hit a glass ceiling. This, however, is not a hopeless scenario because while the mind has lost some natural instinct, it has gained a new ability, rational examination: *Willful consciousness (free will) has the capacity to learn sustainable self-organization and thus open a new epoch of consciousness evolution.* Once this is fully understood, humanity will have the ability to willfully build a peaceful and sustainable world. This will be the purpose and program of the proposed Holigent Campus.

#### Are We Alone?

As I think about our human future on Earth, I wonder whether we have company in the universe. If we could contact a highly evolved extraterrestrial intelligence, we would want to know how such a civilization broke through its evolutionary glass ceiling. The SETI (Search for Extra Terrestrial Intelligence) Institute, a nongovernmental nonprofit research organization, has been listening with increasingly sophisticated ears for any sign of intelligent extraterrestrial activity. Astronomers estimate that our galaxy is filled with billions of sun-like stars and probably billions of planetary systems. Even if life-supporting planets were very rare, the probabilities would tell us that there could be many planets in our galaxy with intelligent life. In that case, space should be filled with intelligent electromagnetic chatter, some of which our technology should be able to pick up. Yet there is utter silence in our corner of the universe. Are we alone, or just not good at listening?

It was helpful for me to read *Rare Earth* by Ward and Brownlee to understand why intelligent life may be extremely rare in the universe, even if simpler life appears and evolves rapidly when conditions are favorable.

As science gained a better understanding of the galaxies in which stars and planetary systems form, it became apparent that the reduction of probabilities for intelligent life to develop begins with the galaxies. There are many different kinds of galaxies; some are too dense and too violent, and others too light and low in the heavier elements necessary for the development of life. Even life-friendly galaxies have only narrow bands of habitable zones far from the supermassive black hole of the center and far from the thin edges that are poor in the essential elements.

A similar rule applies to the planetary systems. The habitable zone of a planetary system is a narrow band not close to the host star where it is too hot, and not far from it where it is too cold. While this process has already eliminated most of the cosmos for nursing life, the process of elimination continues further.

Under most circumstances gravity will arrange matter on a planet evenly, without mountains. A planet without mountains would be flooded when water is added and would

remain without dry land. Such a planet is not likely to evolve intelligent animal life. To have dry land, a planet must be mostly molten with only a relatively thin solid crust floating on the molten surface. On such a surface, plate tectonics create mountains and continents that rise above the water. Clearly, if I want more than algae and fish on my planet, I must have plate tectonics.

After all that, due to the wobbling of its rotational axis, my planet would still have frequent and severe ice ages preventing the development of higher animal life. To stabilize its rotation I would need a large moon in an extraordinarily close orbit to my planet, which does not happen by normal formation, but by a rare accident.

Scientists have theorized that Earth collided with a large body during its early development that hit our planet with a particular force. As a result, the severed material settled in close orbit to form our moon. Earth would have reabsorbed the material had it been impacted with a smaller force, while a larger impact would have sent the material into an orbit too far to have a stabilizing effect on our planet's rotation. But what is the use of having a stable planet when large asteroids collide with it and sterilize it too often to allow intelligent life to evolve? To save Earth from such frequent catastrophic events, we have our "guard planet." Jupiter acts as Earth's personal heavyweight bouncer with a muscular gravitational field that sweeps clean the outer solar space of most asteroids. Jupiter guards and saves Earth from frequent and catastrophic collisions with asteroids, thus securing the very long peaceful period required for the development of intelligent life.

Many of these conditions are unusual by themselves. The probabilities progressively diminish for two or more such events to come together. It is a statistical rarity to have so many cosmic coincidences converge. If there is intelligent life elsewhere in the cosmos, it must be extremely rare. Indeed, we have looked and listened for extraterrestrial intelligent life for decades, but so far have found none outside of ours here on Earth.

One more thing to consider: The size of our galaxy and the billions of star-systems it contains tells us that the probabilities are high for multiple planets in habitable zones to develop intelligent life. So, where are they now? Why is it so silent out there?

If intelligent life existed in our galaxy, they would have attained *free will*, but failed to willfully acquire the appropriate self-organizational (building and sustainability) code required to avoid collapse and extinction. They would have exhausted their planet's life support capacity, and in the competitions for resources they would have annihilated each other in wars of mutually assured destructions fought with hyper-weapons.

Humanity on Earth has but a brief period of time to change track and avoid collapse and extinction before the window of opportunity closes forever. This is our task. Come help — be part of this grand cosmic experiment here on our amazing planet Earth.

# **Closing Statement**

My not-so-secret intention is to inspire and start a global race — *humanity's race to survive and thrive on our beautiful but endangered planet Earth*. In this race, we are not racing against each other, but rather in the Holigent spirit of *one for all and all for one*; humanity is racing together against time.