

Work in Progress



# The Theory of Everything

*Unifying Polarizing Opposites  
in Nondual Wholeness*



Explaining the universe was never meant to be like this...

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September 2014

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## Abstract

By unifying holographic mathematical logic and mystical psychology—as sciences of the mind—this treatise intuitively uses rigorous reason to answer the call that the *New Scientist* made on 30th April 2005 for the Theory of Everything: a coherent body of knowledge that describes what the Universe is, its Grand Design, and how we could all live in love, peace, and harmony for as long as there are humans dwelling on our beautiful planet Earth.

The Theory of Everything, called panosophy or the Unified Relationships Theory (URT), is based on a coherent system of thought called Integral Relational Logic (IRL), which has evolved from the trans-cultural, transdisciplinary modelling methods that information systems architects in business use to build the Internet. The Contextual Foundation for panosophy—the undivided synthesis of all sciences, philosophies, religions, and humanities—is the Ineffable, Formless, Nondual Absolute. This is both Ultimate Reality and our Authentic Self, transcending all categories of thought, including polarizing opposites, as mystics of all ages, living in egoless union with the Divine, have well known. In contrast, from an anthropocentric perspective, at the heart of IRL is the Principle of Unity, the paradoxical pattern, paradigm, and archetype that holds the entire Cosmos together as its keystone: *Wholeness is the union of all opposites*.

This irrefutable, both-and truth was known to Heraclitus of Ephesus as the ‘Hidden Harmony’, rejected by Aristotle in favour of the either-or Law of Contradiction, sending Western thought into the evolutionary cul-de-sac it finds itself in today. In the fifteenth century, Nicholas of Cusa rediscovered this universal truth, calling it *coincidentia oppositorum* ‘the coincidence of opposites’, a term that Carl Gustav Jung sometimes used in his healing process of individuation. For when all opposites—including the unconscious and conscious, human and Divine, and quantum and relativity theories—are unified in Wholeness, the fragmented mind and split psyche are fully healed, with no divisions anywhere.

From a social perspective, IRL, which provides the Cosmic Context, coordinating framework, and Gnostic Foundation for the URT, has become manifest in consciousness to answer the most critical unsolved problem in science today: “What is causing scientists and technologists, aided and abetted by computer technology, to drive the pace of scientific discovery and technological invention at unprecedented exponential rates of acceleration?” Understanding ourselves through self-inquiry is absolutely essential if we are to intelligently manage our business affairs with full awareness of the creative evolutionary energies that cause us to behave as we do, healing what Erich Fromm and J. Krishnamurti, among others, have called our profoundly sick society

This commonsensical art and science of thought and consciousness, which we all implicitly use everyday to form concepts and organize our ideas, is an all-inclusive Superhuman OS, in Ken Wilber’s terms, embracing all cosmologies, including itself. To reveal hidden IRL, Life must first liberate us from our deluded cultural conditioning, which prevents the coherent light of Consciousness from radiating brilliantly through us. IRL can then emerge through the rigorous application of Self-reflective Intelligence, the Divine quality that distinguishes humans from the other animals and machines, like computers.

Most significantly, the URT provides irrefutable scientific proof that humans are the leading edge of evolution, not machines with so-called artificial intelligence. Following the invention of the stored-program computer, we can therefore no longer assume that technological development will drive economic growth indefinitely. To realize our fullest potential as a superintelligent, superconscious species

requires us to implement a new work ethic where we are masters of technology, rather than its slaves, enabling us to apply *human* intelligence to the solution of humanity's unprecedented problems. As evolution becomes fully conscious of itself, we can thus adapt to the most momentous turning point in the fourteen billion-year history of evolution, called its Singularity or Accumulation Point in systems theory.

To put the awakening of Love, Consciousness, and Intelligence at the top of the social agenda, overcoming the cultural taboo on understanding ourselves, the final section of this treatise outlines a proposal for a network of networking networks called the Alliance for Mystical Pragmatics, with the motto 'Harmonizing evolutionary convergence'. The Alliance will provide a safe, nourishing environment for self-inquiry, enabling us to live in the Eternal Now, free of the fear of death.

This liberated global community of awakening souls will thus fulfil a prophecy that Pierre Teilhard de Chardin made in 1940: "The way out for the world, ... the entry into the superhuman, will ... yield only to the thrust of all together in the direction where all can rejoin and complete one another in a spiritual renewal of the Earth." For, as Teilhard foresaw, all the divergent streams of evolution are currently converging in a megasynthesis of all thought, enabling us to cocreate what Eckhart Tolle calls *A New Earth*, awakening to Total Revolution, in Vimala Thakar's arousing words.

## About the author

Paul Hague was born near London in the middle of the Second World War, early disquieting experiences that led to a lifelong search for Love and Peace, Wholeness and the Truth, and Life and Freedom. After being educated mainly as a mathematician, he then spent his business career in the information technology industry, primarily with IBM in sales and marketing in London in the 1960s and 70s and in software development in Stockholm in the 1990s.



In 1980, as the Information Society was being born, he saw that the global economy holds the seeds of its own destruction within it and that the computer—as a tool of thought—cannot be understood within the context of materialistic, mechanistic science and monetary economics. Being concerned about how this critical situation could affect his children's future, he consequently resigned from IBM to investigate the psychological and economic implications of society's growing dependency on information technology.

The trigger for this radical change of direction in his life was a life-changing epiphany on 27th April 1980, when, in an apocalyptic eureka moment, he realized that nonphysical, mental, synergistic energies are causing scientists and technologists, like himself, to drive the pace of evolutionary change at unprecedented exponential rates of acceleration. Accordingly, he set out to develop a cosmology of cosmologies that would unify the psychospiritual energies acting within us with the physical forces recognized by materialistic science.

Specifically, to realize the abundant potential of human intelligence, beyond the constraints of artificial intelligence, Paul imagined that he was a computer that had the task of integrating all knowledge in all cultures and disciplines into a coherent whole without an external human designer to tell it how to do this. Working in solitude, with only the Divine power of Life and the Logos for guidance, this computer thus had the assignment to program itself to develop the Theory of Everything, a coherent body of knowledge that can explain all our experiences, from the mystical to the mundane.

As a consequence of Paul's awakening thought experiment, he has realized with Absolute Certainty that opposites do not exist in Nonduality and Wholeness, fulfilling a childhood dream to end the long-running wars between science and religion and between all the religions, necessary if we are to live in love, peace, and harmony with each other and our environment.

## **The Mystical Whole**

*He who knows does not speak.*

*He who speaks does not know.*

*Block all the passages!*

*Shut all the doors!*

*Blunt all edges!*

*Untie all tangles!*

*Harmonize all lights!*

*Unite the world into one whole!*

*This is called the Mystical Whole,*

*Which you cannot court after nor shun,*

*Benefit nor harm, honour nor humble.*

*Therefore, it is the Highest of the world.*

*Tao Teh Ching*  
Lao Tzu (Laozi)  
(Tr. John C. H. Wu)

## **Imagine**

*Imagine there's no heaven  
it's easy if you try  
no hell below us  
above us only sky  
imagine all the people  
living for today ...*

*Imagine there's no countries  
it isn't hard to do  
nothing to kill or die for  
and no religion too  
imagine all the people  
living life in peace ...*

*You may say I'm a dreamer  
but I'm not the only one  
I hope someday you'll join us  
and the world will be as one*

*Imagine no possessions  
I wonder if you can  
no need for greed or hunger  
a brotherhood of man  
imagine all the people  
sharing all the world ...*

*You may say I'm a dreamer  
but I'm not the only one  
I hope someday you'll join us  
and the world will live as one*

John Lennon  
(1940–1980)

## Preface: Waking up in the Age of Light

During the past two or three centuries—since Isaac Newton completed the Copernican-Keplerian-Galilean Scientific Revolution in 1687 with the *Mathematical Principles of Natural Philosophy* and the Industrial Revolution began in the middle of the next century—science, through its technological handmaiden, has brought humanity many creature-comforts, greatly improving our physical well-being, even over that of our grandparents.

However, these evolutionary developments have come at immense cost to our spiritual well-being, which was a now obsolete meaning of *wealth* in the fifteenth and sixteenth centuries, modelled on *health* and its cognates *holy* and *whole*. Even though the Humanist Renaissance and the Age of Enlightenment have carried Western reason out of what Petrarch pejoratively called the ‘Dark Ages’ in the 1300s, the materialistic, mechanistic paradigm of modern science has pushed us into a new Dark Age, as we blindly attempt to manage our business affairs with very little understanding of the psychospiritual energies that cause us to behave as we do.

It is a century since Carl Gustav Jung began to scientifically investigate psychic energy in *Psychology of the Unconscious*,<sup>1</sup> the book that led him to become the first mystical psychotherapist in modern times. However, he did not then have the means to find the unifying principle that underlies psychic and physical energies, other than to suggest that it is related to integration,<sup>2</sup> anymore than Albert Einstein was able to find a simple equation to unify electromagnetic and gravitational energies in his unified field theory.<sup>3</sup> Even today, materialistic, mechanistic science still refuses to acknowledge the obvious.

We can resolve this difficulty by viewing the Universe, and hence society, through the eyes of information systems architects in business, rather than through the eyes of physicists and psychologists in academia. In this way, this treatise on the Theory of Everything shows that meaningful structure-forming relationships provide the synergistic essence of both nonphysical and physical energies, encapsulated in the simple equation  $W = A \cup \sim A$ , denoting the fundamental design principle of the Universe. In turn, the appropriate interpretation of this equation shows that all energy emerges as Life through bifurcation from Wholeness ( $W$ ), from the Formless, Divine Origin of the Cosmos, which alone is Reality.

The key point here is that our five physical senses deceive us, even when we are not confused by synaesthesia, the ability to taste colours, for instance. To fully understand the Cosmic changes that are happening to our species at the present time, we need to use holographic semantic logic to map the Cosmic Psyche, the 99% of the Universe that lies beyond our physical senses. By thus invoking Self-reflective Intelligence, enlightened by the Cosmic Light of Consciousness, this treatise shows how we can establish mystical psychology as the primary science, on which all sciences and humanities are built. This we can call the final Fifth Force, having evolved from psychoanalysis, behaviourism, humanistic psychology, and transpersonal psychology, which has been called ‘spiritual psychology’.



To understand how Western civilization has become cognitively and experientially separated from Divine Reality, we need to go back some 5,000 years, to the first civilizations at the dawn of recorded human history. We can contrast the Sumerians living in Mesopotamia and the Egyptians living in the Nile valley with the Rishis living in the Indus valley. All would have had a pristine view of the night sky,

unsullied by the light pollution most of us suffer from today, but they developed quite differently. On the one hand, the Babylonians and Egyptians gazed at the stars in wonderment, finding many patterns in what at first sight looks like a bewildering muddle, thus founding the science of astronomy, often called astrophysics today. On the other hand, the Rishis ignored the night sky and looked inwards, discovering an utterly different Universe, one in which there is no division between humanity and Divinity.

In contrast, the three Abrahamic religions of Judaism, Christianity, and Islam, which arose in the Middle East, all believe that God is 'other'. As F. C. Happold tells us, "To Jew, Christian, and Moslem, a gulf is felt to exist between God and man, Creator and created, which can never be crossed. To assert that 'Thou' art 'That' [as the Hindus do] sounds blasphemous".<sup>4</sup> And as Elaine Pagels points out, "Even the mystics of Jewish and Christian tradition who seek to find their identity in God often are careful to acknowledge the abyss that separates them from their divine Source."<sup>5</sup>

Now when we feel separate from our Divine Essence, which is Love, from our Immortal Ground of Being, fear inevitably arises. This critical situation has led the so-called natural sciences to become separate from Nature. We can see this most clearly from the word *physics*, which derives from Aristotle's treatise *Physics*, a translation of Greek *ta phusika*, literally 'natural things', the neuter plural of *phusikos* 'of nature', from *phusis* 'birth, origin; nature, inborn quality' and *phuein* 'become, produce, bring forth; grow, be born'. In turn *nature* derives from Latin *nātūra* 'birth', from *nātus*, past participle of *nāscī* 'to be born', from Proto-Indo-European (PIE) base *\*genə-* 'to give birth, beget', also root of Greek *genesis* 'origin, birth', from which *genetics* and many similar words are derived.

So mystics are the true physicists—knowing the Truth that sets us free—and authentic biologists, 'natural scientists of life', understanding the Origin of the species. For materialistic, mechanistic science is not based on the Origin of the Universe or on Life bubbling up from our Divine Source, like a fountain. Rather, the widespread belief is that the Universe—as the Totality of Existence—is the physical universe, that this universe originated in finite time, about 13.7 billion years ago, and that life is a property of the DNA molecule, consisting of a language of just four 'letters' and twenty distinct 'words'.

Furthermore, when we are taught in religion and science that we are separate from God and Nature, it inevitably follows that we feel separate from each other, being taught that we must compete and fight with our fellow human beings in business for a share of the money supply, which must remain finite if financial units are to maintain their value. As a consequence, money has become the principal immortality symbol in society today, as Ernest Becker, the Pulitzer prize-winning author of *The Denial of Death*, has pointed out.<sup>6</sup> This is a particularly dangerous situation, for the sense of security and identity in life that arises from such cultural immortality systems and symbols is precarious, based, as they are, on delusion, on a false sense of Reality.

The widespread sense of separation in the world today has given rise to seven pillars of unwisdom, a term introduced by Arthur Koestler in *The Ghost in the Machine* to highlight the absurdities and limitations of the biological, behavioural, mechanistic, and quantitative sciences.<sup>7</sup> These pillars are misconceptions of God, Universe, Life, humanity, money, justice, and reason. It is thus vitally important that we demolish these seven pillars, rebuilding the whole of society on seven pillars of wisdom by starting afresh at the very beginning. In brief, these seven pillars of unwisdom and wisdom are given in the table below.

The key point to note is that the seven pillars of wisdom cannot be built on the seven pillars of *unwisdom*. The latter need to be totally demolished if we are to rebuild the entire world of learning on a solid foundation, on the Immortal Ground of Being we all share, understanding what is causing scientists and technologists to drive the pace of change at unprecedented rates of acceleration.

No.	Pillars of unwisdom	Pillars of wisdom
1	God is other	Humans are Divine beings
2	The Universe is the physical universe	The Universe is Consciousness
3	Life is a property of the DNA molecule	Life arises from our Divine Source like a fountain
4	Humans are machines and nothing but machines	Humans are creative beings living in the Eternal Now
5	Money is a commodity with value	Sustainable business requires meaningful information
6	Individuals have the free will to act independently	There is no doership or ownership
7	Only either-or reasoning is valid	Both-and thinking is the Hidden Harmony



The most urgent reason why we need to rebuild all that we have learnt during the past 5,000 years on Reality and the Truth is that in the middle of the twentieth century, groups of mathematicians, scientists, and engineers on both sides of the Atlantic built the first stored-program computers, taking human evolution in a radically new direction. For the computer is a machine quite unlike any other that the *Homo* genus has invented during the past two thousand millennia. Unlike the flint axe, wheel, printing press, telescope, steam engine, telephone, and aeroplane, for instance, which extend our rather limited physical abilities, the computer is a tool of thought, able to extend the human mind, even in some cases replacing it.

But to what extent is this possible? Could a machine think one day, surpassing human intelligence? This is a question that Alan Turing, a principal founding father of computer science asked in 1950 in an article in the philosophical magazine *Mind*, answering it in the affirmative, albeit with a few reservations.<sup>8</sup> In recent years, the computer scientists who get the most publicity have been telling the general populace that they are about to build machines with artificial intelligence. For instance in *Robot* in 1998, Hans Moravec wrote that robots “could replace us in every essential task and, in principle, operate our society increasingly well without us,”<sup>9</sup> effectively making *Homo sapiens sapiens* ‘wise-wise human’ redundant.

Another with a similar view is Victor Vinge, who wrote a paper for NASA in 1993, titled ‘The Technological Singularity’, saying, “Within thirty years, we will have the technological means to create superhuman intelligence [in machines]. Shortly after, the human era will be ended.”<sup>10</sup> Similarly, on 22nd February 2014, this was the lead headline on *The Guardian* website: ‘2029: the year when robots will have the power to outsmart their makers’. It was reporting on an interview that Nadia Khomani had with Ray Kurzweil (author of *The Singularity Is Near*), published in the *Observer New Review* the next day.<sup>11</sup> And on the 2nd May 2014, *The Independent* published an article by a group of leading scientists, including Stephen Hawking, which said, “Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last, unless we learn how to avoid the risks.”<sup>12</sup>

What computer scientists are saying, in effect, is that a new dominant species is emerging on Earth, which Moravec calls our ‘mind children’.<sup>13</sup> Indeed, some claim that machines with artificial intelligence already exist. On 9th June 2014, the *Independent*, *Guardian*, and *Telegraph* newspapers in the UK announced that a super computer simulating a 13-year-old boy, named ‘Eugene Goostman’, had fooled 33% of interrogators at the Royal Society that it is human. It was thus asserted that this computer is the first to pass the Turing test,<sup>14</sup> which indicates that machines can think for themselves.

But if this were true, it would clearly have catastrophic psychological and economic effects, leading to a great existential crisis within our species, as we wonder what it truly means to be a human being and how we could find meaning and purpose in our lives. Economically, if it were possible for machines to perform all cognitive tasks independently of humans—including those done by economists, accountants, software developers, and information systems architects, the people who design the systems that provide businesses

with their infrastructure—then the fundamental assumption of capitalism and communism would no longer apply. Human beings would no longer be both workers and consumers in the economy, a principle that Adam Smith articulated in 1776 in the opening words of *The Wealth of Nations*, the book that laid down the foundations of capitalism:

The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniences of life which it annually consumes, and which consists always either in the immediate produce of that labour, or in what is purchased with that produce from other nations.<sup>15</sup>

If computers could do most jobs currently being performed by humans more economically, then unemployment would rise to 20, 40, 60%, who knows what the limit might be? As this scenario would mean that the global economy holds the seeds of its own destruction within it, neither capitalism nor communism is a viable way of managing our business affairs. The invention of the stored-program computer requires us to make the most fundamental change in the work ethic that has prevailed since humans began to settle in villages to cultivate the land and domesticate animals some 10,000 years ago.

There is only one way to resolve this crisis, the most precarious in humanity's history: we need to awaken *human* intelligence by understanding ourselves, or just knowing ourselves, following the maxim that seven wise men led by Thales, the first Greek philosopher, inscribed on the temple of Apollo in Delphi, as Plato tells us.<sup>16</sup> Yet, today, this advice is almost totally ignored. It is a cultural taboo to use Self-reflective Intelligence to know ourselves, imposed by religion, science, and business collectively. For, truly understanding ourselves through self-inquiry can only happen when we consciously live in union with the Divine, as Eastern mystics teach, which is the Great Taboo in cultures governed by the three major Abrahamic religions.

Humanity thus faces a profoundly perilous predicament today. The methods we need to solve humanity's immense problems are currently forbidden by most cultures and subcultures in the world. Nevertheless, there must be a way of resolving this critical issue, for the rewards of doing so are literally out of this world. By realizing our fullest potential as superintelligent, superconscious, Divine Cosmic beings we would wake up in the eschatological Age of Light, living egolessly and peacefully in the Eternal Now, free of the fear of death in all its forms. So let us investigate how this miracle could come about.



First, to understand ourselves, we need to recognize that our conceptual models determine how we view ourselves and the world we live in and hence our behaviour. These models or mental images thus provide us with the maps we use to navigate our ways on our journeys in life; they are energetic. However, even when we are aware that this is how we humans view the world, we are not generally conscious of how these maps are formed in the first place. To become conscious of how we think, we need to map our mapmaking processes, creating a conceptual model of our conceptual models.

It is in this way that we can solve the most fundamental problem in business. As computers get cheaper and cheaper compared to human labour, it is the economic imperative of our times to replace as many jobs performed by humans by machines as possible. To this end, information systems architects develop models of dynamic business processes, such as designing, manufacturing, marketing, ordering, and invoicing, and their relationships to each other, as well as integrated models of static classes of information in enterprises, such as employees, customers, products, locations, and deliveries. In this way, IS architects can see the big picture, much broader and more detailed than the conceptual models that presidents of nations and business corporations use to govern and manage our affairs.

However, in general these mapmaking methods are not deep enough to produce a complete map of the psychodynamics of business enterprises. To develop a comprehensive, all-inclusive conceptual model,

IS architects need to consciously model their own mapmaking processes. This is rather like a television camera filming itself filming, which sounds impossible. However, it is not because some 25,000 years ago, maybe more, we humans were given the great gift of Self-reflective Intelligence, the Divine quality that distinguishes humans from the other animals and machines, like computers.

Self-reflective Intelligence is absolutely essential if we are to answer the most critical unsolved problem in science today: “What is causing scientists and technologists, aided and abetted by computer technology, to drive the pace of scientific discovery and technological invention at unprecedented exponential rates of acceleration?”

Indeed, we can use Self-reflective Intelligence to solve many other unsolved problems in science. For instance, by realizing that the process and content of thought are one, with no separation between them, David Bohm was able to reconcile the incompatibilities between quantum and relativity theories with his theory of the Implicate Order, which recognizes the existence of deeper levels of order than the superficial levels we access through our physical senses.<sup>17</sup> By consciously invoking Self-reflective Intelligence in our learning, we are also able to develop a holistic science of evolution, ending the war between Neo-Darwinists and Creationists, and hence the long-running war between science and religion, necessary if we are ever to bring about World Peace.

In practical business terms, our conceptual models are projected outwards to form the institutions that provide the infrastructure for our lives. So the world is in a mess today because our maps are in a mess, containing misconceptions that have been blindly passed from one generation to another for hundreds and thousands of years. For although we humans are the most adaptable of the species, we are also creatures of habit, as addicted to our cultural conditioning, for instance, as alcohol and sugar. So, if we are to intelligently adapt to the unprecedented rates of change being driven by science and technology, we have no choice but to start afresh at the very beginning, creating brand-new maps suitable for our times.



With this purpose in mind, we need to turn science inside out and upside down, for today it is standing on its head. Most significantly, Aristotle’s either-or Law of Contradiction lies at the heart of Western thought, denying the paradoxes that abound in our daily lives and in the Universe, as a whole. In contrast, Jung wrote in 1929 in his *Commentary* to Richard Wilhelm’s translation of *The Secret of the Golden Flower*, “The Chinese have never failed to recognize the paradoxes and the polarity inherent in all life. The opposites always balance on the scales—a sign of high culture. Onesidedness, though it lends momentum, is a mark of barbarism.”<sup>18</sup> And as Jung said in 1935 to his fellow psychotherapists, “The greatest danger that threatens psychology is one-sidedness.”<sup>19</sup>

As Cary Baynes said in her 1931 English translation of Jung’s *Commentary*, “the East creeps in among us by the back door of the unconscious.”<sup>20</sup> In other words, what Heraclitus of Ephesus called the ‘Hidden Harmony’, rejected by Aristotle, is ever-present within all of us as an archetype, which Jung called a ‘primordial image’ the first time he used the term in 1919,<sup>21</sup> existing before time begins. So as Aristotle’s Law of Contradiction has sent Western thought into an evolutionary cul-de-sac, the only way we can extricate ourselves from this illogical, irrational dead-end is through the very same energies that took us there: the irrepressible power of reason.

Now, as the seven pillars of wisdom lie mostly in the collective unconscious of the Western mind, to encourage and allow them to emerge in consciousness is an act of what Jung called *enantiodromia* ‘running counter to’, from Greek *enantios* ‘opposite, contrary, hostile’ and *dromos* ‘running, course’, using this neologism for the first time in 1917 in an essay titled ‘The Psychology of the Unconscious Processes’,

inspired by ‘Old Heraclitus ... a very great sage’.<sup>22</sup> Then, when defining *enantiodromia* in 1921 in *Psychological Types*, he wrote, “[Enantiodromia] practically always occurs when an extreme, one-sided tendency dominates conscious life; in time an equally powerful counterposition is built up, which first inhibits the conscious performance and subsequently breaks through the conscious control.”<sup>23</sup>

Later, when developing this concept, Jung noted that if *A* can become not-*A*, not-*A* could revert to *A* in a constant cyclic process similar to dark becoming light and light dark in Yin/Yang.<sup>24</sup> However, such a perpetual swinging of the pendulum does not enable us to unify polarizing opposites in Nondual Wholeness, as Jung, himself, pointed out when answering some written questions put to him by H. L. Philp in 1958.<sup>25</sup>

For eight years earlier, Jung had well described how we can still this constant oscillating back and forth. When revising *Psychology of the Unconscious as Symbols of Transformation*, Jung wrote, “The self, as a symbol of wholeness, is a *coincidentia oppositorum*, and therefore contains light and darkness simultaneously.”<sup>26</sup> Here, he uses the word *Self* with its meaning in the *Upanishads*, as Atman, which is one with Brahman, which is God. Jung learned the term *coincidentia oppositorum* from Nicholas of Cusa, a fifteenth-century German cardinal, who Jung mistakenly suggested had used the term *complexio oppositorum* as a definition of God.<sup>27</sup> Yet there is some truth in this assertion, for the Absolute, as the Ultimate Source of Life, is Formless, transcending all categories of thought, including life and death.

Indeed, in *Patterns in Comparative Religion*, Mircea Eliade calls *coincidentia oppositorum* the ‘mythical pattern’, for archaic societies were well aware that this term denotes the very nature of Divinity. As he says, “even within as strict a tradition as Judæo-Christian religion, Yahweh is both kind and wrathful.”<sup>28</sup> Going further back to “the palaeolithic stage of culture and religion, the myth of the cosmic hierogamy was unknown, [for] ... a certain number of the Supreme Beings of the archaic peoples were androgyne.”<sup>29</sup> It was only later that gods and goddesses—as divine human energies—began to ‘marry’ each other and procreate.

Then with the birth of the patriarchal religions, God became masculine, especially in Christianity. In a Jungian analysis of our collective psychosis, Paul Levy writes, “God’s dark and light sides were completely split and polarized in the figures of Christ, who was totally light, and Satan, the embodiment of the darkest evil”.<sup>30</sup> Then, quoting Jung’s *Aion*, Satan, the adversary, “represents the counterpole of that tremendous tension which Christ’s advent signified”, accompanying Christ “as inseparably as the shadow belongs to the light”.<sup>31</sup>

As Christ is Nondual in Reality, like everyone else, it is crystal clear that by unifying polarizing opposites in Nondual Wholeness—the principal purpose of the Theory of Everything—we have the means to rise above the level of our machines, able to intelligently deal with the great crises facing humanity today, such as imminent economic collapse, climate change, peak oil, species extinction, and population growth and aging. Furthermore, we could then realize our fullest potential as Divine Cosmic beings, living in peace and harmony with the fundamental laws of the Universe, and hence each other, resolving the existential threat presented to us by computers claiming to have ‘artificial intelligence’.



To this end, we need to take all forms of depth psychology—including both psychoanalysis and psychosynthesis and humanistic, transpersonal, and analytical psychology, associated with the names Sigmund Freud, Roberto Assagioli, Abraham Maslow, Stanislav Grof, and Carl Jung—to the very depths of the unconscious, to the Divine Origin of the Universe. We can call this psychosynthesis *mystical*

*psychology*, a natural development of the mystical philosophy and mystical theology of the Neoplatonists Plotinus<sup>32</sup> and Pseudo-Dionysus Areopagite<sup>33</sup> in the first millennium after Jesus.

Then, to establish mystical psychology as the primordial natural science, more fundamental than mathematical logic, physics, and biology, we can turn to the semantic, mathematical, and logical modelling methods that underlie the Internet. Recognizing that our minds, at all levels of consciousness and types of conditioned inheritance, create our reality, we can then map the Cosmic Psyche, and hence the Universe, with Self-reflective Intelligence. For these mapmaking systems are of such generality that they are applicable in all cultures, industries, and disciplines. If this were not the case, the Internet could neither exist nor expand at hyperexponential rates of acceleration.

However, even though information systems architects in business consciously use these modelling methods everyday to develop operating systems, applications, and databases on the Internet, they do not generally have the self-understanding to recognize that these mapmaking methods are based on a universal system of thought that everybody on Earth implicitly uses everyday to form concepts and organize their ideas in tables and mathematical graphs or semantic networks.

This commonsensical art and science of thought and consciousness is Integral Relational Logic (IRL), lying in the unconscious of every human being on our beautiful planet Earth as a universal archetype—a primordial model, from Greek *arkhein* ‘to begin’ and *tupos* ‘model’. For we humans are essentially pattern-seeking and symbol-making creatures. And IRL reveals the abstract patterns that underlie all others.

Most significantly, as nonaxiomatic IRL has evolved from Ted Codd’s relational model of data,<sup>34</sup> which is a nondeductive logic that can be traced back to Aristotle’s syllogism, it is able to embrace paradoxes, thereby bringing the essence of Eastern thought into the Western psyche. We can thus heal the split between psychology and mathematical logic, opened up by Bertrand Russell and Gottlieb Frege, in particular,<sup>35</sup> turning their backs on George Boole’s pioneering efforts to describe the laws of thought in mathematical terms.<sup>36</sup> For why should logic, as the science of mind and reason, be separate and so far removed from psychology, as the science of mind and consciousness?

Paradoxes and self-contradictions are incorporated in IRL as the Principle of Unity, which simply states: *Wholeness is the union of all opposites*. This irrefutable, universal truth entered my own consciousness around midsummer 1980 from the principle of duality in projective geometry, which fascinated me as a mathematics undergraduate in the early 1960s. Since then, working in almost complete solitude, this universal truth has guided every moment of my life, for it is applicable in all spheres of life, from the bedroom, through the classroom, to the boardroom. Indeed, the Principle of Unity is the most fundamental design principle of the Universe, the keystone that maintains the Cosmos in its Ordered Totality. Accordingly, if evolution is to become fully conscious of itself within us human beings, it is essential to bring the Principle of Unity into consciousness.

However, while this seventh pillar of wisdom is the simplest idea in the world, it is the most difficult to assimilate in consciousness. Essentially, this is because in order to do so, all seven pillars of unwisdom, on which Western civilization is built, need to be transformed into the corresponding pillars of wisdom. In other words, the sense of a distinct, unique ego has to die, recognizing that the entire world of form is an illusion, an abstraction from or appearance in Consciousness, called *māyā* ‘deception, illusion, appearance’ in the East, or *līlā* ‘play’, the delightful play of the Divine.

For, as Shakyamuni Buddha—the first mystical psychologist with his four Noble Truths and Eightfold Path—discovered with his three marks of being (*Trilakshana*), there is nothing permanent in the Universe (*anitya*) and if we do not realize this by becoming free of the sense of a separate self (*Anatman*), we shall

suffer (*dubkha*). So, if we base our sense of security and identity in life on attachment to any structure in the ever-changing world of form—such as money or the notion of a separate personal soul—we are deluding ourselves, living precariously, out of touch with the Immortal Ground of Being that we all share.

That is why the Principle of Unity has remained mostly hidden for thousands of years, why, even today, many deny the truth of this irrefutable truth, which is valid in all possible domains and universes. For all such denials are opposite to all affirmations of its truth, thereby confirming its universal applicability. Most significantly, being able to see both sides of every situation is a clear sign of Self-reflective Intelligence at work, our inherently human quality.

Intelligently living in harmony with the fundamental law of the Universe is thus essential to resolve the existential crisis that arises, not only from the invention of the stored-program computer, but also from the many other threats to our survival that humanity faces today. For instance, John L. Petersen, founder of the Arlington Institute, calls five of these the World's Biggest Problems in a portal on his website: Economic Collapse, Peak Oil, Global Water Crisis, Species Extinction, and Rapid Climate Change,<sup>37</sup> to which we could add population growth, in particular.

For the Principle of Unity shows unequivocally that the Authentic Self, True Nature, and Genuine Identity of each of us is Ineffable, Nondual Wholeness, which is God, Brahman, and many other names that we humans have given to the Absolute over the years. But to realize what it truly means to be a human being, rising above our machines, it is necessary to transform the first pillar of unwisdom into that of wisdom, which is the Great Taboo in Western civilization.

For as John wrote in his first Epistle, “God is Love; and he that dwelleth in Love dwelleth in God, and God in him,”<sup>38</sup> words that Pope Benedict XVI took as the text for his first encyclical ‘*Caritas Deus Est*’ in 2006.<sup>39</sup> But Love is the Divine Essence we all share. As the Sufi poet Rumi beautifully put it, “Love is the sea of not-being and there intellect drowns.”<sup>40</sup> Yet, to affirm, “I am Love,” is equivalent to saying, “I am God,” a statement that is perilously misunderstood because of humanity’s separation from Reality. As the Benedictine monk David Steindl-Rast has said, one of his great concerns is that the Western God-view is warped and makes us sick. The idea of God as being separate from us is an extremely dangerous view.<sup>41</sup>

And as the Jungian therapist Anne Baring wisely wrote in her lyrical magnum opus in 2013, we urgently need a new image of God, different from that which we have inherited from the patriarchal religions, which portray a transcendent God creating the world from a distance, distant and separate from the created world and ourselves.<sup>42</sup>



It is not surprising, therefore, that Erich Fromm, among others, has pointed out that we live in a grievously sick society. Most notably, he wrote a book in 1956 titled *The Sane Society*, whose first two chapters are, “Are We Sane?”<sup>43</sup> and “Can a Society be Sick?”<sup>44</sup> answering these questions with a resounding ‘NO’ and ‘YES’, respectively. This book was a follow-on to *Escape from Freedom (The Fear of Freedom* in the UK) in 1941,<sup>45</sup> showing that we do not live in a free society, as the politicians tell us, but we are actually afraid of both Freedom and Love, that which we long for the most.

Then in *To Have or To Be?* published in 1975, Fromm wrote that if we are to avoid psychological, ecological, and economic catastrophe, “We need a Humanistic Science of Man as the basis for the Applied Science and Art of Social Reconstruction.”<sup>46</sup> And just as Fromm began his studies of the human condition following the horrors of the Second World War, a generation earlier, Jung set out to develop his mystical psychology, as the science of the psyche, having lived through the horrors of the first,

coinciding with the period when he was swamped by images emerging from his unconscious, in what would today be called a ‘mid-life crisis’, Anthony Storr points out.<sup>47</sup>

Not that this was easy, for he was in a state of disorientation, feeling totally suspended in mid-air, not yet having found his own footing, as he tells us in his autobiography.<sup>48</sup> Furthermore, Jung did not have a suitable language with which to communicate his investigations, not only into the mind—whether conscious, subconscious, or unconscious; personal, cultural, or collective—but also into spirit and soul. Jung mostly wrote in German, which has no unambiguous word for the English *mind*, as R. F. C. Hull, the principal translator of Jung’s *Collected Works* has pointed out. The German words *Geist* ‘spirit’ and *Seele* ‘soul’ can both be translated as ‘mind’, and Jung used these words interchangeably in the 1920s.

However, by 1933, in an essay titled ‘The Real and the Surreal’, he exclusively used the word *psyche* to denote the ‘real’ subject of psychology, completely ousting the older, ambiguous philosophical concepts of mind, soul, and spirit.<sup>49</sup> Indeed, as Jung wrote in the introduction to *Psychology and Alchemy* in 1944, the proper domain of psychology must embrace all aspects of our inner worlds, including religious experience, not projected outwards, as is customary in the West.<sup>50</sup>

Jung wrote in the Foreword to Frieda Fordham’s *An Introduction to Jung’s Psychology* in 1952, just as physicians need to understand what a healthy body is to help their patients heal their wounds and ailments, psychiatrists need to understand what the healthy mind and psyche are in order to assist in the healing process.<sup>51</sup> For psychiatrists are ‘healers of the mind’, from Greek *psūkhē* ‘mind, soul’ and *iatreia* ‘healing’, from *iatros* ‘healer’. However, as Jung well knew, neither psychiatrists nor psychotherapists yet have available to them a comprehensive model of the psychodynamics of society and hence do not fully understand how to heal the fragmented mind in Wholeness and split psyche in Oneness. Indeed, as physicians and psychiatrists are not educated and trained to understand what it truly means to be a healthy human being, they can sometimes *cause* disease, as the word *iatrogenic*, from the same Greek root, clearly indicates.

Even though Jung was not explicitly aware of the Principle of Unity, it nevertheless implicitly provided the central concept in his psychology through *the process of individuation*, as he tells us in his autobiography.<sup>52</sup> The concept of individuation developed from the union of *yin* and *yang* in Taoism, after Jung met Richard Wilhelm in the early 1920s. Initially, in *Psychological Types* in 1924, subtitled *The Psychology of Individuation* in English translation, Jung defined *individuation* as “a process of differentiation, having for its goal the development of the individual personality”.<sup>53</sup>

However, Jung was later to discover similar patterns in Nicholas of Cusa’s *coincidentia oppositorum* and alchemy’s *coniunctio* (☉ and ☽, ♀ and ♂), which he incorporated into his last great work written in his seventies: *Mysterium Coniunctionis: An Inquiry Into the Separation and Synthesis of Psychic Opposites in Alchemy*. So by 1939, he wrote “I use the term ‘individuation’ to denote the process by which a person becomes a psychological ‘in-dividual’, that is, a separate, indivisible unity or ‘whole’.”<sup>54</sup> For *individual* derives from Latin *individuus* ‘indivisible’, from *in-* ‘not’ and *dividere* ‘to divide’, quite a different meaning from *individuality*, which is based on a deluded separate existence.

We are thus coming closer to the OED’s definition of *individuation*: “In the analytical psychology of Jung, the process by which consciousness and the collective unconscious of the psyche are integrated and wholeness of the individual self is established.” However, we have not yet reached a definition of *individuation* suitable for mystical psychology, which is not easy given that nobody is ever separate from the Divine or anyone else for an instant.

In 1969, Roberto Assagioli, the founder of psychosynthesis and a member of the International Psychoanalytical Society in its early days around 1910, gave a series of three lectures on ‘C. G. Jung and Psychosynthesis’, in which he quoted Jung as saying in 1941, “the natural process of individuation brings to birth a consciousness of human community ... Individuation is an at-one-ment with oneself and at the same time with humanity, since oneself is a part of humanity.”<sup>55</sup>

However, as Assagioli noted, there is a particular difficulty with the process of individuation in education. Quoting a lecture that Jung gave in 1942 on ‘The Gifted Child’, “The average person distrusts and readily suspects anything that his intelligence cannot grasp. *Il est trop intelligent*—reason enough for the blackest suspicion!” Quoting Jung again, “The levelling down of the masses through suppression of the aristocratic or hierarchical structure natural to a community is bound, sooner or later, to lead to disaster.” To overcome this critical situation, “the individual cannot give his life purpose and meaning unless he puts his ego at the service of a spiritual authority superordinate to man.”<sup>56</sup>

Now while Assagioli agreed with Jung on many of these points, he went on to criticize Jung (and Fromm) for not actively helping patients to live in communion with other human beings: “Rather he insists strongly on the opposition, indeed the conflict, between the individual and the mass, between the personal life and the collective pressure exercised by modern social life.”<sup>57</sup> Indeed, for Assagioli, the purpose of personal psychosynthesis—unifying the unconscious and conscious, like Jung—is to make patients harmonious individuals, “well adjusted both within themselves and with the community to which they belong and in which they play a useful part”. Assagioli did go further, seeing the need for spiritual psychosynthesis, a ‘psychosynthesis of religions’, by which he meant understanding and appreciating religions as they are,<sup>58</sup> inheriting fear and beliefs laid down hundreds and thousands of years ago.

However, as J. Krishnamurti wisely said, “It is no measure of health to be well-adjusted to a profoundly sick society.”<sup>59</sup> Today, some say that we should build bridges between the old society and the new one that is currently emerging. But if a bridge spanning a river is to serve its purpose, the pillars on the two banks must be built on solid foundations. Yet Western civilization is built on shifting sands, on the seven pillars of unwisdom, which falsely assert that we humans are separate from God, Nature, and each other. So the only viable choice we have as a species is to rebuild the entire world of learning on the seven pillars of wisdom, knowing that we are Wholeness, unifying polarizing opposites in Nonduality.

This means that we need to both accept and not accept today’s dysfunctional society, an intelligent, both-and approach to life that Jung described as a ‘superhuman ideal’, acting from higher consciousness, “which would enable us to live the great Yea and Nay of our own free will and purpose”.<sup>60</sup> On the one hand, Krishnamurti writes in *Education and the Significance of Life*, “Intelligence is the capacity to perceive the essential, the *what is*; and to awaken this capacity, in oneself and in others, is education.” For if we do not accept *what is* as perfect—as the union of perfection and imperfection—we shall suffer. On the other hand, as Krishnamurti says in the same book, we can only make much needed change within ourselves, and hence in society, through discontent, by *not* accepting the status quo. “Discontent is the means to freedom,” enabling us “to create a new social order and enduring peace”. Continuing, “It is the burning desire to inquire, and not the easy imitation of the multitude, that will bring about a new understanding of the ways of life.”<sup>61</sup>

Therein lies the irony of living in harmony with the fundamental laws of the Universe in a society that is mostly out of touch with Reality. As the religious, scientific, medical, educational, legal, economic, and political institutions in today’s society are based on the principle of separation—encapsulated in the seven pillars of unwisdom—it is necessary to live mostly in solitude if one wishes to base one’s life on the seven

pillars of wisdom. Reflecting on his life in *Memories, Dreams, Reflections*, Jung said:

As a child I felt myself to be alone, and I am still, because I know things and must hint at things which others apparently know nothing of, and for the most part do not want to know. Loneliness does not come from having no people about one, but from being unable to communicate the things that seem important to oneself, or from holding certain views which others find inadmissible.<sup>62</sup>

Loneliness is quite different from aloneness, which means ‘all-one’, living in union with the One, like Plotinus, the most fundamental of his three hypostases ‘that which stands under’, like *substance*, the others being Soul (*psūkhē*) and Intelligence (*nous*).<sup>63</sup> In Oneness, as in Wholeness, there are no others, encapsulated in the seven pillars of wisdom. So if these others, who do not exist in Reality, do not accept that none of us is ever separate from God, Nature, or any other, we can still sense the joy and bliss of the Divine. True happiness is not dependent on the approval of our fellow human beings; it comes from within, through Immanence as much as Transcendence.

In this delightful way, like Jung, we must stand our ground, not getting sucked back into our deluded, schizoid society, living the vision of a harmonious world in the Eternal Now, not at some time in the future, which never comes. For as Bodhisattvas know only too well, no one can be fully awake until the whole of society is enlightened.

In a way, it is a pity that analytical psychology, with individuation at its core, is not called psychosynthesis. On 12th April 1909, Jung wrote to Freud saying, “If there is a ‘psychoanalysis’ there must also be a ‘psychosynthesis’,” a notion that ‘fatherly’ Freud could not immediately take in, feeling uneasy with a ‘son’ thinking new ideas.<sup>64</sup> However, even the term *psychosynthesis* suffers from one-sidedness. If we are to be fully individuated beings, Shiva the destroyer must act before Brahma the creator heals our wounds, in Hindu terms.

This is something that Sabina Spielrein, possibly the inspiration for Jung’s notion of *anima*,<sup>65</sup> as his first psychoanalytical patient and paramour, ambiguously embracing in ‘poetry’,<sup>66</sup> intuitively understood. In 1912, she wrote a paper titled ‘Destruction as a Cause of Coming into Being’,<sup>67</sup> which she presented to the members of the Vienna Psychoanalytical Society in November the previous year with a talk titled ‘On Transformation’,<sup>68</sup> influencing Freud’s notion of ‘death instinct’, in a manner not entirely clear to him.<sup>69</sup>

Although Jung did not fully appreciate the significance of Sabina’s paper the first time he read it,<sup>70</sup> when he turned to his studies of alchemy, he found the very same idea there. He explains his reason for doing so in an undated note found in his papers after his death, perhaps from around 1952:

Some thirty-five years ago I noticed to my amazement that European and American men and women coming to me for psychological advice were producing in their dreams and fantasies symbols similar to, and often identical with, the symbols found in the mystery religions of antiquity, in mythology, folklore, fairytales, and the apparently meaningless formulations of such esoteric cults as alchemy. Experience showed, moreover, that these symbols brought with them new energy and new life to the people to whom they came.<sup>71</sup>

What Jung realized is that alchemical studies are actually projections of the unconscious into the physical world. Alchemy is not really about attempting to transform lead into gold, for such an endeavour is actually a symbol of inner transformation. As Anne Baring has said, “No one can write about alchemy who is not living it and no one can pass on his or her knowledge and insight who has not walked the difficult path of self-discovery.”<sup>72</sup>

Most significantly, at the heart of alchemy is the search for Wholeness,<sup>73</sup> encapsulated in the principle *solve et coagula* ‘dissolve and coagulate’. The word *spagyric*, possibly coined by Paracelsus, encapsulates this notion, for it is derived from Greek *spaein* ‘to rend, tear, stretch out’, also root of *spasm* and *spasmodic*, and *ageirein* ‘to bring or collect together’, from PIE base *\*ger-* ‘to gather’, also root of *gregarious*, *aggregate*, and



category.<sup>74</sup> So mystical psychology, as presented in this treatise, could be simply called *spagyrics*, freeing this word from its use in herbal medicine, still influenced by Paracelsus.<sup>75</sup>

Jung also made extensive use of mandalas in his psychotherapy, as he describes in an extensive case study of the process of individuation first published in 1934.<sup>76</sup> For a mandala, a Sanskrit work meaning ‘disk, circle’, is a circular figure representing Wholeness or the Universe in Hindu and Buddhist symbolism. Indeed, taken out of their psychotherapeutic environment, mandalas can be geometric objects of much beauty, such as this Harmony mandala, completed by Vikki Reed of Arizona in 2005.<sup>77</sup> This mandala also depicts another key concept in Jung’s psychology, that of *quaternity*, when two pairs of opposites form a whole. Indeed, such a unifying pattern is also present in pairs of function-types, further subdivided into extrovert and introvert attitude-types, presented in Jung’s *Psychological Types*,<sup>78</sup> first published in German in 1921.

We can thus see clearly that whenever we seek to heal the split psyche in at least Oneness, we are inevitably drawn to unify opposites. Not that this is always easy. Sometimes opposites are complementary, attracting each other, such as the north and south poles of magnets. But sometimes opposites are contradictory, repelling each other, such as matter and antimatter, which cannot coexist, as I understand. So when physicists discovered that light—and other forms of electromagnetic forms of radiation—behaves as both a particle and as a wave, Niels Bohr introduced the notion of complementarity,<sup>79</sup> much more comfortable than Cusana’s *coincidentia contradictoria*.<sup>80</sup> For when such polarizing conflicts occur in the psyche, such as in the many moral dilemmas we face in our daily lives, they can be excruciatingly painful, sometimes leading to Holy wars—religious war about the Whole—or psychological and economic warfare, called ‘politics’.

At the beginning of the last century, Bertrand Russell was so disturbed by the paradoxes and self-contradictions revealed in the foundations of mathematics that he formulated the Theory of Types to eliminate them from formal logic,<sup>81</sup> futilely spending twenty exhausting years with A. N. Whitehead writing *Principia Mathematica*, taking 360 pages to prove the proposition ‘ $1 + 1 = 2$ .’<sup>82</sup> In *Steps to an Ecology of Mind*, Gregory Bateson then attempted to use the Theory of Logical Types to reconcile the problem of ‘double bind’, when people face unresolvable sequences of experiences. These he associated with *schizophrenia*,<sup>83</sup> literally ‘split mind’, a word that Eugen Bleuler coined about 1910. Bleuler, Jung’s boss at the Burghölzli Clinic in Zurich where Jung first worked after qualifying as a medical practitioner in 1900, also coined *ambivalence* ‘The coexistence in one person of contradictory emotions or attitudes (as love and hatred) towards a person or thing’, from Latin *ambi-* ‘both’ and *valēre* ‘to be strong’, also root of *valiant* and *value*.

We can be strong, resolving such painful antimonies and dichotomies, by taking the Principle of Unity to its penultimate step, unifying the Formless Absolute and the relativistic world of form. For bipartisanship, much attacked by political extremes, is the only viable form of governance in today’s global village, in which we are all interdependent on each other. Therein lies an inherent paradox of the spiritual journey. When opposites are unified in Oneness, in an indivisible unity, a separate individual no longer exists. Just as there is no division between consciousness and the collective unconscious, there is no separation between the individual human being and Ultimate, Divine Reality.

This is well recognized in Mahāyāna Buddhism, for instance, where there is no separation between *Nirvāna* ‘extinction’ and *samsāra* ‘journeying’.<sup>84</sup> Similarly, in reconciling the incompatibilities between

quantum and relativity theories in physics, David Bohm pointed out in his theory of the Implicate Order that what we observe as forms are actually inseparable from what he called the undivided holomovement. Metaphorically, inspired by the process philosophy of Heraclitus and A. N. Whitehead, waves and ripples on a river are not separate from the flowing stream, itself.<sup>85</sup>

What is true of galaxies and subatomic particles is also true of each of us. None of us is ever separate from Divine Reality for an instant, a fundamental principle encapsulated in the first pillar of wisdom. But, in itself, this realization is not sufficient to intelligently manage our business affairs with full consciousness of what we are doing. If we are to develop the radically new science of humanity that Fromm and Jung called for and long sought, we need to heal the fragmented mind in Wholeness, solving what Bohm called the most fundamental problem facing humanity today.<sup>86</sup> For we can still live in delusion and confusion, even when living peacefully and lovingly in harmonious union with the Divine.



Such a healing process is an even greater challenge, for, if such a radical transformation of consciousness is to happen, evolution needs to make the greatest change in its fourteen billion-year history. For ever since the most recent big bang, evolution in our particular physical universe has been more divergent than convergent. Initially, large and small material objects were formed, such as stars, galaxies, atoms, and electrons. Then during the last three and a half billion years on Earth, we have seen the wondrous diversity of the species evolve. Biogenesis then gradually gave way to noogenesis—the evolution of the mind—about 25,000 years ago, the analytical mind becoming predominant at the dawn of history and birth of the patriarchal epoch about 5,000 years ago. As a result of this constant bifurcation, our minds have become fragmented, and society, as a projection of our minds, has become divided into religious and national factions, academic specialization, and the division of labour in the workplace.

To solve this problem, we can turn to the modelling methods that underlie the Internet, for information systems architects are the principal generalists in society today, able to see the big picture by applying methods that are of even greater abstraction than those used by philosophers and pure mathematicians, traditionally professions dealing with the most general levels of abstraction.

To understand this, it is perhaps easiest to view the Internet more as a single computer, which we access through our browsers, such as Firefox or Safari, than a hierarchical network of some 900 million hosts, as web servers are rather charmingly called, not unlike the way that Sufis call us all guests of the Divine, as the Host. Now this computer contains much of the world's knowledge and information, which we can call the Theory of Everything. However, this knowledge and information is 'out there', in symbolic and signate form, symbols being more meaningful than signs in Jungian terms.<sup>87</sup> So, as such, it does not exist as concepts or mental images, a vitally important distinction that Charles Sanders Peirce and Ferdinand de Saussure made around the turn of the nineteenth and twentieth centuries, when founding semiotics, the science of signs.<sup>88</sup> Not that we can bring all the concepts that these symbols and signs denote into consciousness, for none of us is omniscient. But what we can do is to bring the underlying patterns into consciousness, thereby healing the fragmented mind in Wholeness.

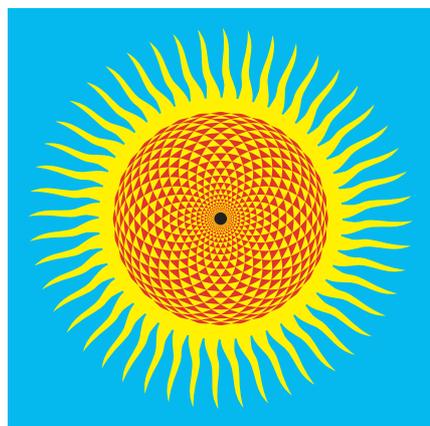
In this respect, the Internet acts as a mirror for our signate knowledge, just as *jñānis* and other spiritual teachers act as mirrors for our inner knowing of the mysteries of the Divine as Gnosis, all these words deriving from PIE base *\*gnō-* 'to know'. Integral Relational Logic, as the transcultural, transdisciplinary art and science of thought and consciousness, thus provides the coherent modelling method that we can all use as healers of the mind in our psychotherapeutic activities.

By thus viewing the Universe as an information system or Cosmic Internet, in Ervin Laszlo's terms,<sup>89</sup> IRL provides the Cosmic Context, coordinating framework, and Gnostic Foundation for the Unified Relationships Theory (URT), a megasyntesis of all knowledge in all cultures and disciplines at all times, past, present, and future. This is the much sought-for, but disparaged Theory of Everything, healing the fragmented mind and unifying polarizing opposites in Nondual Wholeness.

We can thus use the Principle of Unity to take the final step in our spiritual journeys in life by unifying Wholeness and Oneness, words that both denote the Formless Absolute, as Ultimate Reality. But then something utterly amazing happens in the psyche. Individual consciousness expands and deepens to such an extent that it becomes coterminous with Consciousness itself, called *Satchidananda* 'Bliss of Absolute Truth and Consciousness' in the East.

Having completed our spiritual journeys at what the French Jesuit priest, palaeontologist, and geologist Pierre Teilhard de Chardin called 'the Omega Point', evolution's glorious culmination, we no longer see ourselves as human beings having a mystical experience. Rather, we realize that we are Divine, Cosmic beings having a human experience, within and on the Contextual Foundation of Wholeness. Wholeness has no opposites in Reality—such as assertion and denial—as mystics, like Dionysius, have pointed out.<sup>90</sup>

To understand what this means, we expand Bohm's linear holomovement into an infinitely dimensional sphere with an infinite radius. This Ocean of Consciousness, as a seamless continuum, with no borders or divisions within it, depicts Wholeness, while its centre is Oneness, the Divine Origin of the Cosmos. To give this sphere some further structure, we can visualize it as a vast ball of water with just three dimensions and a finite radius. On the surface of this Ocean is the physical universe and beneath



the surface is the Cosmic Psyche, which is 99% of the Universe, inaccessible to our five physical senses. In terms of Kabbalah, there is a curtain that divides our reality into two realms, 1% being our physical world, while the other 99% "is the source of all lasting fulfilment. All knowledge, wisdom, and joy dwell in this realm. This is the domain that Kabbalists call *Light*."<sup>91</sup>

So the other metaphor we can use for Consciousness, as Ultimate Reality, is Light, for as the ecophilosopher Henryk Skolimowski points out, "*Everything is Light*," and "Light is universal and all pervading. It provides the womb, sustenance, and nourishment for all there is. It is the Universal Mother."<sup>92</sup> But Light is not like the diffuse light of the Sun or a light bulb. Rather, it is more like the coherent light of a laser, enabling us to view the Cosmos holographically, like a fractal, possessing the property of self-similarity in all its constituents.

This Light is absolutely essential if we are to wake up to what is happening to us all as a species. In 1959, Arthur Koestler titled his chronicle of humanity's quest to understand the workings of the heavens *The Sleepwalkers*. Today, as evolution passes through the most momentous turning point in its fourteen billion-year journey since the most recent big bang, we are not so much sleepwalkers as sleep-runners or even sleep-drivers, accelerating our cars along the highway with our eyes closed—at best half open and out of focus—not very sensible.

But Light cannot radiate through us with full power if it is occluded by our deluded, mechanistic conditioning, which has been blindly passed from one generation to another for thousands of years.

Humanity is only a viable species if we question everything, becoming totally free of the constraints that our cultural inheritance imposes on us from the earliest days of childhood.



However, as Bodhisattvas know only too well, no one can be fully enlightened in solitude. We can only be wholly awake in community with others who are similarly wide awake. This is absolutely essential if we are to collectively fulfil the prophecy made that Teilhard made in 1940: “The way out for the world, the gates of the future, the entry into the superhuman, will not open to some privileged few, or to a single people, elect among all peoples. They will yield only to the thrust of all together in the direction where all can rejoin and complete one another in a spiritual renewal of the Earth.”<sup>93</sup>

It is pertinent to note here that the Sanskrit word for ‘to wake up, be awake’ is *budh*, from which the word *buddhi* derives, meaning ‘intelligence, discernment, the power of forming and retaining conceptions and general notions’.<sup>94</sup> And *buddha* means ‘awakened, awake’, giving the title of Buddha ‘awakened one’ to Siddhartha Gautama, also known as Shakyamuni, ‘Sage of the Shakya clan’. So to become masters of machines with so-called artificial intelligence, rather than their slaves, we need to awaken human intelligence, not just consciousness, as Krishnamurti pointed out.<sup>95</sup> For while Consciousness provides the brilliant light we need on our journeys in life, Self-reflective Intelligence is the eyesight of Consciousness, sometimes called the Witness in spiritual circles.

What this means is that the next Buddha—as Maitreya, the ‘Loving one’—can only be a community or global sangha, practising mindful living rather than an individual, as Thich Nhat Hanh has foreseen.<sup>96</sup> For Sanskrit *maitreya* means ‘friendly, benevolent’, from the same PIE base as *community*, from Latin *commūnis* ‘shared, common, public’, originally in sense ‘sharing burdens’, from *cum* ‘together with’ and *mūnus* ‘office, duty; gift, present’, from *mūnare* ‘to give, present’. *Community* is also cognate with Pāli *mettā* ‘loving-kindness’, the translation of Sanskrit *maitrī*, akin to Buddhist compassion (*karunā*) and love or charity (*agapē*) in Christianity. And when our lives are based on Love, the Divine Essence we all share, we realize that kindness is our True Nature, for *kind* is the native English word for *nature*, the OED tells us, having the same root.

Another with a similar vision of an awakened society is Eckhart Tolle, who writes in *A New Earth*, promoted by Oprah Winfrey, “We are a species that has lost its way,”<sup>97</sup> ending this inspirational book with these sentences: “A new species is arising on the planet. It is arising now, and you are it!”<sup>98</sup> Earlier, he said in *Stillness Speaks*, an inspiring book of aphorisms:

The transformation of human consciousness is no longer a luxury, so to speak, available only to a few isolated individuals, but a necessity if humanity is not to destroy itself. At the present time, the dysfunction of the old consciousness and the arising of the new are both accelerating. Paradoxically, things are getting worse and better at the same time, although the worse is more apparent because it makes so much ‘noise’.<sup>99</sup>

So just as there is increasing political polarization between ‘conservatives’ and ‘liberals’, there is also a great divide between those who believe that technology can resolve humanity’s current crisis and heal our wounds and those who know that only a radical transformation of consciousness can lead us into the Age of Light. For as such evolutionaries and spiritual seekers well know in their own direct experience, humans are the leading edge of evolution, not machines, like computers. In practical terms, this means that the invention of the computer, as a tool of thought, requires us to make a radical change to the way we spend our days and conduct our business affairs, for the work ethic that has governed our lives for the past several millennia is no longer sustainable.



Most particularly, the widespread belief that technological development can solve humanity's problems and can drive economic growth indefinitely is not sustainable. R. Buckminster Fuller is a spokesman for the general belief in the supremacy of technology over humanity, described in a collection of twelve essays titled *Utopia or Oblivion: The Prospects for Humanity*. As the blurb on the back cover of the book states, "Each essay illuminates his basic conviction that Utopia can be attained, and ecological disaster forestalled by imaginative and fearless use of our most modern technological discoveries."<sup>100</sup>

In contrast, in *Our Final Century: Will the Human Race Survive the Twenty-first Century?* Martin Rees—Baron Rees of Ludlow, one of the most distinguished scientists in the UK as a former president of the Royal Society and as the Astronomer Royal—expresses deep concern about society's growing dependency on technology. As he says, "The 'downside' from twenty-first century technology could be graver and more intractable than the threat of nuclear devastation."<sup>101</sup>

Lord Rees compares today's situation to the threat of nuclear war in the 1950s, which much concerned Hans Bethe and Joseph Rotblat, in particular. Eleven concerned scientists, led by Rotblat, signed what became known as the Russell-Einstein Manifesto, issued on 9th July 1955, containing the words, "Remember your humanity, and forget the rest." This Manifesto was followed by the first Pugwash conference on Science and World Affairs in a village in Nova Scotia in July 1957, Rotblat and the Pugwash conference being awarded the Nobel Prize for Peace in 1995.<sup>102</sup>

Concerned scientists need to cocreate a similar living organism today, overcoming any fears that could arise from this vision of Martin Rees: "I think the odds are no better than fifty-fifty that our present civilisation on Earth will survive to the end of the present century without a serious setback." He says this partly because he believes, "A superintelligent machine could be the last invention that humans need ever make," going on to say, "In the present century the dilemmas and threats will come from biology and computer science, as well as from physics: in all these fields society will insistingly need latter-day counterparts to Bethe and Rotblat."<sup>103</sup>

Now for such concerned scientists to have a beneficial influence in society, we need to follow Einstein's observation that you cannot solve a problem with the mindset that created it. This is one of many paraphrases of a statement he made in an article titled 'The Real Problem Is in the Hearts of Men', published in the *New York Times Magazine* on 23rd June 1946, which began with these words: "Many persons have inquired concerning a recent message of mine that 'a new type of thinking is essential if mankind is to survive and move to higher levels'." He then went on to write, "Past thinking and methods did not prevent world wars. Future thinking *must* prevent wars."<sup>104</sup> For, as he said in an address at the fifth Nobel anniversary dinner in New York on 10th December 1945, "The war is won, but the peace is not. The great powers, united in fighting, are now divided over the peace settlements."<sup>105</sup>



Of course, this also means that we need to end the long-running war between science and religion, which has been the central theme of my life for the last sixty-five years, since I was seven years of age. To this end, during the thirty-four years that I have been studying the root causes of psychological and technological change in society, I have written many hundreds of thousands of words and drawn dozens of diagrams to describe the transformation of consciousness, as I was experiencing it.

These are being accumulated in a scholarly tome titled *Wholeness: The Union of All Opposites* in three volumes titled *Integral Relational Logic*, *The Unified Relationships Theory*, and *Our Evolutionary Story*. This is alternatively titled *Semantic Principles of Natural Philosophy* to indicate that it is intended to complete the last revolution in science that has been unfolding for the past few decades, just as Newton's *Principia*

completed the first.

However, as this trilogy has now reached 1,300 pages, during the years I have written many shorter pieces, in the last few years responding to a book I have read or person I have met, the shortest being succinct pages on my websites. The treatise you are now reading is being written in a similar vein, intermediate between the website pages and the scholarly tome.

The principal purpose of this particular piece is to announce the availability of the Theory of Everything. For I know no better way for us concerned scientists to grab the headlines from the scientists, medical practitioners, politicians, and economists, still working within the obsolete materialistic, mechanistic, monetary worldview, deceiving the general public, often through the many documentaries broadcast on mainstream television channels every year. Yes, indeed, evolution is currently passing through a singularity in time, as the Singularity University recognizes. But this is a spiritual singularity, not a technological one.

We can see the significance of this announcement in the history of ideas from a Horizon drama documentary titled 'Einstein's Unfinished Symphony', which the BBC originally broadcast in the UK in 2005. As Michio Kaku said, if Einstein had been successful in his aim of developing what he called the unified field theory, "The theory of everything would have been the holy grail of science; it would have been the philosophers' stone. It would have been the crowning achievement of all scientific endeavours ever since humans walked the face of the Earth."<sup>106</sup>

However, we need to note that in today's postmodern society, there is much scepticism about a 'grand narrative' that can explain all our experiences from the mystical to the mundane.<sup>107</sup> For instance, the foremost integral philosopher Ken Wilber wrote in *A Theory of Everything* that the dream of a fully holistic body of knowledge is "a pot of gold at the end of the rainbow that we will never reach".<sup>108</sup> And Martin Rees has said, "A so-called theory of everything would actually offer absolutely zero help to ninety-nine percent of scientists."<sup>109</sup> He also wrote that any attempt to develop such a coherent body of knowledge, necessary to heal the fragmented mind in Wholeness, is hubristic, a sentiment he shares with many others.

So we have a mountain to climb if we are to humbly realize the impossible dream, completing the revolution in science that has been unfolding for the past few decades. Erich Fromm was uncertain of success, saying,

Whether such a change from the supremacy of natural science to a new social science will take place, nobody can tell. If it does, we might still have a chance for survival, but whether it will depends on one factor: how many brilliant, learned, disciplined, and caring men and women are attracted by the new challenge to the human mind.<sup>110</sup>

Fromm went on to say that he saw only a two per cent chance of such a radical transformation in consciousness coming about, a goal that no business executive or politician would regard as worthwhile pursuing. Nevertheless, he went on to say, "If a sick person has even the barest chance of survival, no responsible physician will say, 'Let's give up the effort,' or will use only palliatives. On the contrary, everything conceivable is done to save the sick person's life. Certainly, a sick society cannot expect anything less."<sup>111</sup>

We may not be successful in our endeavours, for the human race is so numbed by our religious, scientific, and economic cultural conditioning, that perhaps nothing will awaken humanity from its slumbers until the inherently unstable global economy inevitably self-destructs. Nevertheless, many millions intuitively know deep in their hearts that Western civilization is a dysfunctional society, seeking to bring the ancient wisdom of our innocent forebears into the twenty-first century. So the announcement of the availability of the Theory of Everything could well give this great transformative

movement a cohesive life-shock, opening the floodgates, releasing immense pent-up energy entrapped by what William Blake aptly called our ‘mind-forged manacles’. I say ‘announcement’ because even though Integral Relationship Logic is simple commonsense, fully assimilating this universal system of thought in consciousness can take many years of diligent self-inquiry; it does not happen overnight.

Furthermore, no one can be fully awakened in isolation. It is only through the synergy of working harmoniously together with a common vision that, in community with others, we can generate the energy that is needed to accelerate the transition into the Age of Light, realizing that we are not actually going anywhere, for we are already there, only not aware.



To set this treatise in the history of ideas, we first note that we live in a bifurcating Universe, as the systems philosopher Ervin Laszlo has pointed out,<sup>112</sup> which has led to our minds and psyches becoming fragmented and split, separated from Reality, as already mentioned.

To counteract this constant bifurcation, during the past four hundred years, scientists have made a short series of discoveries, each of which has served to unify pairs of opposites. Johannes Kepler set the ball rolling with the publication in 1609 of *New Astronomy*, which laid down the foundations of modern astronomy with the first two laws of planetary motion.<sup>113</sup> Kepler found these laws by unifying the split between causal physics and mathematical astronomy, which Aristotle had opened up in *Physics*.<sup>114</sup> Isaac Newton produced the second term in this series in 1687 by unifying Kepler’s celestial physics with Galileo Galilei’s terrestrial dynamics.<sup>115</sup>

Albert Einstein introduced the next two terms in this series with the special and general theories of relativity. First, in 1905, he developed the special theory of relativity by reconciling the incompatibilities between the principle of relativity, which states that physical phenomena run their course relative to different coordinate systems according to the same general laws, and the observed constancy of the speed of light.<sup>116</sup> Einstein did this by replacing Newton’s absolute framework of space with a relativistic space-time continuum, in which the notion of simultaneity is relativistic. In the general theory of relativity, published in 1916, Einstein went on to show the equivalence of gravitational and inertial mass during acceleration,<sup>117</sup> and in so doing abandoned the Euclidean–Cartesian rectilinear model of space, replacing it with the view that space-time is curved.

In 1980, David Bohm continued this unifying process by showing how we can unify the incompatibilities between quantum physics and relativity theory in *Wholeness and the Implicate Order*. For the theories of relativity and quantum mechanics, which Bohm said should really be called ‘quantum *non*-mechanics’,<sup>118</sup> display opposite characteristics, the former having the properties of continuity, causality, and locality, with the latter being characterized by noncontinuity, noncausality, and nonlocality.<sup>119</sup>

Integral Relational Logic, based on the Principle of Unity, completes this convergent series, unifying *all* opposites in Ineffable, Nondual Wholeness. Although this universal truth is not well known in intellectual circles today, it was well known to the ancients, as Mircea Eliade tells us in his extensive studies of the history of religion. By bringing this ancient wisdom back into consciousness, the fragmented, split mind becomes fully healed, completing another series that we can trace from Gautama Buddha and Lao Tzu, through Heraclitus, Jesus of Nazareth, Plotinus, Dionysus, Mansur Al-Hallaj, Meister Eckhart, Nicholas of Cusa, Giordano Bruno, Baruch Spinoza, Ramana Maharshi, J. Krishnamurti, and Osho, to today’s modern mystics, teaching Nonduality.

Having thus transformed the entire world of form into the Formless, Absolute Whole, we can abandon our narrow, anthropocentric perspectives and see our lives from the perspective of the Divine

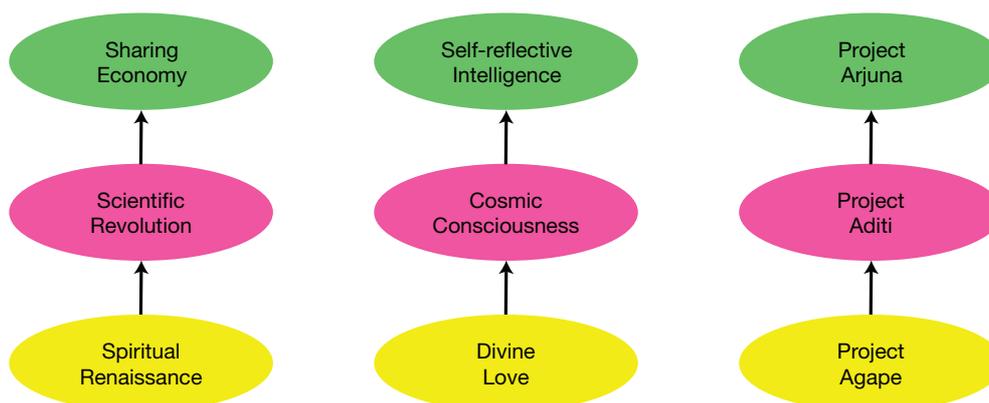
Cosmos with what Aurobindo Ghose called Supermind, which is undivided.<sup>120</sup> By thus realizing what it truly means to be a human being, in contrast to computers, we can unify polarizing opposites in Nondual Wholeness, awakening in the eschatological Age of Light, blissfully living peacefully and harmoniously in the Eternal Now, free of the fear of death in all its forms.



To bring ancient wisdom back into human consciousness, as a twenty-first century counterpart to the Pugwash conference, I am currently setting up a new website for the Alliance for Mystical Pragmatics with the motto ‘Harmonizing Evolutionary Convergence’. The Alliance consists of four elements, addressing four great movements unfolding and enfolding in the world today as a coherent whole: Spiritual Renaissance, Scientific Revolution, Sharing Economy, and World Peace, focusing on the spiritual, academic, business, and global aspects of this cultural revolution. For we live in a world of specialisms, with few generalists yet able to unify and integrate these apparently disparate trends.

Of course, while words are necessary to give us much needed conceptual clarity, they are not sufficient to intelligently and consciously deal with the practicalities of living in the Age of Light. To address these critical issues, the Alliance will be guided by Project Heraclitus, with the motto ‘Revealing the Hidden Harmony’. For, as the peace-worker James O’Dea has asked, “Can you hold *both* the meaning of the nightmare *and* the signs of our collective awakening—because the only way to get a grip on reality is to see that it is indivisible, reflected in *both* the shadow *and* the light, the bitter *and* the sweet.”<sup>121</sup> So to look at the world through rose-tinted glasses, as the New Age movement tends to do, is a violation of the fundamental law of the Universe.

In turn, Project Heraclitus contains three subprojects, Projects Agape, Aditi, and Arjuna, intended to stimulate the three global movements of Spiritual Renaissance, Scientific Revolution, and Sharing Economy, respectively. The mottos of these projects are ‘Healing the Split’, ‘Awakening Self-reflective Intelligence’ and ‘Transcending the Divisiveness of Money’. The entire enterprise is being guided by the Divine, Cosmic energies of Life, Logos, and Light, emerging and radiating from Divine Love, Cosmic Consciousness, and Self-reflective Intelligence, illustrated here:



If you would like further information on this great adventure or feel that you could contribute in some way, do please contact me at paul at mysticalpragmatics.net.

With Love and Light

Paul

Svenshögen, Sweden

September 2014

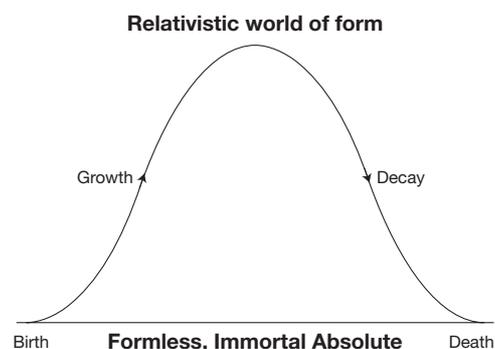
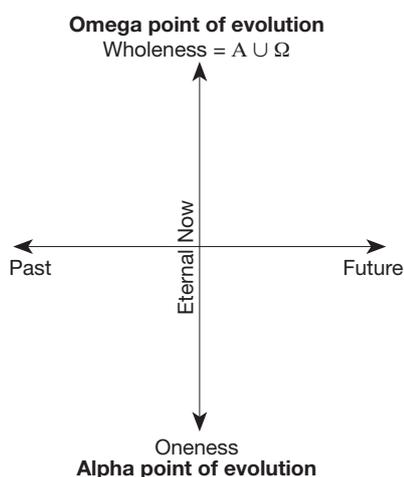
## Introduction: About this treatise

This treatise has a rather unusual structure, for three closely related reasons. First, this transcultural, transdisciplinary work is not about *something*; it is about *everything*. It is an exposition of the utmost generality, not constrained by the limitations of academic specialisms, such as mathematical logic, physics, medicine, psychology, anthropology, linguistics, sociology, economics, politics, and theology. Secondly, this treatise is not based on the evolutionary past. Rather, it has emerged in consciousness directly from the Divine Origin of the Universe through the action of what Heraclitus called the Logos, ‘the immanent and rational conception of divine intelligence governing the Cosmos’.<sup>122</sup> Thirdly, although this treatise consists of a linear sequence of pages, the map of the Universe it describes is nonlinear and holographic.

The Theory of Everything thus differs from any other original product of inspiration. Normally, the results of human creativity are structures in the relativistic world of form, such as paintings, novels, sports stadiums, aeroplanes, furniture, cures for diseases, computer algorithms, and so on and so forth. However, in the case of panosophy, the picture that emerges is Wholeness—Ineffable, Nondual Wholeness—which, in itself, has no form, for it embraces all structures and relationships in the manifest Universe.

Realizing Wholeness as a seamless, borderless Continuum, with no divisions anywhere, leads to what the Advaita sages Ramesh S. Balsekar and Vijai Shankar call Ultimate Understanding<sup>123</sup> and Absolute Understanding,<sup>124</sup> respectively. But such a realization by whatever means is not sufficient to understand what is happening to us all at the present time. To intelligently deal with our business affairs at these rapidly changing times we need *Total Understanding*.

In my experience, Total Understanding comes about when we visualize the Totality of Existence—as the entire world of form—emerging from and returning to the Immortal Ground of Being in an evolutionary and involutionary process, using these terms somewhat differently from Aurobindo Ghose and Ken Wilber, as explained in this treatise. But more than this. As each of us *is* the Totality of Existence in our holographic Universe, Total Understanding requires us to directly experience what Joseph Campbell called the Cosmogonic Cycle,<sup>125</sup> depicted in this schematic diagram.



All forms and structures in the Cosmos follow this birth-and-death cycle, the most fundamental law of the Universe. This naturally includes our planet, species, and civilizations, the global economy, and our individual body-mind-soul organisms. However, this diagram is rather misleading, for time, like everything else in the world of form, is an illusion, an abstraction from Wholeness. To see what is really happening in the world today, we need to turn the horizontal line on its side, so that it becomes vertical, as in this diagram of the two dimensions of time. When this universal truth is felt in the breadth and depth of being, there is nothing else to understand; all the rest is merely filling in the details.

For only the Eternal Now is Reality, a notion that Eckhart Tolle

made famous in *The Power of Now*, a book that has sold some three million copies in North America alone.<sup>126</sup> What this means is that the only practical way of solving today's business problems is to awaken to Total Freedom as mystics, living in blissful union with the Divine, free of fear, anxiety, and worry about what is happening to us all.

So withdrawing from the world, as mystics have traditionally done, is not enough. If we are to cocreate what Eckhart calls *A New Earth*, we need to take our glorious mystical experiences into science, technology, economics, and politics. This is possible because Integral Relational Logic (IRL)—the art and science of thought and consciousness that provides the Contextual Foundation and framework for the Unified Relationships Theory (URT)—brings about a sense of universal order to the Totality of Existence, an ordered structure that the ancient Greeks called *kosmos*, variously translated as 'order, arrangement; decency, good behaviour; regularity, good government; world, universe; ornament, decoration; glory, honour'.



This might seem reasonably straightforward, for bringing order to chaos is a daily activity in our lives. For instance, many of us have a cutlery container in a kitchen drawer for slots to place knives, forks, and spoons. Similarly, we have folders on our computers to store different categories or classes of files—called sets in mathematics—such as applications, documents, music, and movies.

In essence, what we are doing when we make these arrangements is to look carefully at the similarities and differences in the data patterns of experience, a sense of order that David Bohm learned from the artist Charles Biederman, enabling him to reconcile the incompatibilities between quantum and relativity theories in physics.<sup>127</sup> Such an ordering process is called *taxonomy*, the science of classification, from Greek *taxis* 'arrangement, order' and *nomia* 'distribution, method', from *nomos* 'custom, law', from *nemein* 'manage, control, arrange, assign'. So *astronomy* is an arrangement of the stars and *economy* is the management of the household. Similarly, *taxonomy* is an arrangement of an arrangement, today either meaning classification, in general, or specifically, the systematic classification of living organisms, following Carl Linnæus from Sweden, who published his seminal *Systema Naturæ* in 1735.<sup>128</sup>

However, difficulties can arise when we apply these classifying techniques to human society. The word *category* has a rather complicated semantic history, but ultimately it derives from Proto-Indo-European (PIE) base *\*ger-* 'to gather' via Greek *ageirein* 'to assemble', also root of *gregarious* and *aggregate* via Latin *grex* 'flock, herd'. So we group human beings in categories according to the sex of our bodies, the colour of our skins, and the regions of the Earth where we are born, for instance.

No problem here, this is perfectly natural. However, problems can arise when we use such categories to give ourselves a separate sense of identity and hence security in the world, for then the knives and forks start fighting each other, as we see in sexism and racism, for instance. These difficulties can become particularly intense when they involve scientific, religious, political, or economic categories and ideologies. For when people place their precarious security in life on such fragmented, divisive categories, such as our bank balances, they can become afraid when their senses of identity feel threatened, leading to much conflict, even outright war. In this respect, the violent battles still taking place around the world are just a difference in degree not type from the conflicts that occur daily in our so-called civilized family and social relationships.

Yet many today recognize that we live in an interdependent world, in which none of us is ever separate from any other. Our health and well-being, and even survival as a species, is thus dependent on us cooperating, rather than fighting, exquisitely encapsulated in John Donne's meditation published in 1624:

*No man is an island entire of itself; every man  
is a piece of the continent, a part of the main;  
if a clod be washed away by the sea, Europe  
is the less, as well as if a promontory were, as  
well as any manner of thy friends or of thine  
own were; any man's death diminishes me,  
because I am involved in mankind.  
And therefore never send to know for whom  
the bell tolls; it tolls for thee.*

This is a step towards Peace and Harmony, for this poem recognizes that relationships make the world go round, denoted by the Unified *Relationships* Theory, as the name for the Theory of Everything, whose Cosmic Context, coordinating framework, and Gnostic Foundation is provided by Integral *Relational* Logic, the mystical art and science of the psyche that we all implicitly use everyday to bring a sense of order to our lives. However, Wholeness embraces *all* relationships, a quite different perspective from the fragmented anthropocentric views that normally govern our lives.

This means that in Reality, there is only one 'I' in the Universe, for Wholeness is the Genuine Identity of each and every one of us. For *identity* derives from Latin *idem* 'same'. And the mystical experience, when we live in union with the One, is essentially the same for all of us. It is impersonal, not personal. So fighting Holy wars—wars about the Whole—is especially absurd, indicating that the protagonists are out of experiential and cognitive touch with Reality.

If we are to resolve this critical issue, we need to realize that we cannot relate to each other in Wholeness by viewing the world predominantly through our physical senses or categorizing minds. This is putting the cart before the horse, making us slaves of science and technology, rather than their masters. Of course, we also need our physical senses and categorizing minds to manage our practical affairs. But we can only intelligently do so by turning our lives outside in, recognizing the primacy of the Absolute, which we all share.

However, many of us are out of touch with Reality to some extent or other, for reasons that we explore in this treatise. Most particularly, it is a cultural taboo in Western civilization—in religion, science, and business—to affirm, "I am Love," for God is Love, the Divine Essence and Cosmic Soul we all share. When I look around the world today, I see many individuals speaking of similar experiences. But we have not yet formed a coherent alliance, which is needed to collectively break the social taboo that prevents us from intelligently solving problems like climate change, species extinction, and imminent economic collapse. And unless we can break free of our prison cells, relating to each other in Wholeness, *Homo sapiens* is not a viable species.

As both a mystic and information systems (IS) architect in business, I feel that I could play a worthwhile function here. IS architects in business are generalists, working with specialists in user departments to develop coherent models of the structure and workings of enterprises. Similarly, using the commonsensical method of bringing universal order to our lives that I learned from David Bohm, I can work with specialists in any particular human domain of endeavour, from mystics, through depth psychologists, to software developers, most importantly well understanding the language of all three.

Panosophers are thus rather like my local doctor in Sweden, who calls herself a specialist in general medicine, called general practitioners in the UK. In the case of this treatise, I don't have a clear picture of

who its readers might be. Most people are specialists, having been educated within the cultures they are born into, severely limiting the breadth and depth of their vision. So this treatise is simply an expression of Wholeness, trusting that it could help awaken the Divine Intelligence we need to live in love, peace, and harmony with each other.

I am being particularly inspired by *Bhagavad Gita* here, especially its principle that while it is natural to engage in challenging work, it is also essential to be free of egoic attachment to the fruits of that action.<sup>129</sup> This does not mean indifference to the results of these activities. For as Mohandas Gandhi said, “He who ... is without desire for the result and is yet wholly engrossed in the fulfilment of the task before him is said to have renounced the fruits of his action.”<sup>130</sup>



As this treatise could both help us to and hinder us from relating to each other in Wholeness, let me tell you a little more about where I am coming from. First of all, finding the root cause of Holy wars, by discovering what we all share in common, has been the main motivating power throughout my life. For I was born in 1942 five kilometres from an airfield in war-torn Britain, my earliest memories being of fighter planes screeching overhead, a very frightening experience. So when I began to think for myself at seven years of age, I began to wonder what was causing all the conflicts that I saw in the world around me.

At this comparatively early age, I was able to stand outside myself and see that if I had been born in Germany or Japan, for instance, I would have been brought up in a quite different way, but one that was just as valid for the inhabitants of these countries. Even within the country in which I was born, I saw many conflicts. For instance, before I went to sleep each night, I was told to recite the Lord's Prayer, which begins with these words: “Our Father which art in Heaven ...” But this did not make any sense to me. I was taught that ‘Father’ is the first person of God, viewed as an undivided trinity, and that Heaven is out there in the physical universe. But how could God, as the Supreme Being, be resident in outer space, which supposedly leads to Ultimate Reality? Clearly, in God and Universe, religion and science have incompatible contexts, making it virtually impossible to determine the truth or otherwise of what I was being taught in church and school and at university.

So with this inborn sense of Wholeness, I intuitively realized that I could not find Peace within Western civilization or any other culture in the world. As a consequence, I abandoned Christianity at the age of twelve, when I was reluctantly confirmed into the Church of England. Then, at sixteen, I effectively abandoned physics as the primary science because I did not believe in atomism or the big bang theory. Two years later, when I went to university to major in mathematics, studying economics as a subsidiary, I saw that the monetary economies of capitalism and communism are pseudo-science, with the concept of money making no sense whatsoever. For, as I now know well, we can only understand the role that money plays in our lives from a psychological perspective, not from a quantitative one. Economics is a branch of politics, which is a sub-discipline of psychology, as are all disciplines of learning, including the so-called hard sciences. But back in the early 1960s, even my beloved pure mathematics could not lead to Wholeness and the Truth, a most depressing situation.

To resolve this critical situation, I began my career in the information technology industry as a mathematician/programmer, developing simulation models of the evolution of the national grid for CEBG, the government-owned enterprise responsible for generating electrical power in the UK at the time. Then, after marrying an art student, I joined IBM in 1968 as a systems engineer in a sales office in London.

I thus began my career as an information systems designer and architect, being particularly interested

in the distribution of tasks between humans and computers in business and in how humans and machines could communicate with each other. My first thoughts on this tricky subject is that computers are very good at arithmetic but rather poor at pattern recognition, while with humans the situation is the other way round. But I did not understand why, knowing little about psychology, in general, or my own psychodynamics, in particular. I was helped to develop such understanding when studying industrial psychology on management courses after being promoted to a first-line manager in 1974, for this led me to begin my in-depth studies into why we humans, including myself, behave in the way that we do.

However, the most important breakthrough in my technological career came in 1972, when a colleague gave me a copy of Ted Codd's 'A Relational Model of Data for Large Shared Data Banks', published two years earlier. At the time, I was engaged in writing a proposal for a job-matching information system for the Department of Employment using IBM's Information Management System (IMS), a hierarchical way of organizing databases in contrast to the nonhierarchical, network approach favoured by Charles Bachman.

I didn't immediately see that this 11-page seminal paper would eventually enable me to end the long-running war between science and religion. All I knew at the time was that the relational model of data was the most significant innovation in the short history of computer science, because, for the first time, it described the underlying structure of data—the basic resource of the data-processing industry—in mathematical terms. Larry Ellison was another who saw the immense significance of Codd's rather arcane paper, founding Oracle, today a Fortune-500 company, on it, becoming one of 'richest' men in the world. Today, you cannot order a book or airline ticket on the Internet without invoking the relational model of data behind the scenes.

For myself, I only saw the true significance of the relational model of data when I traced its evolutionary history, most thoroughly since 2012. I had long known that the relational model is a nondeductive form of reasoning, for Codd alludes to this in his paper, having evolved from first-order predicate logic and the mathematical theory of relations. But it is only recently that I have discovered that Charles Sanders Peirce was a pioneering spirit in the development of these cognitive structures, using them as the framework for his architectonic, his own attempt to develop a synthesis of all knowledge in the nineteenth century. This has led me to see that the relational model, and hence IRL, marks the most fundamental change in Western thought since Plato, Aristotle, and Euclid laid down its foundations some 2,350 years ago.

It is this childhood, adolescent, and adult experience that has led me to develop the transcultural, transdisciplinary Theory of Everything in the second half of my life, beginning at the age of thirty-eight in 1980. But how can I communicate to you what I have learned in a long life? Well, the simple answer is that I cannot.



For I am Wholeness, like everyone else, *Wholeness* being one of several terms I use to denote that which cannot be named, Lao Tzu using the word *Tao* with a similar purpose in the opening line of *Tao Te Ching*, which describes the path or way of power or virtue.<sup>131</sup> We cannot even assert or deny that Wholeness is Reality, as Dionysus pointed out in *Mystical Theology*,<sup>132</sup> for any such assertion or denial is an action in the relativistic world of form. All we can really know, as Gnostics or Jñānis, is that the Absolute is Presence, etymologically meaning 'before being' or 'prior to existence', for *Presence* derives from Latin *praesentia* 'presence', participle of *praesse* 'to be before', from *prae* 'before' and *esse* 'to be'. So how do we proceed, with I, Paul, as a writer, and you, my dear friend, being a reader?

Well, traditionally, when people write and read books and articles, they do so on the assumption that the author and reader are two separate individuals, sending messages from one to the other, like a transmitter and receiver in mechanical devices. But, as we have seen, such a division does not exist in Reality, in Wholeness. The Authentic Self of each and every one of us is Ineffable, Nondual Wholeness, which cannot be expressed in words. For any utterance is a violation of Wholeness. In my experience, the only authentic way to communicate Wholeness is for two people to look wordlessly and deeply into each other's eyes in mutual recognition that they have realized the Truth that sets us free.

To clarify this vitally important point, we all share the same Cosmic Context and Gnostic Foundation. Furthermore, all structures in the manifest Universe share the same underlying data patterns prior to interpretation by a knowing being, articulated in the ontological level of the foundations of IRL. It is not surprising therefore that throughout the ages, philosophers, psychologists, and anthropologists, for instance, in touch with the depth of their beings, have had similar experiences to those of mystics, albeit expressed in a multitude of different languages. Indeed, in recent years, similar patterns have been found in quantum physics, which has led some to say that physicists are becoming mystics.

This situation gives us to a clue to how I, as an individual, can express what I experience as best as I can, but cannot communicate Wholeness. Using skills I learned as an information systems architect in business, I am a generalist, able to see the underlying patterns that all specialist disciplines share. However, this leads to another difficulty. Specialists, egoically seeking to hold on to their particular perspectives, project their fears, telling me that I am making myself special by integrating all knowledge into a coherent whole.

To answer this objection to the Theory of Everything on principle, I liken my situation to that of the mezzosoprano Janet Baker, who once said in a radio interview that she was an ordinary person doing an extra-ordinary job. Similarly, creating a megasynthesis of all knowledge is an extra-ordinary job. But that does not make its putative author special, 'putative' because Paul is not the originator of this treatise. He is simply a channel for the Divine, writing as a prophet, one who consciously speaks forth from the depth and breadth of his being, from the Origin of the Cosmos. On the contrary, nobody could be more ordinary than this man expressing Wholeness as well as he can. My ontogeny is no different from anyone else's. I'm just a regular, easy-going guy, not very good at anything in particular, but very thorough in subjects and activities that interest me.

Yet, here is a man, called Paul, with unique characteristics, sitting at his computer writing these words, which you are reading, another unique being. So who is this man and who are you if we are not actually who we think we are? Well, before we can answer this question, there is broader one to ask: "Who are we as a species?" We have rather arrogantly called ourselves *Homo sapiens, sapiens* 'wise-wise human'. But does this mean that we are special, that the laws of the Universe do not apply to our species? And what are these laws? Are they the laws of physics, as many scientists believe today? Or are there some Cosmic laws that science has yet to discover?

As with so many questions that have puzzled humanity through the ages, we can only answer these by assimilating the Principle of Unity into consciousness, the greatest taboo in Western civilization. For then the split between humanity and Divinity disappears, as we realize that we all both human and Divine, both special and ordinary, and both unique and the same. In terms of Indra's Net in Huayan Buddhism,<sup>133</sup> we are all individual jewels and the entire net, as we reflect the light emanating from all the other jewels.

Conversely, even when we realize that only the Formless Absolute is Reality, there remains a tension

between the Absolute and the relativistic world of form. And like many tensions in the dual world of form itself, this tension is creative. Indeed, it provides the power behind all creativity, which we can most simply call Life, bubbling up from the Divine Origin of the Cosmos, like a fountain. It is in this sense that we are all authors, from Latin *augēre* ‘to make grow, enlarge, increase; enrich with’, from PIE base \**aug-* ‘to increase’, also root of ‘to augment, eke’.

As you are reading these words, I would ask you to give up one other objection that some make to the Theory of Everything, before they even read what I write or meet me. During the past few thousand years, many have attempted to create a coherent body of knowledge that could explain all our experiences from the mystical to the mundane. But, none, so far, has realized what some call an impossible dream. So if someone announced that they had succeeded where others had failed, the story of “The Shepherd Boy and the Wolf in *Aesop’s Fables* would come into play. For having cried out “Wolf! Wolf!” when a wolf was not there, no one believed the shepherd boy when a wolf did come one day, leaving the sheep at its mercy.<sup>134</sup>

In the story of humanity, the sheep that are in danger are our children and grandchildren, and the wolf is our fear and ignorance of what is happening to humanity at the present time. So, as the father of two children and the grandfather of two grandchildren, to my knowledge, I care deeply about the fate of humanity. On the other hand, Ramesh S. Balsekar wrote a book in 1999 titled *Who Cares?!*,<sup>135</sup> indicating that when we live in unity with Nonduality, there is no one to care about whatever happens to us as individuals, as a culture, or as a species. There is no doership or ownership in the words of Advaita sages.

It is thus of absolute importance that we become free of any attachment to our fragmented identities as human beings. The grandparents of the grandparents of my grandparents—just three steps in generations who lived at the same time—were born in the mid 1700s, at the beginning of the industrial revolution. But it is most unlikely that my grandchildren’s grandchildren will have grandchildren sometime in the twenty-first century. For the eschatological Age of Light, as glorious as it will be, is unlikely to last more than a century or two before the inevitable death of our biological species.



But before this happens, we need to deal with a far more pressing problem and opportunity: the invention of the stored-program computer in the middle of the 1900s, which is helping humanity to blindly drive evolution through the most momentous turning point in its fourteen billion-year history. To this end, all I can do is express the sense of Wholeness and Freedom I enjoy so much today in as clear and simple words as possible. I don’t know who you are, dear reader. But as you are reading these words, I must assume that there is something that I write that is attractive to you, that resonates with something in the depth and breadth of your being.

However, this holistic perspective presents some other, rather unusual communications challenges, for this treatise that you are reading is as much a work of science as it is of the mystical experiences that have arisen through my scientific studies. As a scientific work, the conventional approach of what Thomas S. Kuhn called ‘normal science’ in *The Structure of Scientific Revolutions* is to build on what has previously been discovered. This is the predominant evolutionary process, where structures evolve from immediately preceding structures. Academic convention follows this path, requiring researchers to quote previously established authorities, on which they are building. Even Wikipedia follows this convention, for “All articles must strive for verifiable accuracy, citing reliable, authoritative sources.”<sup>136</sup>

The English Anglo-Catholic writer and pacifist Evelyn Underhill thought that even works of mysticism should follow this historical approach. In *Practical Mysticism*, published in 1915, she said, “*Mysticism is the art of union with Reality. The mystic is a person who has attained that union in greater or less*

degree; or who aims at and believes in such attainment.”<sup>137</sup> In *Mysticism* four years earlier, she was particularly critical of William James’s celebrated ‘four marks’ of the mystic state in the chapter on ‘Mysticism’ in *The Varieties of Religious Experience*—Ineffability, Noetic Quality, Transiency, and Passivity. For as she said, “True mysticism is active and practical, not passive and theoretical,”<sup>138</sup> and James admitted to never having a mystical experience.<sup>139</sup>

Then, in the Introduction to Nicholas of Cusa’s *The Vision of God* in 1928, Evelyn Underhill said that this direct experience of Divine Reality is the first factor that must be present in every great work of mysticism. But then she went on to write:

Next, and hardly less essential to his teaching office, is the element of tradition; all that spiritual culture which the writer has inherited from the past and hands on to the future, and which gives him the framework, the convention, within which his own direct experience can be expressed. Without this corporate tradition, the education which he has received from his predecessors in the spiritual life, the mystic remains a lonely eccentric. He does not fulfil his vocation within the chain of history; cannot communicate his vision to other men.<sup>140</sup>

Yet, one of the cornerstones of Nicholas’ teaching is *coincidentia oppositorum* ‘the coincidence of opposites’ or *contradictoria coincident* ‘contradictions coincide,’ expressed in this treatise as the Principle of Unity: *Wholeness is the union of all opposites*. But the Principle of Unity represents the essential paradoxical nature of the Universe, which Aristotle denied in *Metaphysics* with the Law of Contradiction, the implicit axiom lying at the core of Western thought and mathematical logic.

There is thus no corporate or cultural tradition in which we can build a coherent body of knowledge on what Heraclitus of Ephesus and Nicholas of Cusa called the ‘Hidden Harmony’ and *Coincidentia Oppositorum*, respectively, which inspired Carl Jung and Mircea Eliade, in particular, in their psychological and religious studies of humanity’s relationship to the Divine.

So to try to read this treatise through the filter of any scientific paradigm, economic ideology, philosophical school of thought, or mystical tradition inherited from West or East will, I need to say, miss the point. In practical terms, the invention of the stored-program computer marks the most fundamental change in millions of years of humanoid tool making. It thus requires us to make radical changes in the way we live our lives that are unprecedented. We can only realize the impossible dream of healing our fragmented minds in Wholeness by awakening to Total Freedom.

This situation presents another unusual communications challenge. In the Ultimate, Wholeness does not have a beginning or an end. It is anthropocentric to say *Wholeness is the union of all opposites*, for in Reality, there are no opposites. We are not human beings having mystical experiences, but rather Divine, Cosmic beings having a human experience. Even saying, “Wholeness is the union of all opposites” is an anthropocentric perspective. In Reality, there are no opposites in Wholeness, for the Divine lies beyond all categories of thought, as mystics through the ages have realized.

So if we are to understand what it truly means to be a human being, we really need to take a Holoramic perspective, from Greek *òlos* ‘whole’ and *òràma* ‘sight’, from *òrān* ‘to see’, modelled on *panorama*. From the vantage point of Wholeness, we can then see that the Theory of Everything, which is a self-reflective, coherent map of the Cosmos, internalized in Consciousness, begins and ends in Ineffable, Nondual Wholeness, which is the True Nature of all us.



But how can we overcome the problem of words, when the only way to truly communicate Wholeness is wordlessly? This treatise contains words, many of them. So how can we resolve this critical issue? Well, we first note that this treatise is like a painting or a symphony, which needs to be seen and heard as a whole to be fully appreciated. So please don’t get hung up about individual phrases, which map to brush

strokes or bars of music, or even particular words, which correspond to particles of paint or individual notes. I am sure that there is much that could be improved in this respect with suitable editing.

Secondly, do please remember that the picture that is painted in this treatise is without form; it is like a blank sheet of paper. The harmonious symphony whose 'notes' can be heard in the symbols on the page is actually silence, not unlike AUM in the East. In other words, what is being presented here is both Fullness and Emptiness, both the Plenum and the Void, both embracing and underlying the Cosmos.

Expressing Wholeness through words is not a new problem. Through the ages, mystics and spiritual teachers have used countless words to express that which cannot be described. For instance, Thich Nhat Hanh tells us that Shakyamuni Buddha said to Ananda, his most devoted disciple, "Ananda, the teaching on the emptiness of self is meant to guide our meditation. It is not to be taken as a doctrine. If people take it as a doctrine, they will become entangled by it. I have often said that the teaching should be considered as a raft used to cross to the other shore or a finger pointing to the moon. We should not become caught up in the teaching."<sup>141</sup>

The Buddha said these words to explain why he would not answer questions of a metaphysical nature, such as "Is the world eternal or will it one day perish?", "Is the world finite or infinite?", "Are body and spirit one or two?", and "After you die, will you continue to exist or not?" Being asked why he would not answer such questions, he replied, "I only answer questions that pertain directly to the practice of gaining mastery over one's mind and body in order to overcome all sorrows and anxieties."<sup>142</sup>

Today, the invention of the stored-program computer in the middle of the last century presents humanity with challenges and opportunities that did not exist two and a half millennia ago. We can no longer separate spirituality from technology and economics. If we are to overcome all sorrow and anxieties, it is of vital importance that we carry our mystical experiences into science and business, recognizing that we are all the world. So I do not communicate to you as an individual; I am communicating Total Understanding to the world, which is within me.

Like all my writing, this treatise is thus primarily a communication to myself, as I paint pictures in consciousness, expressing what I can see with my inner eye as clearly and simply as the wonderful gifts I have been given will allow. For doing so gives me much joy and do we have any other purpose in life than to enjoy ourselves, acting as mirrors to each other as we follow our unique journeys in life?



However, not understanding the root causes of our behaviour leads to another major communications challenge: that of language. The English language, in which this treatise is written, has evolved during the past thousand years to represent a materialistic, mechanistic worldview in which humans are seen as being separate from God, Nature, and each other. So English, like other European languages, is hopelessly inadequate to communicate an integral, holistic worldview in which no beings, including humans, are ever separate from any other, including the Supreme Being.

In a private conversation with David Bohm in the mid 1980s, he suggested a solution to this problem. We need to study the roots of words, which he aptly called the *archaeology of language*. For the root of *etymology* is Greek *etumos* 'real, true'. So by studying etymology, we discover that our forebears were much closer to Reality than most people are today. Accordingly, during the last thirty years, as the Theory of Everything has been emerging in consciousness, I have been building a glossary of clarifying definitions of words, importing many from Sanskrit, and coining a few words where these are inadequate. This is an ongoing, evolving project, the latest results of which are available on the Web. For there are far too many

terms in the Glossary to include them in this treatise, which focuses on the most significant building blocks.

One major exception to the roots of words revealing our ancestors' ancient wisdom is *human*, which is Latin *humus* 'ground, earth', from the PIE base *\*dhghem-* 'earth'. This etymology shows that our forebears some 7,000 years ago conceived of human beings as earthlings in contrast to the divine residents of the heavens, as Calvert Watkins explains in *The American Dictionary of Indo-European Roots*. So the split between the human and the Divine lies deep in the collective psyche. To be humble, which derives from the same root, is therefore to deny our Divinity. Conversely, it is arrogant to realize and acknowledge our True Nature as Divine Beings, *arrogance* being the opposite of *humility*.

Nevertheless, by studying etymology, we can rediscover *prisca sapientia*, the pristine wisdom known to the ancients, as it was called during the Renaissance, which Isaac Newton spent many years searching for during his time as the Lucasian Professor of Mathematics at Trinity College, Cambridge,<sup>143</sup> and *philosophia perennis* (eternal wisdom), in his rival Gottfried Leibniz's terms.<sup>144</sup> However, once again, it is important not to argue about words that belong to different cultures and nations, for they denote the same underlying reality.

In other words, to fully assimilate the Theory of Everything in Consciousness, it is necessary to dive deeper than the semiotic surface of our communications activities and look directly at the concepts or mental images that words and other signs represent. This is an activity that is not usually familiar to either mystics or scientists. For mystics focus attention on transcending conceptual categories, while scientists are predominantly focused on the superficial world of material forms. Even psychologists are unaccustomed to this practice, for, as the entry for 'concept' in *The Oxford Companion to the Mind* states, "In psychology, concepts of mind must be invented or discovered, much as in physics, for we cannot see at all clearly into our own minds by introspection."<sup>145</sup>

An outstanding exception was Carl Jung, who, through the study of his own dreams, had a deep understanding of the dynamics of the sub- and unconscious psyche. Most especially, he well understood the significance of the Neoplatonic notion of *coincidentia oppositorum* in psychotherapy, quoting Nicholas of Cusa many times in his writings. However, such self-inquiry is generally a taboo for psychologists who wish to be considered scientists, which is why self-reflection is generally out of bounds in academic circles, just as it is in business and religion.

This situation is somewhat different in psychotherapy, where therapists are sometimes required to undergo therapy in order to qualify as psychotherapists. We can trace the origins of this sensible approach to Sigmund Freud, who was much concerned with the problems of transference and counter-transference between Carl Jung and Sabina Spielrein, Jung's 'test case' as a psychoanalytical patient,<sup>146</sup> who was later to make significant, but mostly forgotten, contributions to psychoanalysis. Accordingly, around 1910, Freud proposed at a conference on psychoanalysis that an analyst must himself undergo analysis in order to recognize and deal with the strong forces that are released in therapy. His proposal caused a stormy reaction.<sup>147</sup>



We now come to the final communications challenge: the structure of this thesis. This document consists of a long series of letters, interspersed with a number of diagrams and mathematical symbols, organized hierarchically in words, sentences, paragraphs, subsections, and sections. Yet the Cosmos is not linear or even just hierarchical. So the map presented in this treatise cannot be used directly as a means of navigation in life, as a map of an unfamiliar city could be used, matching a two-dimensional map to the

two dimensions of a limited region of the Earth, whose entire surface is the non-Euclidean exterior of a sphere.

Rather, we live in a holographic Universe possessing the property of self-similarity, like holograms and fractals. But such a coherent picture cannot be depicted on the printed page, although we can come closer to presenting this picture on the Web. This is done to some extent in the website for the Alliance for Mystical Pragmatics, with its various ways of accessing the site and its nonhierarchical hyperlinks. However, this doesn't explicitly display the underlying structure of the Internet on which the Theory of Everything is built. So for those unfamiliar with the modelling methods of information systems architects, or even with conceptual modelling tools or thesaurus generators, it could help communications if someone with suitable graphical programming skills could one day write software to make the underlying structure of the Cosmos more explicit.

So where can we begin? Well, answering this question is rather like asking where the surface of a sphere begins. For such a surface has no beginning or end. Rather, we need to look at the sphere as a whole, for this most simply represents the Totality of Existence. If we just concentrate of the surface, which represents the world accessible to our physical senses, we live very superficial lives. To understand what is happening to us all, we really need to dive beneath the surface, to the centre of the sphere, which is the Divine Origin of the Cosmos, as Oneness.

What this means is that like all structures in the relativistic world of form, this treatise begins and ends in Oneness, which is ever-present during every moment of our lives. It then expands to fill the infinite sphere as Wholeness, which then dissolves back to Oneness, inseparable from the Totality. In this way, our mapmaking exactly matches the 'cosmogonic cycle', enabling us to produce as accurate a map of the world we live in as possible, undistorted by the misconceptions of separation that have grievously afflicted human learning during the millennia.

So this treatise should really begin at the first bifurcation point of the Universe, where the relativistic world of form emerges from the Formless Absolute, from the Divine Origin of the Cosmos, the centre of the sphere that represents the Totality of Existence. However, many educated people are cognitively and experientially out of touch with Reality, as I was when I set out to heal my fragmented mind in 1980. Accordingly, I feel that it should help communications between us to begin with a description of the social and historical environment that is familiar to people, before starting afresh at the very beginning midway through.

This is a different approach from that of my trilogy on *Wholeness*, which I have been writing mainly for myself. The first chapter of this book is titled 'Starting Afresh at the Very Beginning', which is the title of the third subsection of the fifth section in this treatise, beginning on page 134, halfway through. However, I don't feel that such a structure works for this introductory treatise. Rather, I feel it is preferable to begin with the world that most people live in, rather than the world I have been living in for many years, even though, in Reality, we all live in the same world.

Of course, this is not a black-and-white situation. As evolution passes through the most momentous turning point in its fourteen billion-year history, we are species in transition, passing out of the patriarchal epoch, with the twenty-odd civilizations that have dominated human affairs during this turbulent period, into the final stage of Teilhard's four-stage evolutionary model, into the eschatological, androgynous Age of Light.

However, people are in widely differing stages in this transformational process, with some who have hardly begun, still trapped in the delusional past, while others are far along the path towards full

awakening. So, as a primary purpose of this treatise to complete the revolution in science that has been underway for the past few decades, this treatise begins where mainstream science is today, with the ‘advertisement’ that the *New Scientist* made for the Theory of Everything in 2005, saying, “No idea too strange. Will pay cash.” Regarding the structure of this treatise, itself, it contains eight sections in the pattern 1-2-2-2-1, where each break point marks a place where you could begin reading. For this treatise has not been written sequentially, in the way novels are generally written, as I understand.

The middle pair of sections is a description of the thought experiment or experiment in learning that I began in May 1980 in the middle of a cataclysmic, eight-week, death-and-rebirth process I went through that spring. This, in turn, was the middle of seven-year period, from the beginning of 1977 to the end of 1983, which led me to design a totally new Universe.

The second section in the central pair on ‘Integral Relational Logic’ on page 126 is the actual start of this treatise. For this begins at the Origin of the Universe, describing the thought experiment on which this entire dissertation is based. So if you feel ready to let go of attachment to everything, awakening to Total Freedom, you could dive straight in at this point.

However, a gentler approach might be to first read the preceding Section ‘Awakening Self-reflective Intelligence’ on page 105, for this describes a little how this experiment in learning has come about in terms that might be more familiar. Most notably, it outlines how we can use the skills of information systems architects to learn to know and even understand ourselves through self-inquiry. Of particular importance here is to heal the split between mathematical logic—as the science of mind and reason—and mystical psychology—as the science of mind and consciousness—returning logic and scientific method to psychology, where they properly belong.

However, as such a unification could be too much of a culture shock for highly educated people with university degrees, the first pair of sections could be a better starting point. The first of these titled ‘Previous pursuers of the dream’ on page 21 outlines a few people who have attempted to develop a synthesis of all knowledge during the past eight hundred years. Some of these, such as Johannes Kepler, Charles Sanders Peirce, and David Bohm, were regarded as outsiders by the cultures they lived in at the time, questioning the assumptions on which these were based, not fitting into the dogmatic societies in which they lived. Indeed, Isaac Newton and Albert Einstein also distanced themselves from authority in order to create their radically new models of the Universe, as Anthony Storr points out in *The Dynamics of Creation*.<sup>148</sup>

I could add some more ‘friends’, such as Paracelsus and Giordano Bruno in the turbulent sixteenth century, which bears many similarities to the transitional, transformative times we live in today. Such pioneering souls are a great inspiration, for we need to remember that it is really Western civilization that is the outsider, far removed from Reality.

The next section, titled ‘Further evolutionary precursors’ on page 57, outlines a history of semiotics, logic, scientific method, and mathematics, focusing attention on how these disciplines have led to the invention of the stored-program computer, as an extension of the mind, but can tell us little about the human mind itself. Some further friends here are George and Mary Everest Boole and Ada Lovelace, living in the nineteenth century, still misunderstood today.

Nevertheless, it might be simplest to read this treatise in a conventional sequential manner, beginning with ‘Contextual Foundation’ on page 3. For this provides an overview of the entire treatise, giving more details on the seven pillars of wisdom and unwisdom and further outlining the psychospiritual constraints that inhibit the awakening of Self-reflective Intelligence, which we need to solve humanity’s problems.

The third pair of sections then describes how we can use IRL as the Context, framework, and Foundation for panosophy, for the Unified Relationships Theory itself. There is much more that could be included here. As the URT is the megasynthesis of all knowledge, we could use IRL to help us answer many outstanding scientific questions. For instance, Martin Rees has said that although physicists know a great deal about quantum and relativity theories, they lack a deep understanding of what they know.<sup>149</sup> Similarly, although the human genome has been sequenced, Steve Jones, Professor of Genetics at University College, London, has said, “We don’t understand genetics at all.”<sup>150</sup>

But rather than trying to address all these questions in this short treatise, we focus attention on the most critical issue facing humanity today. Evolution is currently accelerating through the most momentous turning point in its fourteen billion-year history, called its Accumulation or Singularity Point in systems theory terms. Section ‘A holistic theory of evolution’ on page 158 focuses attention on this topic, explaining where we have come from as a species and where we are heading in such a frantic rush. By far my most important friend here is Pierre Teilhard de Chardin, who shows us why we have the most wonderful opportunity just now to realize our fullest potential as a superintelligent, superconscious species before our inevitable extinction.

However, this will only happen if we can all support each other to wake up in the eschatological Age of Light. So the penultimate section on ‘Social and psychospiritual considerations’ on page 184 looks at prospects for our children and grandchildren for the rest of this century, much inspired by Carl Jung, Erich Fromm, and Abraham Maslow. One key factor that could affect which scenarios will unfold is dependent on whether this treatise will ever be published, announcing that the Holy Grail of human learning has been found. For if it is, this could well provide the mind-blowing life-shock that is necessary to awaken humanity from its slumbers.

So in the final section, titled ‘Living the Vision’ on page 203, we look at the way that Project Heraclitus, within the auspices of the Alliance for Mystical Pragmatics, could lead to World Peace.

To counteract the widespread scepticism about this awakening, liberating, and healing project that I have experienced over the years, from time to time in this treatise, I describe a few key features of my own ontogeny that have led all the divergent streams of evolution to converge within me. For this treatise is not speculative philosophy. It is soundly based on human experience, enabling me to base my life within and on the Contextual Foundation that we all share, recapitulating the Cosmogonic Cycle, returning Home to Wholeness, from which none of us ever leave.

# The Theory of Everything

## *Unifying Polarizing Opposites in Nondual Wholeness*

On 30th April 2005, the *New Scientist* magazine in London posted this advertisement on its front cover. The accompanying cover story stated the purpose of such a theory of everything: “Physicists believe that there was only one force just after the big bang, and as the universe cooled it split into the four forces we now observe: gravity, electromagnetism, and the strong and weak [nucleic] forces. The physicists’ dream is to find a theory describing this unified force.”<sup>151</sup> In *The Elegant Universe*, Brian Greene gives a slightly different definition of what Michio Kaku calls the Holy Grail of science, the Philosophers’ Stone of all human learning:<sup>152</sup> “a theory capable of describing nature’s forces within a single, all-encompassing, coherent framework”.<sup>153</sup>



By asking questions that scientists do not normally ask, there are elements in both these definitions of the Theory of Everything that can help us in our own endeavours to reach evolution’s glorious culmination on our beautiful planet Earth—its Apotheosis and Omega Point, inseparable from the Alpha Point. The article in the *New Scientist* lamented the fact that no one had yet found a way of solving this elusive problem.

Yet it must be worthwhile trying, for as the editorial in this issue said, if we could understand how the universe works, this would also tell us something profound about ourselves.<sup>154</sup> Conversely, if we could understand what it truly means to be a human being, we could understand what the Universe is, how it is designed, and hence, how computers—as extensions of the mind—affect the lives of virtually every child, woman, and man on our beautiful planet Earth. But, we are not there yet, for as one physicist said, “I suspect there is some right question that we’re not asking.” Others were saying that the laws of the cosmos will never be fully explained by a single theory.<sup>155</sup>

The integral philosopher Ken Wilber, taking a much broader view of what the genuine Theory of Everything might be, agrees with them. In *A Theory of Everything*, published in 2000, he wrote:

This book is a brief overview of a Theory of Everything. All such attempts, of course, are marked by the many ways in which they fail. The many ways in which they fall short, make unwarranted generalizations, drive specialists insane, and generally fail to achieve their stated aim of holistic embrace. It’s not just that the task is beyond any one human mind; it’s that the task is inherently undoable: knowledge expands faster than ways to categorize it. The holistic quest is an ever-receding dream, a horizon that constantly retreats as we approach it, a pot of gold at the end of the rainbow that we will never reach.<sup>156</sup>

Ken then goes on to ask, “So why even attempt the impossible?” To which he replies, “Because, I believe, a little bit of wholeness is better than none at all, and an integral vision offers considerably more wholeness than the slice-and-dice alternatives.”<sup>157</sup> Wilber seems to be saying here that Wholeness is like an asymptote in mathematics, which can be approached but never reached in finite time. Despite his in-depth studies of all spiritual traditions, he doesn’t seem to understand that Wholeness is the Authentic

Self, True Nature, and Genuine Identity of every one of us. So no one can return Home to Wholeness because nobody has ever left Home.

What then is the Theory of Everything? Well, it is very simple. It is a coherent body of knowledge that corresponds to and explains all human experience from the mystical to the mundane. Such a synthesis of everything, which Pierre Teilhard de Chardin (1881–1955) called a megasynthesis, comes about when evolution helps us to integrate all knowledge in all cultures and disciplines at all times—past, present, and future—into a coherent whole. It is in this delightful way that the fragmented, split mind becomes healed in Ineffable, Nondual Wholeness.

The right question that physicists are not asking, preventing them from developing the Theory of Everything within their specialist discipline, is “What is causing scientists and technologists, aided and abetted by computers, to drive the pace of scientific discovery and technological development at unprecedented, exponential rates of acceleration?” Scientists do not ask this question because it can only be answered through rigorous, systemic self-inquiry, admitting nonphysical, psychospiritual energies into science. These include mental, psychic, subtle, and spiritual energies, all being created by the irrepressible power of Life, bubbling up from the Divine Origin of the Universe, like a fountain.

The coherent framework for a synthesis of all nonphysical and physical energies at work in the Universe is a commonsensical art and science of thought and consciousness that has evolved from the transcultural, transdisciplinary, transindustrial business modelling methods that information systems use to build the Internet. This is Integral Relational Logic (IRL), which provides the Cosmic Context, coordinating framework, and Gnostic Foundation for the Unified Relationships Theory (URT), the Theory of Everything, itself.

To make it easier to refer to the URT, let us call this synthesis of all knowledge *panosophy*, modelled on *philosophy*, from Greek *pan* ‘all’ and *sophia* ‘wisdom’. The ancient Greeks used the word *pansophos* to mean ‘very wise’, literally ‘all-wise’. Then, in the mid 1630s, Jan Ámos Komenský (Comenius), who has been called the ‘father of modern education’, wrote books titled *Pansophiæ Prodromus* ‘Forerunner of Pansophy’, as ‘universal wisdom’, *Pampædia* ‘universal education’, and *Didactica Magna* ‘The Great Didactic’, in which he proposed that “all men are taught all subjects in all thoroughness.”<sup>158</sup>

Comenius’s friend the intelligencer Samuel Hartlib translated some of these works into English in 1642 as *A Reformation of Schooles*, referring to pansophy as specifically Christian.<sup>159</sup> Nevertheless, *pansophy*, occasionally spelled *pantosophy*, came to mean ‘universal or cyclopædic knowledge; a scheme or cyclopædic work embracing the whole body of human knowledge’.<sup>160</sup> Pansophy formed the basis of Pansophia, ‘a dream of science’, the vision of a Utopian society, to this day still not realized, as Frank E. and Fritzie P. Manuel point out in their scholarly tome *Utopian Thought in the Western World*.<sup>161</sup>

With all the divergent streams of evolution currently converging into a coherent whole, even as the world is falling apart, transcultural, transdisciplinary pansophy enables us to fulfil this dream, healing the split between science and the humanities, between science, philosophy, and religion, and between all the religions. For if we cannot end all these wars, there can never be peace and harmony on Earth.

As everyone on Earth implicitly and unconsciously uses IRL everyday to form concepts and organize their ideas, pansophy is the new science of humanity that Erich Fromm called for in 1976 if humanity is to avoid psychological and economic catastrophe that we are blindly accelerating towards. Given the iron grip of the Abrahamic religions, the materialistic, mechanistic sciences, and monetary economics on human thought and creativity, he recognized that the creation of a new society would face almost insurmountable difficulties, saying, “Why strive for the impossible?”<sup>162</sup>

### *Unifying Polarizing Opposites in Nondual Wholeness*

Nevertheless, there are some hopeful signs that what many consider to be impossible is actually realizable. A great Spiritual Renaissance and Scientific Revolution are taking place within what the systems philosopher Ervin Laszlo calls the ‘Akashic paradigm’, using the word *Akasha*, as the mysterious *Æther*, to refer to the Universal Quantum Field. He took the word from Vivekananda’s *Raja Yoga*: “Everything that has form, everything that is the result of combination, is evolved out of this *Akasha*. ... Just as *Akasha* is the infinite, omnipresent material of this universe, so is this *Prana* the infinite, omnipresent manifesting power of this universe.”<sup>163</sup>

So IRL and the URT are built on the traditional mystical worldview, described in such works as *The Upanishads*, *Tao Teh Ching*, and *Avatamsaka Sūtra* ‘Flower Ornament Scripture’. We are thus rediscovering our forebears’ ancient wisdom, called *prisca sapientia* (pristine wisdom), which Isaac Newton spent many years searching for,<sup>164</sup> or *philosophia perennis* (eternal wisdom), in his rival Gottfried Leibniz’s terms,<sup>165</sup> which has been lost through the dominance of materialistic and mechanistic science and business, far removed from Reality.

To put this another way, IRL is what Ken Wilber calls a Superhuman OS, the aim of a training programme that launched on 24th April 2014, intended to “Install a Revolutionary New Operating System for Your Mind to Illuminate the Full Spectrum of Your Human Potential, and Become the Greatest Possible Version of Yourself.”<sup>166</sup> In turn, the URT is all the applications that run under this operating system, not separate, but fully integrated as a coherent whole.

However, the Theory of Everything is not contained in the pages of this treatise. For theories do not exist ‘out there’ in printed and electronic form. As David Bohm pointed out in *Wholeness and the Implicate Order*, which unified quantum and relativity theories, “The word *theory* derives from the Greek *theoria*, which has the same root as *theatre*, in a word meaning ‘to view’ or ‘to make a spectacle’. Thus it might be said that a theory is primarily a form of *insight*, i.e. a way of looking at the world, and not a form of *knowledge* of how the world is.”<sup>167</sup>

So the Theory of Everything outlined in these pages actually resides in consciousness, not only within the supposed author’s consciousness but also within that of everyone else as both an actuality and a potential. This treatise that you are now reading is but one of a multitude of possible expressions of Wholeness, expressed most simply in six mathematical symbols— $W = A \cup \sim A$ , where  $W$  means Wholeness,  $A$  any being whatsoever,  $\cup$  union, and  $\sim$  not—or seven words: *Wholeness is the union of all opposites*.

When the underlying meaning of these few words and symbols is fully assimilated in consciousness, consciousness expands and deepens to such an extent that it becomes coterminous with Consciousness itself. Living in union with Ultimate Reality, we have thereby completed our journeys in life, blissfully feeling totally satisfied and fulfilled, with really nothing else to do in life other than to help those who have not yet reached evolution’s glorious culmination to do so.

## **Contextual Foundation**

Perhaps one reason why postmodernists like Jean-François Lyotard deny the possibility of a ‘grand narrative’—“the idea that philosophy can restore unity to learning and develop universally valid knowledge for humanity”<sup>168</sup>—is that many thinkers have attempted to make sense of humanity’s place in the overall scheme of things over the years, sometimes claiming that they had actually found what they were seeking.

We should not really be surprised by people’s scepticism, for this is a characteristic of the way that evolution unfolds. For instance, in the biosphere, how could an amoeba possibly imagine a trout, or a

*The Theory of Everything*

trout a horse, or a horse a human being? Similarly, regarding mental evolution in the noosphere, Plato and Aristotle did not have an evolutionary worldview and would not have understood Charles Darwin's *Origin of the Species*.

In turn, Darwin and his followers do not generally appreciate the broad sweep of Teilhard's evolutionary vision in *The Human Phenomenon*, encompassing the physical, biological, mental, and spiritual realms, which Peter Medawar mockingly called an 'incoherent rhapsody'.<sup>169</sup> And even though Teilhard prophesied that one day all the divergent streams of evolution would converge in a megasynthesis of all knowledge, as the Theory of Everything, he, himself, did not realize this prophecy in his own direct experience and so did not fully understand what reaching evolution's Omega Point actually means. Neither have today's leading evolutionaries, often much inspired by Teilhard's visionary prophecy.

Another way of viewing this evolutionary process is to look at the way we learn at school. For instance, pupils in fifth grade could well be overwhelmed by a book on the infinitesimal calculus, learned in tenth grade, for instance. But by the time they reach the twelfth, they are differentiating and integrating mathematical expressions to their heart's content. Similarly, when we set out to climb a mountain, this might seem insurmountable at first. But taking one step at a time, eventually we reach the summit, rewarded by the panoramic view, provided the clouds hold off, of course.

Climbing to the summit of the mountain of all knowledge is no different. Anyone with the necessary determination and clarity of thought can get there, for as Albert Einstein wrote in an essay on scientific method in 1936, "The whole of science is nothing more than a refinement of everyday thinking."<sup>170</sup> However, when we get there, something magical happens. The summit is not a point, like the apex of a cone. Rather, it is a vast plateau, with no borders or divisions anywhere. This is the Truth, for "Truth is a Pathless Land," as J. Krishnamurti said in 1929, when dissolving the Order of the Star, the organization that wanted to make him a world teacher. As he said at the time, "Truth, being limitless, unconditioned, unapproachable by any path whatsoever, cannot be organized; nor should any organization be formed to lead or to coerce people along a particular path."<sup>171</sup>

Therein lies the great paradox of the spiritual quest. No spiritual practice or scientific reasoning performed through time can take us all the way to the goal, for Wholeness and the Truth are beyond time, indeed, beyond all categories of thought. Conversely, if we do not engage in such practices or thought processes, it is most unlikely that we shall fulfil our purpose of life on Earth as a species. So if we are to collectively unify polarizing opposites in Nondual Wholeness, it is possible to at least approach the Truth by organizing all knowledge into a coherent whole, giving the entire process up at the end through the opposite of evolution: involution.

This means that the genuine Theory of Everything is a coherent body of knowledge that integrates all knowledge in all cultures and disciplines at all times into a coherent whole. All knowledge is just that. Propositions that might be false under some circumstances or within some cultures are included along with those that are generally considered to be true. This is of fundamental importance in our search for Wholeness and the Truth and for Love and Peace, encapsulated in E. F. Schumacher's maxim for mapmaking, given in *A Guide for the Perplexed*: 'Accept everything; reject nothing.'<sup>172</sup>

But before we can develop a coherent body of knowledge that can explain all our experiences, from the mystical to the mundane, acknowledging the existence of both psychospiritual and physical energies, we note a couple of major inhibitors that need to be overcome.

First, evolution since the most recent big bang in our particular physical universe has been more divergent than convergent. Initially, large and small material objects were formed, such as stars, galaxies,

atoms, and electrons. Then during the last three and a half billion years on Earth, we have seen the wondrous diversity of the species evolve. Biogenesis then gradually gave way to noogenesis—the evolution of the mind—about 25,000 years ago, the analytical mind becoming predominant at the dawn of history and birth of the patriarchal epoch about 5,000 years ago.

As a result of our fragmented minds, society has become divided into religious and national factions, academic specialization, and the division of labour in the workplace. We have thus become more focused on our individual uniqueness than on what we all share, believing that our bodies, personalities, and souls identify us. For the most part, we disregard what Krishnamurti wrote in *Education and the Significance of Life*, “Can any specialist experience life as a whole? Only when he ceases to be a specialist.”<sup>173</sup>

Secondly, what we have learnt with our fragmented minds has been blindly passed from generation to generation for hundreds and thousands of years. So we are trapped in our cultural conditioning, with misguided beliefs about God, Universe, and humanity, not realizing how deluded we have become. Yet our delusions need to be faced and admitted if we are to realize our fullest potential as a species, able and willing to face our existential fears of death with the Divine energies of Love, Consciousness, and Intelligence.

In my case, I have spent most of the past sixty-five years questioning the assumptions on which Western civilization is based, which makes my own ontogeny rather unusual. For all but fifteen years since I was seven years of age, I have felt uncomfortable living in Western civilization, a culture whose religious and scientific contextual foundations make no sense to me whatsoever. For how can one reconcile the Christian concept of God with the physicists’ concept of Universe? God and Universe are incompatible contextual concepts for religion and science, respectively; contexts that we need to give meaning to our lives, interpreting the data patterns of experience within an all-embracing environment.

As a consequence, I learned virtually nothing at school and university, where I discovered that even my beloved mathematics could not end the long-running war between science and religion, necessary if I were ever to realize the Truth and find deep inner Peace. Most significantly, I abandoned physics as the primary science at seventeen years of age because my teachers could not answer these questions:

1. Why did the Universe begin at a finite point of time in the past in a so-called big bang?
2. Why do physicists believe that the process of analysing atoms into smaller and smaller particles has a finite limit, ending with a so-called fundamental building block of matter?
3. Why are there a finite number of dimensions in the Universe?

To answer these and many other questions, virtually everything I know today has emerged in consciousness since I was thirty-eight years of age. It is the determination to be free of the feeling of discontent with Western science and religion, and therefore economics, that has been the main motivating power behind establishing mystical psychology as the primordial natural science, even though this has meant that I have spent most of my life in solitude, even estranged from my two children.

For as Anthony Storr writes in *Solitude*, “The majority of poets, novelists, composers, and, to a lesser extent, of painters and sculptors, are bound to spend a great deal of time alone,” quoting Edward Gibbon as saying, “Conversation enriches the understanding, but solitude is the school of genius; and the uniformity of a work denotes the hand of a single artist.”<sup>174</sup>

However, as a child and adolescent, I was not attracted to the Orient, to what I took to be Eastern religions. Rejecting the West would have been really stupid, throwing the spiritual baby out with the religious bathwater, even violating the fundamental law of the Universe. For scientism is as much a dogmatic religion as the organized religions, worshipping and praying to God, as a Supreme Being

supposedly separate from humanity. It was my destiny to remain in the West, rebuilding the entire world of learning with that quality of Western thought that has characterized it ever since the ancient Greeks: reason. This exercise is rather like doing a gigantic, multidimensional jigsaw puzzle, exploring how all cognitive patterns fit together as a coherent whole, great fun.

In the event, the opportunity to heal my fragmented, split mind did not come until the winter of 1979 and 80, at the age of thirty-seven, when I realized that the invention of the stored-program computer thirty years earlier is incompatible with materialistic, mechanistic science and that the monetary global economy contains the seeds of its own destruction within it. As I visualized at the time, it was most probable that dysfunctional, unsustainable capitalism and communism would collapse like a house of cards when my children, then aged seven and nine, could well be bringing up children of their own, as at least my daughter is doing.

What I felt to be a horrifying vision at the time led me to ask a question that is not on the agenda of any university, scientific institute, technological research and development department, or governmental body, as far as I can ascertain: “What is causing scientists and technologists, like myself, to accelerate the pace of scientific discovery and technological invention at unprecedented, exponential rates of evolutionary development?” The reason why scientists do not attempt to solve this problem, the most critical unsolved problem in science, is that it cannot be solved within or on the contextual foundations provided by Western civilization. As I have now discovered, we can only intelligently manage our business affairs with full consciousness of what we are doing within and on the Contextual Foundation of Eastern mysticism.

This mystical worldview, recognizing that Consciousness is Ultimate Reality, is exquisitely expressed in the Sanskrit word *Satchidananda* ‘Bliss of Absolute Truth and Consciousness’, transforming and unifying the concepts of God and Universe. The opening words of the *Mandukya Upanishad* and Lao Tzu’s *Tao Teh Ching* also succinctly depict the Contextual Foundation of the Universe we all live in:

<i>AUM stands for the supreme Reality.</i>	<i>Tao can be talked about,</i>
<i>It is a symbol for what was, what is,</i>	<i>But not the Eternal Tao.</i>
<i>And what shall be. AUM represents also</i>	<i>Names can be named,</i>
<i>What lies beyond past, present, and future.</i>	<i>But not the Eternal Name.</i>

In other words, “Brahman is all, and the Self [Atman] is Brahman,” as the *Mandukya Upanishad* goes on to say. Or, as the *Chāndogya Upanishad* says, *Tat tvam asi* “Thou art That,” reiterated in Nisargadatta Maharaj’s *I Am That*. In English, we can thus all say, “I am Love,” for Love is the Cosmic Soul and Divine Essence that we all share, and God is Love, as John wrote in the Christian Bible in his first epistle. In the words of the popular Sufi poet Rumi, “Love is the sea of not-being and there intellect drowns.”

I have come to this realization because of an apocalyptic epiphany that I experienced at 11:30 a.m. on 27th April 1980 as I was strolling across Wimbledon Common in London to the pub for lunch, close to the Tangier war memorial at 51° 26' 30" N, 0° 14' 02" W (TQ 2284 7288, to the nearest ten-metre square in the Ordnance Survey grid). Puzzling about what was causing my colleagues in IBM and me to change people’s lives through the development of information systems in business, in a life-changing eureka moment, I realized that there are nonphysical, mental energies at work in the Universe, as well as the material ones I had learnt about in physics at school.

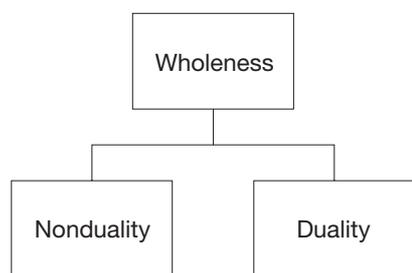
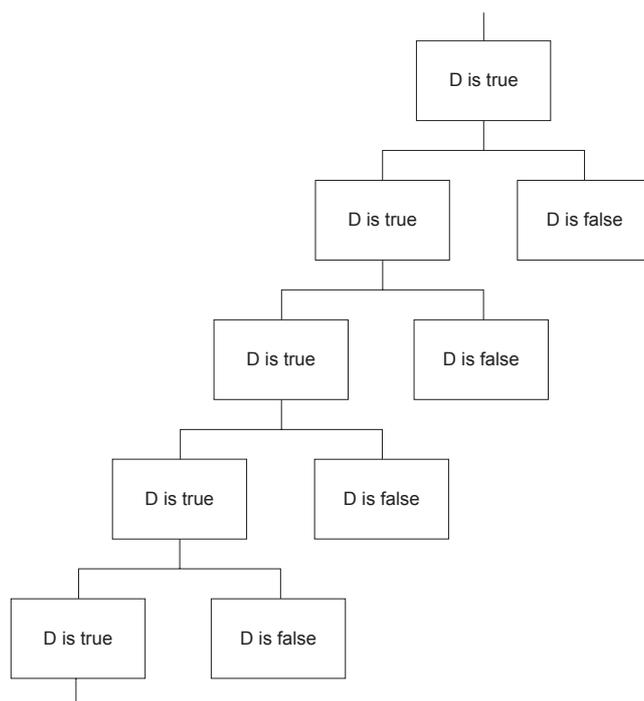
I knew at once that I had been given the key that would unlock all the innermost secrets of the Universe that had puzzled me since I was a boy. Accordingly, three weeks later, in a state of very great excitement, I resigned from my marketing job with IBM and set out to build a cosmology of cosmologies

that would unify the psychospiritual and physical energies at work in the Universe. For, as I can now see, what happened to me on that auspicious day is that a big bang erupted in the depth of consciousness, enabling me to create a comprehensive map of the Cosmic Psyche, which I outline in this treatise, with much more detail in my books and other articles. In this way, we can answer the big questions of human existence, such as “Who are we?”, “Where have we come from?”, and “Where are we going?”, enabling us to intelligently navigate our way through life with full consciousness of what is happening to us as a species.

### **Returning Home to Wholeness**

Eight weeks after this apocalyptic eureka moment, around midsummer 1980, when struggling to create asymmetry from the symmetry of truth tables in the propositional calculus, I drew this diagram, inspired by the principle of duality in projective geometry, explained more fully in subsection ‘Unifying opposites’ on page 145. Similarly, I called this diagram the *Principle of Duality (D)*, staring at it for several days in sheer wonderment. For I realized that I had discovered an irrefutable truth, one that is valid in all fields or universes of discourse, in George Boole’s terms.<sup>175</sup>

Since then, the Principle of Duality has become simplified and expanded as the *Principle of Unity* in IRL, embracing both the formless Absolute and the relativistic world of form. The Principle of Unity is elegantly expressed in just seven words—*Wholeness is the union of all opposites*—or six mathematical symbols:  $W = A \cup \sim A$ , where  $W$  means Wholeness,  $A$  any being whatsoever,  $\cup$  union, and  $\sim$  not. From the perspective of Wholeness, opposites, also called dualities or polarities, cannot be separated; they are mutually dependent on each other.



This universal irrefutable truth can also be depicted in one simple diagram, showing that there is a primary-secondary relationship between the Ineffable, Nondual, Formless Absolute and the dualistic, relativistic world of form, with no separation between them. In terms of Hegel’s dialectical logic, if Nonduality is the thesis and duality is the antithesis, then Wholeness is the synthesis, a primary-secondary relationship that is ubiquitous. A hypothetical superintelligent extraterrestrial being would instantly recognize this pattern, the paradigm that underlies all others, the key that unlocks all the innermost secrets of the Universe.

A few other examples of this primary-secondary relationship are Wholeness and Oneness, Consciousness and consciousness, Intelligence and intelligence, Love and love, Peace and peace, Life and life, perfection and imperfection, good and evil, beauty and ugliness, synthesis and analysis, art and science, implicate and explicate orders, and Eastern mysticism and Western reason.

Once again, there is nothing new under the sun. The Principle of Unity is the ultimate Integral

Tantric Yoga, for *yoga* is Sanskrit for 'union', cognate with the English words *yoke*, *join*, and *syzygy* 'conjunction', from Greek *suzugiā* 'union', from *sun-* 'together' and *zugon* 'yoke'. This unifying principle provides a synthesis of all forms of yoga, including Aurobindo's integral yoga. Also, *tantra* derives from Sanskrit *tantram* 'loom', unifying 'warp' and 'weft', from *tan* 'to stretch', and *-tra-m* 'instrument'. So *tantra* literally means 'an instrument for stretching'. Figuratively, Tantra has the sense of weaving opposites together in Wholeness, with other original meanings indicating 'groundwork, principle, system' and 'Context, Continuum'. Just one aspect of tantra is divine lovemaking between woman and man, which has become its primary focus in the West, sometimes missing the central point of impersonal, nonegoic Wholeness, when two beings blissfully merge and melt into each other with no separation between them.

However, even though this unifying power is ever-present in our psyches, it is not well known, especially in the West. The most notable exception was Carl Jung, who well understood that unifying opposites is the key to sound mental health,<sup>176</sup> calling syzygy the androgynous union of *anima* and *animus*.<sup>177</sup> He sometimes used the term *coincidentia oppositorum* 'coincidence of opposites',<sup>178</sup> attributed to Nicholas of Cusa, although in *De Docta Ignorantia* 'On Learned Ignorance' the latter did not explicitly write "*Deus est coincidentia oppositorum*," 'God [Wholeness] is the coincidence [union] of opposites.'<sup>179</sup>

We can trace this schism in Western thought to Aristotle, who said in *Metaphysics*, "It is impossible for the same attribute at once to belong and not to belong to the same thing and in the same relation ... as some imagine Heraclitus says,"<sup>180</sup> a statement known today as the Law of Contradiction, the implicit axiom for deductive logic and mathematical proof.

What Aristotle rejected was Heraclitus' Hidden Harmony, described in these two fragments:

*The Hidden Harmony is better than the obvious.*

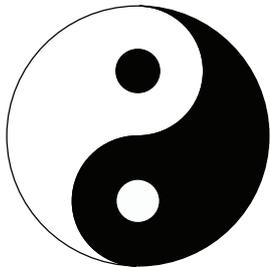
*Opposition brings concord; out of discord comes the fairest harmony.*

Similarly, Lao Tzu wrote in *Tao Teh Ching*:

*When all the world recognizes beauty as beauty, this in itself is ugliness.*

*When all the world recognizes good as good, this in itself is evil.*<sup>181</sup>

But Lao Tzu went on to say, "The Tao is the hidden Reservoir of all things,"<sup>182</sup> and "My words are very easy to understand and very easy to practice: But the world cannot understand them nor practice them."<sup>183</sup> Similarly, Heraclitus of Ephesus said, "People do not understand how that which is at variance with itself agrees with itself,"<sup>184</sup> and "We should let ourselves be guided by what is common to all. Yet, although we all share the Universal Law (*Logos*), the majority live as if they had understanding peculiar to themselves."<sup>185</sup>



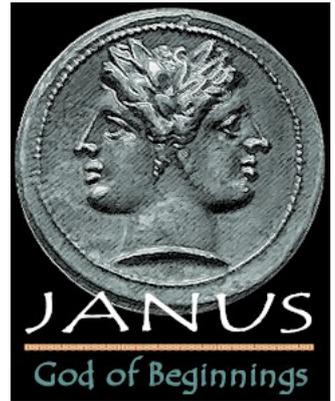
Nevertheless, the all-inclusive, both-and characteristics of Chinese Taoism are well familiar to many, as the classic *Tai-chi-t'u* symbol, or 'Diagram of the Supreme Ultimate', indicates quite clearly. This symbol depicts the cyclic nature of the Universe. For example, day turns into night, which then turns back to day. The dots in the middle of the two main shapes indicate the potential of the opposite to arise when one side is dominant in any particular situation. The key point here is that when the Universe is viewed as a whole, both opposites co-exist; to reject one in favour of the other does not lead to Wholeness, peace, and tranquillity.

We can thus see why the final book in the Bible is called *Revelation*, which is a translation of Greek *apokalupsis*, from *apokaluptein* 'to uncover' or 'to reveal', from the prefix *apo* 'from, away' and *kaluptra* 'veil'.

*Unifying Polarizing Opposites in Nondual Wholeness*

So *apocalypse* literally means ‘draw the veil away from’, indicating the disclosure of something hidden from the mass of humanity: the Principle of Unity.

We can see that the ancients were intuitively aware that the Principle of Unity is the universal generating power from Janus, one of the oldest gods in the Roman pantheon,<sup>186</sup> and a two-faced god appeared repeatedly in Babylonian art.<sup>187</sup> As the god of beginnings, Janus has given his name to January, at the beginning of the year. Janus is also the god of transitions, such as the global transition process that humanity is passing through at the moment, from pathogenic either-or ways of thinking and living, to a healthy both-and approach to life. For Janus, able to see both the past and future, symbolizes that the Principle of Unity is as much the Goal of life as its Origin.



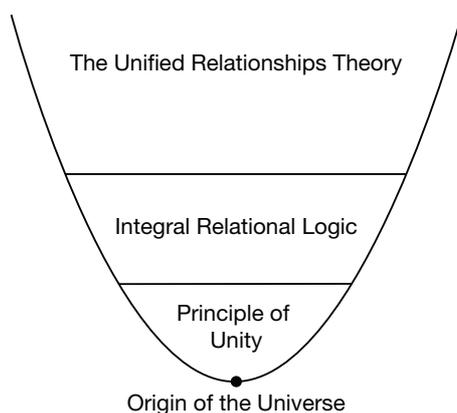
Our lives, like the Universe in its entirety, begin at the end and end at the beginning.

The principal reason why people have been denying the irrefutable truth that is the Principle of Unity for thousands of years is because fully assimilating this universal truth in consciousness shatters a person’s sense of security and identity as a being separate from God, Nature, and all other beings. Not being willing to face the truth of life on Earth is a precarious predicament, which Shakyamuni Buddha well recognized in his three marks of being (*trilakshana*), at the heart of his teachings, encapsulated thus:

1. There is nothing whatsoever that is permanent in the Universe, including our bodies and any groups, from our family, through our cultures, to our species, that we feel we belong to (*anitya*).
2. If we do not recognize this fundamental principle of existence, we shall suffer (*dubbha*).
3. The way to end suffering is to pass through a psychological death, free of the sense of a separate self, of attachment to the egoic mind (*Anatman*), leading to *Moksha* ‘liberation and release from worldly bonds’, *Nirvāna* ‘extinction’, and *Kaivalya* ‘Solitude, Absolute Consciousness’.

As the Principle of Unity is the governing power in the Cosmos, denying its existence is the principal reason why so many assert that healing the fragmented mind in Wholeness is not only unattainable, but also hubristic, grandiose, and preposterous, an act of self-aggrandizement and megalomaniacal madness. For reasons we look at in subsection ‘The Jonah Syndrome’ on page 193, not only do we resist reaching out to our fullest potential as human beings, we also attempt to prevent others from doing so.

Yet, this is utter madness, for as Vimala Thakar highlights in the opening paragraph of *Spirituality and Social Action: A Holistic Approach* with these wise words: “In a time when the survival of the human race is in question, continuing with the status quo is to cooperate with insanity, to contribute to chaos.” She therefore asks, “Do we have the vitality to go beyond narrow, one-sided views of human life and to open ourselves to totality, wholeness?” For as she says, “The call of the hour is to move beyond the fragmentary, to awaken to total revolution.”<sup>188</sup>



There is so much fear and ignorance in the world today, the only way that we can fully face our fears is in community with others. If we could do this, we would be able to rebuild the entire world of learning, as the Unified Relationships Theory, on the Principle of Unity and Integral Relational Logic, which emerge directly from the Divine Origin of the Universe through the irrepressible power of Life, bubbling up from the Source, like a fountain.

As this diagram indicates, the Unified Relationships Theory is open-ended, allowing anything to be learnt, without any inhibiting belief systems or filters. But this does not mean that it can never be

complete. The modelling methods that underlie the Internet possess the property of self-similarity, like fractals in Benoit B. Mandelbrot's geometry of nature.<sup>189</sup> It is this property that enables us to view the Cosmos holographically. Like a hologram, we can look at it in any level of detail, but, nevertheless, the picture, as a whole, always stays the same.

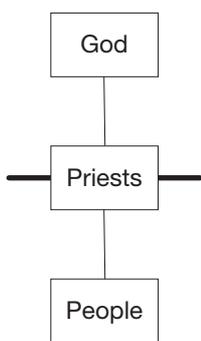
### **The Great Taboo**

Developing the Theory of Everything might thus seem quite a straightforward endeavour, inspired, as it is, by both mathematics and mysticism. So why hasn't it been developed before and why is there so much opposition in society today to healing the fragmented, split psyche in Wholeness? Well, the principal reason lies in the split between humanity and Divinity that opened up many thousands of years ago. Indeed, this split is the root cause of all the conflicts that have bedevilled human affairs through the ages and the major inhibitor to solving the immense problems facing us all today, not the least how we might intelligently adapt to the unprecedented rate of accelerating evolutionary change being driven by scientists and technologists.

As we have rather arrogantly called ourselves *Homo sapiens sapiens* 'wise-wise human', if we were to live up to our name, it would thus be sensible for us to put healing this deep wound in the human psyche at the top of the agenda. However, this is the opposite of what is happening in the mainstream of society today. It is a Great Taboo to declare, "I am the Truth," or to assert, "I am Love," as mystics in all ages have done. This prohibition affects not only religion. Because God is other in the Abrahamic religions, it is but a small step to seeing Nature as other and our fellow human beings in a similar manner, separate from the Divine and hence us.

We can trace the root cause of this malaise to the derivation of *human*, which is Latin *humus* 'ground, earth', from the PIE base *\*dhghem-* 'earth'. This etymology shows that our forebears some 7,000 years ago conceived of human beings as earthlings in contrast to the divine residents of the heavens, as Calvert Watkins explains in *The American Dictionary of Indo-European Roots*.<sup>190</sup> So the split between the human and the Divine lies deep in the collective psyche. To be humble, which derives from the same root, is therefore to deny our Divinity. Conversely, it is arrogant to realize and acknowledge our True Nature as Divine Beings, *arrogance* being the opposite of *humility*. So, as healing this deep wound in the human psyche is necessary to integrate all knowledge into a coherent whole, anyone attempting to develop the Theory of Everything is generally considered to be hubristic, which, in Greek tragedy, led to nemesis for defying the gods.

It is vitally important to make a clear distinction between the East and West here. In religions, like Buddhism and Hinduism, the central purpose is to become awakened or enlightened by becoming free of the sense of a separate self, realizing *Shūnyatā* 'Emptiness' or *Anatman* 'No-self' through the union of *Brahman* and *Atman*. On the other hand, mystics in the Abrahamic religions can only realize their Divinity *despite* the teachings of their religions, not *because of* them, as in the East. As this diagram illustrates, rabbis, priests, and imams do their best to come between the people and God, claiming that they alone know the 'word of God'. So the mystics in the monotheistic religions have often been at odds with the theological teachings of their religions, which have been particularly heavy on those who declared their union with God in some way.



For instance, Yehuda Berg tells us that the Zohar, the primary Kabbalistic text, "warned that the 'governing religious authority' would always try to prevent the people from claiming the spiritual power that was rightly theirs." Such authorities would "act as an intermediary between man and the divine". For

if they allowed people to “connect directly to the infinite, boundless Light of Creation” that “would mean their demise as gatekeepers to heaven”.<sup>191</sup>

Perhaps the most horrific example of someone who challenged the religious authorities with his absolute certainty of the Truth was the Sufi Mansur al-Hallaj, who was sentenced to death in Baghdad in 922 for declaring, “I am the Truth” (*Ana'l-Haqq*).<sup>192</sup> His means of execution was even more severe than that usually meted out. He was ordered to be given “a thousand lashes; if he dies from them, chop off his head, and preserve it when you order his body burned; if not, stop the flagellation (after the thousandth blow), cut off one of his hands, then a foot, then the other hand and the other foot; and once the trunk is burned, display his head on the bridge.” In the event, ‘only’ 500 lashes were given so that the rest of the punishment could be accomplished before al-Hallaj died.<sup>193</sup>

A less brutal example was that of Meister Eckhart, the pre-eminent Christian mystic, an immensely popular Dominican preacher and scholar, born in Germany about 1260. However, Franciscan Heinrich von Virneburg, Archbishop of Cologne, regarded Eckhart’s teachings to be heretical. At the Cologne court, on 26th September 1326, Eckhart first defended himself against forty-nine articles that had been abstracted from his sermons and writings as evidence of his heresy. However, as he did not understand why his accusers did not share the certainty of his mystical experiences, this did not go down very well. So the court drew up another fifty-nine examples of Eckhart’s heresy.

One of these suspect heresies, number twenty-two, was, “The Father gives birth to me his Son and the same Son. Everything that God performs is one; therefore he gives me birth without distinction,”<sup>194</sup> abstracted from his sixth sermon in the standard catalogue. This was merely ‘suspect’ presumably because in this sermon Eckhart was simply stating orthodox theology, saying that “the Birth (*geburt*) occurs within Man’s Soul in just the same way as it occurs in eternity,”<sup>195</sup> quoting the first verse of the Gospel of John in support of this experience, shared with many spiritual seekers today.<sup>196</sup>

However, the twelfth article, taken from sermon 24, was deemed to be heretical, saying, “Whatever Holy Scripture says of Christ, all that is also true of every good and divine man.”<sup>197</sup> This is something that many spiritual seekers know today. For Christ Consciousness is no different from Buddha Consciousness, which is no different from Impersonal Consciousness itself, which we all share as our Authentic Self.

In the event, these accusations were reduced to just twenty-eight propositions, some of which were heretical, and some of which were ‘suspected of heresy’, for under some interpretations, they could be construed to be consistent with Catholic dogma.<sup>198</sup> So on 27th March 1329, Pope John XXII issued a bull confirming Eckhart’s heresy, stated that Eckhart “wished to know more than he should”.<sup>199</sup> Presumably Eckhart would have been burnt at the stake, the official punishment for heresy since the Synod of Verona in 1184, if he had not died before such a sentence could have been carried out.<sup>200</sup>

In 1600, the Italian Dominican friar, philosopher, mathematician, and astronomer Giordano Bruno did not escape so lightly, being burnt at the stake for heresy, as much for challenging the authority of the inquisitors as for his infinite cosmology, going far beyond even the geocentric and heliocentric views of the universe that prevailed at the time, considering the Sun to be a star just like any other.<sup>201</sup>

This natural cosmology led Bruno to write “that law of love that is spread far and wide ... which derives ... from God the father of all things so that it is in harmony with all nature,” “is the religion that I observe”. Bruno told this to Rudolf II, the Holy Roman Emperor who later employed Tycho Brahe and Johannes Kepler as his ‘Imperial Mathematicus’. In response, Ingrid D. Rowland, Bruno’s biographer, writes, “If the inquisitors killed him for observing [this incontrovertible religion], they would have to explain to the world how they could do so in the name of love, forgiveness, and the Gospel.”<sup>202</sup>

### *The Theory of Everything*

However, to fully understand how the split between humanity and Divinity arose in Western civilization, we need to return to the Council of Nicaea in Turkey in 325, when the Roman emperor Constantine, who had converted to Christianity thirteen years earlier, convened a council at Nicaea to “work out a standard formulation of Christian faith”.<sup>203</sup>

The essential reason for this council was that Jesus, like al-Hallaj and Meister Eckhart, was a mystic who knew the Truth. As he famously said, “If you continue in my word, then are you my disciples indeed; and you shall know the truth, and the truth shall make you free.”<sup>204</sup> In a similar fashion, J. Krishnamurti said in 1929, when dissolving the organization that wanted to make him a World Teacher, “I maintain that truth is a pathless land, and you cannot approach it by any path whatsoever, by any religion, by any sect. ... Truth, being limitless, unconditioned, unapproachable by any path whatsoever, cannot be organized.”<sup>205</sup>

However, in the years immediately following Jesus’ death, a multitude of Christian sects sprang up that were far from being organized. Not only were people initiated into the Christian faith, they were often baptized a second time into a particular sect.<sup>206</sup> One of these sects was a group called Thomas Christians, whose leader was Judas Thomas, one of the twelve disciples, known as ‘the twin’, *Thomas* being Aramaic for *twin*.<sup>207</sup> These people were known as Gnostics, a name that clearly denotes the difference between them and the other sects. As Osho said in his discourses, theists and atheists are people who believe and do not believe in God; agnostics are those who do not know what to believe; and gnostics are those who do not need to believe, for they know the Truth in their own direct experience.<sup>208</sup> *Gnostic* derives from the Greek *gnosis*, ‘knowledge, wisdom’, cognate with both *know* in English and *jñāna* in Sanskrit, meaning ‘spiritual wisdom and illumination, inner knowing of Ultimate Reality’.

As Elaine Pagels tells us, John probably wrote his gospel in the last decade of the first century to refute the teachings of the Thomas Christians. John is particularly critical of Thomas, the one called Didymous (Greek for twin). He invented the character of *doubting* Thomas, perhaps as a way of caricaturing a revered teacher who he regarded as faithless and false.<sup>209</sup> In contrast, Saying 13 in the Gospel of Thomas shows clearly that Thomas was the one disciple who was closest to Jesus,<sup>210</sup> which is perhaps why he is called ‘twin’, as Elaine Pagels suggests.<sup>211</sup>

In the second century, Polycarp, bishop of Smyrna, now Izmir in Turkey, sought to unify the multitude of Christian communities that then existed, hoping “that Christians everywhere would come to see themselves as members of a single church that they called catholic, which means ‘universal’,”<sup>212</sup> from *katholikos* in Greek, from *kata* ‘in respect of’ and *ólos* ‘whole’. Polycarp’s protégé, Irenaeus, who became bishop of Lugdunum in Gaul, now Lyon in France, took up this unifying cause for much of the second century,<sup>213</sup> miraculously escaping martyrdom, unlike some of his contemporaries.

In simple terms, Irenaeus based his unifying theology on the principle that Jesus, alone, is divine, expressed most clearly in John’s Gospel, and that no one else can realize Christ consciousness. John thought that Jesus was “the only begotten Son of God”,<sup>214</sup> beginning his gospel with these words: “In the beginning was the Logos, and the Logos was with God, and the Logos was God.”<sup>215</sup> In this case, *Logos* means ‘the immanent and rational conception of divine intelligence governing the Cosmos’,<sup>216</sup> in the terms of Heraclitus, the mystical philosopher of change, analogous to *Dharma* and *Tao* in the East, rather than *word*, the usual mundane translation. Even though Jesus said, “I am the light of the world,”<sup>217</sup> John said, “The world did not recognize it.”<sup>218</sup> Thus, because that divine light was not available to those ‘in the world’, John said, “The Logos was [exclusively] made flesh, and dwelt among us.”<sup>219</sup>

### *Unifying Polarizing Opposites in Nondual Wholeness*

In contrast, Thomas wrote in Saying 24 in his gnostic gospel that Jesus said, “There is a light within a person of light, and it lights up the whole world.”<sup>220</sup> There are many other sayings of Jesus in the Gospel of Thomas that show that Jesus did not claim that he was exclusively divine. These include: Saying 94, “One who seeks will find; for one who knocks it will be opened;”<sup>221</sup> Saying 5, “Know what is in front of your face, and what is hidden from you will be disclosed to you. For there is nothing hidden that will not be revealed;”<sup>222</sup> and Saying 49, “Fortunate are those who are alone and chosen, for you will find the kingdom. For you have come from it, and you will return there again.”<sup>223</sup>

Then in 367 CE, Athanasius, the bishop of Alexandria, issued an Easter letter demanding that Egyptian monks destroy the ‘secret writings’,<sup>224</sup> including the Gospel of Thomas, which Irenaeus had denounced two hundred years earlier. Only the books that today constitute the New Testament were acceptable and canonical, from *canon*, a carpenter’s term meaning ‘guideline’.<sup>225</sup> However, everyone did not obey this command, as Elaine Pagels tells us:

But someone—perhaps monks at the monastery of St. Pachomius—gathered dozens of the books Athanasius wanted to burn, removed them from the monastery library, sealed them in a heavy, six-foot jar, and intending to hide them, buried them on a nearby hillside near Nag Hammadi. There an Egyptian villager named Muhammad Ali stumbled on them sixteen hundred years later [in 1945].<sup>226</sup>

We might think that in this so-called enlightened age that the Church’s attitude would have changed. However, as recently as 3rd February 2003, the Vatican published a report on the Catholic view of the New Age movement, *Jesus Christ, The Bearer of the Water of Life: A Christian Reflection on the ‘New Age’*, the title being an obvious reference to the Age of Aquarius, prematurely following on from the Age of Pisces. The central issue of this report is “man is essentially a creature and remains so for all eternity, so the absorption of the human I in the divine I will never be possible.” The Christians’ claim that the word of God, as expressed by the authoritarian priests, has a higher claim than people’s direct experience of the Divine. According to this Catholic pamphlet, such a divine experience “results in distorting His Word and replacing it with purely human words”.<sup>227</sup>

In a similar fashion, Pope John Paul II wrote in his encyclical *Faith and Reason* in 1998 that if reason is to be fully true to itself, it must be grounded in the “fear of God”.<sup>228</sup> But why be afraid? God is Love. And when we truly know God, when there is no other, no divisions in Consciousness, all fear disappears. Then Love, pure Love, is revealed, as the mystic poets, such as Rumi and Kabir, have expressed most beautifully.

### ***The seven pillars of wisdom and unwisdom***

The Great Taboo that governs people’s learning in cultures constrained by the Abrahamic religions has led Western civilization to be based on the belief that we are separate individuals who must fight and compete with our fellows for our survival, affecting not just economics and politics. Individualism pervades every corner of society, leading to what we can call the seven pillars of unwisdom. So if we are to realize that the answer to the question “Who are we?” is Wholeness, we clearly need to rebuild the education system, at least, on the seven pillars of wisdom.

The first verse of Proverbs 9 in the King James Version of the Bible says, “Wisdom hath builded her house, she hath hewn out her seven pillars,” but the Old Testament does not name these seven pillars of wisdom. In contrast, Arthur Koestler, seeking to demolish the pillars on which the citadel of scientific orthodoxy is based, stated four pillars of unwisdom in *The Ghost in the Machine*, to highlight the absurdities and limitations of the biological, behavioural, mechanistic, and quantitative sciences.<sup>229</sup>

If we are ever to live in love, peace, and harmony with each other and our environment, we need to go much further by identifying the seven pillars of unwisdom on which Western civilization is based and

their antidotes: the seven pillars of wisdom. The first pillar of unwisdom arises from the belief that we are separate from the Divine, the next three arise from the scientific belief that we are separate from Nature, and the fifth and sixth, covering economics and law, that we are separate from each other. This widespread sense of separation and alienation is encapsulated in the seventh pillar of unwisdom: Aristotle's Law of Contradiction, which denied the truth of Heraclitus' Hidden Harmony, the Principle of Unity on which the Universe is based. This is the seventh pillar of wisdom, the keystone for the other six pillars.

### **Pillars of unwisdom**

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#### *Separation from God*

1. God is other; there is a great gulf between the Creator and created that can never be bridged. God does not exist.

#### *Separation from Nature*

2. The physical universe is the primary reality and all phenomena in the Universe can be explained in terms of the laws of physics, including Consciousness, which arises from the brain as an epiphenomenon. It is the task of science to master and control Nature, viewed as an objective reality, for the egoic benefit of certain groups of human beings alone.
3. Life is a property of the DNA molecule and first emerged on Earth some 3,5 billion years ago. Consequently, evolution is a process that has come about solely by purposeless transformations of the DNA molecule, aided by natural selection, without divine intervention.
4. Human beings are biochemical machines and nothing but machines. Physical and psychological disorders can therefore only be cured through either mainstream or alternative medication, not through spiritual, subtle, or mental healing energies. It is also possible for computer scientists to create artificial intelligence, artificial consciousness, and even artificial life, as self-replicating machines.

#### *Separation from each other*

5. Technological development can drive economic growth indefinitely, and money is a commodity with value that can be bought and sold. We can understand everything that is happening in business through the financial modelling methods used by economists, bankers, and accountants. If we are to survive as individuals, we must selfishly compete with our fellow human beings for the precious resources of our beautiful planet Earth, including the money supply, which must be limited to hold its value.
6. Although it appears that we human beings have the free will to choose how we live our lives, being responsible and accountable for our actions, such a belief in such mechanistic causes and effects is just an appearance, not real, called *maya* 'deception, illusion' and *lila* 'the play of the Divine' in the East. The belief that we have the personal freedom to decide our destiny and how we behave leads to the legal principle that individuals can be blamed for what are called immoral, antisocial, or criminal activities, and can claim credit for what society regards as praiseworthy. Such a divisive society is characterized by people adopting litigious and vengeful attitudes, on the one hand, and, on the other, seeking and accepting recognition through prizes, honours, and awards.

#### *Logical implications*

7. For reason to be valid, it must reject paradoxes and self-contradictions, a principle encapsulated in Aristotle's either-or Law of Contradiction, which underlies linear mathematical proof and deductive logic. Thus, to see both sides of a situation is a two-faced sign of weakness, of indecisiveness; a dualistic view that inevitably leads to conflict and suffering.

These pillars of unwisdom are not unknown. Many today are questioning the first few, at least. For instance, in 1983, the transpersonal psychologist Charles Tart laid out 'The Western Creed',<sup>230</sup> beginning with these words:

I BELIEVE - in the material universe - as the only and ultimate reality - a universe controlled by fixed physical laws - and blind chance.

I AFFIRM - that the universe has no creator - no objective purpose - and no objective meaning or destiny.

As an alternative, the first two paragraphs of 'A Transpersonal Creed' are:

I BELIEVE that the universe is spiritual as well as material, controlled by a combination of both physical and spiritual laws.

### *Unifying Polarizing Opposites in Nondual Wholeness*

I AFFIRM that human beings are part of an integrated Order of Life; that we have the potential to evolve toward higher levels of this Order; and that seeking such evolution is one of the highest values of human life.

Then in 2009, in *Soul Power*, Anne Baring, a retired Jungian therapist and author of *The Dream of the Cosmos: A Quest for the Soul*, and Scilla Elworthy, founder of Peace Direct and the Oxford Research Group, highlighted some of the beliefs that are presented to us as incontrovertible truths, distorting our view of reality and leading to our alienation from nature and from soul:

- a) The belief that 'God' is separate from this world and that we were given dominion over the Earth.
- b) The secular belief of scientific materialism, that matter is primary and gives rise to mind as a secondary phenomenon. Thus our consciousness is a by-product of the neurology and biochemistry of the brain.<sup>231</sup>

Then in January 2012, the biologist Rupert Sheldrake published *The Science Delusion*, an obvious riposte to Richard Dawkins' *The God Delusion*. He opened by saying, "This book is pro-science. I want the sciences to be less dogmatic and more scientific. I believe that the sciences will be regenerated when they are liberated from the dogmas that constrict them." He then defined the 'scientific creed', ten core beliefs that most scientists take for granted:

1. Everything is essentially mechanical. Dogs, for example, are complex mechanisms, rather than living organisms with goals of their own. Even people are machines, 'lumbering robots', in Richard Dawkins's vivid phrase, with brains that are like genetically programmed computers.
2. All matter is unconscious. It has no inner life or subjectivity or point of view. Even human consciousness is an illusion produced by the material activities of brains.
3. The total amount of matter and energy is always the same (with the exception of the Big Bang, when all the matter and energy of the universe suddenly appeared).
4. The laws of nature are fixed. They are the same today as they were at the beginning, and they will stay the same for ever.
5. Nature is purposeless, and evolution has no goal or direction.
6. All biological inheritance is material, carried in the genetic material, DNA, and in other material structures.
7. Minds are inside heads and are nothing but the activities of brains. When you look at a tree, the image of the tree you are seeing is not 'out there', where it seems to be, but inside your brain.
8. Memories are stored as material traces in brains and are wiped out at death.
9. Unexplained phenomena like telepathy are illusory.
10. Mechanistic medicine is the only kind that really works.<sup>232</sup>

However, do wars between scientists lead towards World Peace, any more than holy wars between the religions or between science and spirituality? A recent example of this third conflict is *War of the Worldviews: Science vs. Spirituality*, in which Deepak Chopra, a medical practitioner and renowned spiritual teacher, and Leonard Mlodinow, a prominent physicist, debated a series of questions, in four parts on 'Cosmos', 'Life', 'Mind and Brain', and 'God', mostly set by the scientific agenda.

The principal problem with this book lies in the opening sentences of the Foreword, which both authors wrote: "Nothing is more mysterious than another person's worldview. Each of us has one. We believe that our worldview expresses reality." So, they ask, "What happens, then, when two worldviews clash?" Well, this is anthropocentric and egoic question, not asked from a Cosmic perspective. Furthermore, it indicates that even the conventional scientific worldview is subjective, despite the claims of science for objectivity. So, as Deepak writes in his section in Part One, titled 'The War', "There is good reason for our worldviews to be at war. Either reality is bounded by the visible universe, or it isn't."<sup>233</sup>

But this is completely missing the point. When we look at our lives from a Cosmic viewpoint, transcending subjectivity and objectivity, guided by the Principle of Unity, all wars between worldviews come to an end. We then realize with Absolute Certainty that Consciousness is Ultimate Reality, with the physical universe being an epiphenomenon. There is thus nothing to debate. But if people do not experience the Cosmos as Wholeness, like the mystics, no amount of intellectual argument will convince them that the Universe is not the physical universe of mass, space, and time.

The logical positivist, A. J. Ayer (1910–1989), highlighted this situation when evaluating the mystical experience in *The Central Questions of Philosophy*. He wrote:

The mystic develops a special faculty which enables him to see what he reports to us, no doubt inadequately, by saying such things as that reality is spiritual, or that time and space are not ultimately real, or that everything is one. But what are we to make of this? The question is not whether mystical experiences are worth having. The verdict of those who have actually had them is very decidedly that they are. The question is whether they yield knowledge; and if so what it is they establish.<sup>234</sup>

Well, in my experience, mystical consciousness does not yield knowledge that can be expressed in signs and symbols, for the Absolute is Ineffable, impossible to describe in words. In a similar fashion, how can any of us describe a beautiful sunset to someone over the telephone? Rather, what the mystical experience yields is inner knowing, which we can call *gnosis* or *jñāna*, from Greek and Sanskrit, respectively, both cognate with *know* itself. From this solid foundation, which we know with Absolute Certainty, we can then construct the seven pillars of wisdom as antidotes to the seven pillars of unwisdom. For it is by demolishing these pillars of unwisdom, rebuilding the entire world of learning on the pillars of wisdom, that we could make World Peace possible. In summary, these are:

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### Pillars of wisdom

#### *Union with God*

1. Every one of us lives in union with the Divine at every instant of our lives. There is only one Absolute Whole, whose Transcendent aspect is Consciousness, the Cosmic Context that we all share, and whose Immanent aspect is Love, the Divine Essence or Soul that we can all enjoy in common.

#### *Union with Nature*

2. Consciousness is all there is, the only Reality. Everything in the relativistic world of form, including the physical universe and ourselves, is an illusion, an appearance in or abstraction from Consciousness, with no permanent existence. Our innate being is thus fully integrated with Nature, which means 'Origin', from Latin *nāscī* 'to be born', corresponding to Greek *physis* 'birth, origin; nature, inborn quality'.
3. Evolution, from the most recent big bang fourteen billion years ago, through the evolution of the species, to human learning, progresses accumulatively through the synergistic effect of meaningful structure-forming relationships, the entire process being driven by the creative power of Life, emanating from Consciousness. The ultimate destiny of evolution is Ineffable, Nondual Wholeness, whence it began in the Eternal Now.
4. In Reality, human beings are Divine, Cosmic creatures, functioning with Self-reflective Intelligence. Our True Nature or Authentic Self is Wholeness, the union of all opposites, free from all mechanistic conditioning.

#### *Union with each other*

5. Except for the expansion of consciousness, all growth processes in the Universe are limited, following an S-shape. To trade in financial products is, like buying and selling kilograms and metres, an absurdity. We can best see what is happening in business today by integrating all the semantic models developed by individual information systems architects working in separate enterprises. We can only survive as a species, and thereby realize our fullest potential, if we learn to cooperate with each other synergistically.
6. We human beings are the products of some fourteen billion years of evolution, which has been brought about through the power of Life, acting in the Timeless Now, constantly refreshing the blind, mechanistic evolutionary processes that take place in the horizontal dimension of time. There is thus no doership or ownership, no separate entity who can be said to do or own anything. What we call 'justice' is thus an egoic concept, which arises because of our inability to see our personal lives in the context of the Whole.

#### *Logical implications*

7. The Universe is inherently paradoxical, a situation that is encapsulated in the both-and Principle of Unity—*Wholeness is the union of all opposites*—the fundamental design principle of the Universe. This universal, irrefutable truth is the keystone for noninferential Integral Relational Logic, the transcultural, transdisciplinary coordinating framework for all our learning, an egalitarian, commonsensical science of thought and consciousness, which describes how we all form concepts and organize our ideas in tables and mathematical graphs or semantic networks. To see both our own and the other person's perspective is a sign of innate intelligence, leading to peace and harmony in personal and group relationships.

## **Our sick society**

The belief that we humans are separate from God, Nature, and each other, which has led to the seven pillars of unwisdom, lies at the root of all the conflicts that have bedevilled human affairs for thousands of years. So if we are to collectively tune into evolution's convergent tendencies as a species, it is vitally important that we admit that we live in a grievously sick society. For World Peace can only come about if we, as individuals, live as constantly as possible in inner Peace. Conflict does not just happen 'out there', in the trouble spots around the world, daily reported to us in our newspapers and on our television screens and computer displays. What is called a relatively peaceful society is actually a world at war with itself, as can be seen in even some of the most advanced spiritual communities emerging in the world.

The central challenge that we face as a species is that we humans are the least instinctive of all the animals, as the social psychologist Erich Fromm has pointed out.<sup>235</sup> Using the metaphor of a computer, very few of our thoughts and actions are hard-wired. The innate instincts and automatic reflexes of babies to suck, grasp, cry, and respond to stimuli mostly disappear within the first few months of life.<sup>236</sup> Our learning—corresponding to software and data in computers—mostly determines the way that we view the world and ourselves, and hence our behaviour.

However, we haven't made a very good job in our learning over the years. For instance, Anthony Storr points out in *Human Aggression*: "With the exception of certain rodents, no other vertebrate habitually destroys members of its own species. No other animal takes positive pleasure in the exercise of cruelty upon another of his own kind ... The sombre fact is that we are the cruellest and most ruthless species that has ever walked the earth."<sup>237</sup>

In a similar fashion, Fromm quotes these words of Nikolaas Tinbergen in *The Anatomy of Human Destructiveness*: "On the one hand, man is akin to many species of animals in that he fights his own species. But on the other hand, he is, among the thousands of species that fight, the only one in which fighting is disruptive ... Man is the only species that is a mass murderer, the only misfit in his own society."<sup>238</sup>

Not only this. Even when people do not go around killing each other, there is a strong sense of vindictiveness in the legal systems of some countries, such as the UK and the USA, where barbaric capital punishment still applies in many states of the union.

Fromm has been a major influence on my own studies of this distressing situation since I discovered his works in 1980, shortly after resigning from my marketing job with IBM in London. Fromm began his insightful work in 1941 with *Escape from Freedom* (*Fear of Freedom* in the UK) shattering one of the great delusions in Western civilization: we do not live in a free society, as the politicians tell us, but we are actually afraid of both Freedom and Love, that which we long for the most. For we have a tendency to follow the crowd, satisfying our needs to belong to a group. Such basic behaviour patterns begin in the family, inhibiting us from using our innate intelligence to realize our fullest unique potential.

This first seminal work was inspired by the rise of Fascism and Nazism. As Fromm said, instead of wanting freedom, millions in Germany sought ways to escape from it. But this was "not a peculiarly Italian or German problem, but one confronting every modern state" because of the sense of isolation so many feel. In capitalist systems, based on the so-called free-market economy, people become a cog in a vast economic machine.<sup>239</sup>

Jung said much the same thing in 1945 in a letter to Eugen Kolb, a journalist on an Israeli newspaper, not actually published until 1974. Jung was asked how Hitler, as a psychopath, could influence an entire nation; were his contemporaries, who executed his plans, equally 'psychopathic'? Jung replied, "Hitler ...

gripped the unconscious of normal people, who are always naïve and fancy themselves utterly innocent and right. The majority of normal people ... are ridiculously unconscious and naïve and are open to any passing suggestion. So far as lack of adaptation is a disease, one can call a whole nation diseased.”<sup>240</sup>

Then in 1956, Fromm wrote a book titled *The Sane Society*, whose first two chapters are, “Are We Sane?” and “Can a Society be Sick?”, answering these questions with a resounding ‘NO’ and ‘YES’, respectively.<sup>241</sup> What is regarded as the normal behaviour of a society can be considered to be pathological. This is not the conventional wisdom. We normally say that individuals can be deluded, not an entire society collectively holding on to a set of beliefs.<sup>242</sup> Furthermore, individuals are deemed to be mentally healthy if they are assimilated into the ‘real world’, that is the culture they live in. People who are detached from reality in this way are often called ‘schizophrenic’, from Greek, *skhistos* ‘split, divided’ and *phren* ‘mind’, cognate with *science*. But what do we call an entire culture that is detached from Reality, as Western civilization is today? Can we use any other epithet than *schizophrenic* for such a society?

A central theme running through *The Sane Society* is *alienation*, from Latin *alius* ‘other’. In French and Spanish, *aliéné* and *aliendo* are old words for the psychotic, and *alienist* in English is still used to denote a doctor who cares for the insane.<sup>243</sup> Fromm began his study of alienation in this way:

By alienation is meant a mode of experience in which the person experiences himself as an alien. He has become, one might say, estranged from himself. He does not experience himself as the center of his world, as the creator of his own acts—but his acts and their consequences have become his masters, whom he obeys, or whom he may even worship. The alienated person is out of touch with himself as he is out of touch with any other person.<sup>244</sup>

The major influences on Fromm’s early work were Karl Marx and Sigmund Freud. But when he came to write his greatest masterpiece *To Have or To Be?*, called ‘A new blueprint for mankind’ by *Publishers Weekly*, twenty years after *The Sane Society*, he turned to the mystics for inspiration, particularly Shakyamuni Buddha and Meister Eckhart, whose “writings are only two dialects of the same language.”<sup>245</sup> In particular, Fromm looked at the conditions that could save us from psychological, ecological, and economic catastrophe, viewing our sick society in a similar way to a medical practitioner looking at a patient, a process he likened to the Four Noble Truths of the Buddha, who we can consider the first mystical psychotherapist:

**Symptoms:** We are suffering and are aware that we are.

**Cause:** We recognize the origin of our ill-being.

**Cure:** We recognize that there is a way to overcome our ill-being.

**Remedy:** We accept that in order to overcome our ill-being we must follow certain norms for living and change our present practice of life.<sup>246</sup>

Fromm’s own remedy for our sick society was based on a distinction between two modes of living: “Having refers to *things* and things are fixed and *describable*. Being refers to *experience*, and human experience is in principle not describable.” Nevertheless, Fromm said that the essence of the being mode of existence is that of inner activity, the productive use of our human powers, which requires “independence, freedom, and the presence of critical reason”.<sup>247</sup> In contrast, by having, Erich Fromm meant the acquisition of property, the fundamental principle being:

Where and how my property was acquired or what I do with it is nobody’s business but my own; as long as I do not violate the law, my right is unrestricted and absolute. This kind of property may be called *private* property (from Latin *privare*, ‘to deprive of’), because the person or persons who own it are its sole masters, with full power to deprive others of its use or enjoyment.<sup>248</sup>

This property-owning principle has a long history, going back to *ius privatum* ‘private law’ in the Roman Republic. Contrasted with *ius publicum* ‘laws relating to the state’, *ius privatum* regulated the relationships between individuals.<sup>249</sup> So to ensure what the Greeks called *eunomia* ‘good order’, beginning in the middle of the fifth century BCE, Rome took the principle of justice for all and embodied this into a

fully-fledged legal system, originally published in the form of Twelve Tables. These were written down to prevent wealthy senators from seizing private property. It was from this that the legal principle that property is sacred developed.<sup>250</sup> In the Middle Ages, the principles of Roman law were studied in the universities, and even today, they underlie many legal systems.<sup>251</sup>

Rather surprisingly, Fromm did not seem to be much influenced by Carl Jung's analytical psychology, which emerged from psychoanalysis after Jung split with Freud in 1913. Jung's first job after completing his medical studies in 1900 was as an assistant physician at the Burghölzli Mental Hospital in Zürich, then the recognized centre of psychiatry in Europe, attracting people from all over the world. As Sonu Shamdasani tells us in his introduction to Jung's *The Red Book*:

The Burghölzli was a progressive university clinic, under the directorship of Eugen Bleuer [who coined the words *schizophrenia* and *ambivalence*]. At the end of the nineteenth century, numerous figures attempted to found a new scientific psychology. It was held that by turning psychology into a science through introducing scientific methods, all prior forms of human understanding would be revolutionized. The new psychology was heralded as promising nothing less than the completion of the scientific revolution.<sup>252</sup>

Like Fromm, this, in essence, is what Jung devoted his entire life to doing as a mystical psychologist and psychotherapist. But first, he needed to understand what it means to be a healthy human being, which he sought as much from introspection as from observing his clients. As he said in 1952 in the Foreword to Frieda Fordham's *An Introduction to Jung's Psychology*, just as physicians need to understand what a healthy body is to help their patients heal their wounds and ailments, psychiatrists need to understand what the healthy mind and psyche are in order to assist in the healing process.<sup>253</sup>

Like Fromm, Jung turned to the East for inspiration. As he said in his *Commentary* to Richard Wilhelm's translation of *The Secret of the Golden Flower*, "[Wilhelm] has given me the courage to write about a Chinese text which, though belonging in essence to the mysterious shadows of the eastern mind, yet at the same time, and this is important, shows striking parallels to the course of psychic development in my patients."<sup>254</sup>

This is the key to healing our sick society, as many millions of spiritual seekers are discovering for themselves today. But to accelerate this healing, awakening, and liberating process, we need to complete the scientific revolution that the pioneering psychiatrists set out to do in Zurich at the beginning of the last century. Most importantly, we need to recognize that none of us, as undivided beings, is ever separate from God, Nature, or any other being for an instant.

### ***The cycle of birth and death***

Now the most important consequence of rebuilding the world of learning on the seven pillars of wisdom is that this frees us of the fear of death in all its forms. For like all other structures in the Universe, we are all conceived and born to die, an inevitability that has troubled our species for at least 60,000 years, when the first ritualistic burials that have been found took place.

Of course, as we all live in exactly the same Universe governed by the same Cosmic laws, there is nothing new here. Many before me have described the birth-and-death process that we all go through in the most beautiful, poetic language. Here are a couple of examples, the first from the *Taittiriya Upanishad* and the second from 'Little Gidding', the final poem in T. S. Eliot's *Four Quartets*:<sup>255</sup>

*Bhrigu meditated and found that bliss is Brahman.  
From bliss are born all creatures,  
By bliss they grow,  
And to bliss they return when they depart.*

*We shall not cease from exploration  
And the end of all our exploring  
Will be to arrive where we started  
And know the place for the first time.*

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This is the essence of what Joseph Campbell called the ‘Cosmogonic Cycle’, explored more fully in Subsection ‘Recapitulating the Cosmogonic Cycle’ on page 190. If our journeys in life are to be in complete harmony with the fundamental law of the Universe, we need to intelligently and consciously recapitulate the way that all forms in the manifest world emerge from the Nonmanifest, Formless Absolute and return there at the end of their lifespans. As Shakyamuni Buddha said on his deathbed, “Behold, O monks, this is my last advice to you. All component things in the world are perishable. They are not lasting. Strive on with diligence.”

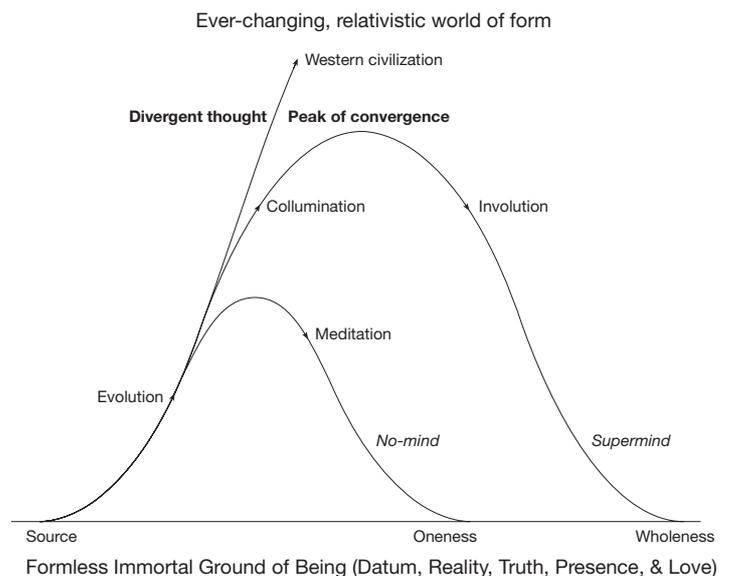


Similarly, the Judeo-Christian Bible begins with these words: “In the beginning God created the heaven and earth. And the earth was without form, and void; and the darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters.” And nine verses from the end is this verse: “I am Alpha and Omega, the beginning and the end, the first and the last.”<sup>256</sup> This sentence is usually attributed to Jesus, the Christ, depicted in this ubiquitous *chi-rho* symbol drawn by early Christians. But it was not only Jesus who had Christ Consciousness, which is no different from Buddha Consciousness. As none of us is ever separate from the Divine for an

instant, we are all both Alpha and Omega.

However, this is a very far remove from where both religion and science are today. There is a gigantic gap between the scientific and mystical worldviews, which many are seeking to heal or at least bridge today. This diagram illustrates two extreme ontogenies and a middle path between the two.

The path marked ‘Western civilization’ represents the predominant way of life in today’s secular society, accelerating away from Reality with every day that passes. And the small bell curve represents the traditional path of the mystics, taking a short cut to God, towards Oneness and union with the Divine, with No-mind.



The middle path that unifies these extremes is one that turns evolutionary divergence into the peak of convergence, moving from the Alpha Point of evolution to its Omega Point and back again, resting in Wholeness with what Aurobindo called ‘Supermind: “The Supermind is the Vast; it starts from unity, not division, it is primarily comprehensive, differentiation is only its secondary act.”<sup>257</sup>

Collumination is the coherent system of thought that enables the Coherent Light of Consciousness to reveal the holographic Universe we live in, observed with Self-reflective Intelligence, the eyesight of Consciousness, which is the Divine quality that distinguishes humans from the other animals and machines, like computers.

Another name for collumination, as a meditation technique, is Integral Relational Logic, the transcultural, transdisciplinary art and science of consciousness that we all use everyday to form concepts and organize our ideas in tables and mathematical graphs or semantic networks. As described in Section

'Integral Relational Logic' on page 126, IRL has evolved from the semantic modelling methods that information systems architects use to build the Internet.

The key point here is that these mapmaking systems are of such generality that they are applicable in all cultures, industries, and disciplines. If this were not the case, the Internet could neither exist nor expand at hyperexponential rates of acceleration. This enables us to use them to integrate all knowledge in all cultures and disciplines at all time—past, present, and future—into a coherent whole.

Transcultural, transdisciplinary, and transindustrial IRL thus provides the Cosmic Context, coordinating framework, and Gnostic Foundation for the Unified Relationships Theory (URT), so named because it shows that all beings in the relativistic world of form are related to all others, including themselves, in zero to many different ways, some of which can be classified and some of which defy categorization and must remain a mystery. Fields in the so-called natural sciences, including Rupert Sheldrake's morphogenetic fields, are a special case of relationships, and meaningful relationships make the world go round.

Furthermore, IRL and the URT also show that no beings are ever separate from the Supreme Being for an instant. So, just as we are never separate from God, God is never separate from any of us. We can thus say that God both exists, as the Totality of Existence, and does not exist, as a separate being. In the words of the pre-eminent Christian mystic Meister Eckhart, "The eye with which I see God is the same as that with which he sees me."<sup>258</sup>

## **Previous pursuers of the dream**

But before we look at how collumination and panosophy enable us to realize the impossible dream, let us look at a few predecessors who have searched for the pot of gold at the end of the rainbow, not realizing that the ultimate goal of human learning is ever-present within each of us.

### ***Roger and Francis Bacon***

Perhaps the first within Western civilization to try to bring a sense of wholeness to our learning was Roger Bacon (c. 1214–1294), an English Franciscan philosopher in the thirteenth century, who became known as *Doctor Mirabilis* 'Wonderful Teacher' throughout Europe. Bacon saw that sound knowledge could not be based just on observation, on hearsay, or on rational deductive logic, like Aristotle's, without the experience that arises from experimentation. He is thus viewed as a harbinger of modern science more than 300 years before it began to come into bloom.

Bacon also saw the need for organizing knowledge into a coherent whole, proposing a vast encyclopaedia of all the known sciences, requiring many collaborators. However, the Pope, whose blessing Bacon sought, misunderstood Bacon's proposals and he was eventually imprisoned by his fellow Franciscans for 'suspected novelties' in his teaching, a condemnation probably issued also because Bacon was clearly angry and frustrated with the theologians and scholars of his day, bitterly attacking them.<sup>259</sup>

Roger's namesake, Francis Bacon (1561–1626), was the next to pick up the baton. Bacon, the son of Sir Nicholas Bacon, the Lord Keeper of the Great Seal, and Anne Cooke, "exquisitely skilled in Latin and Greek", most unusual for a woman, went to Trinity College, Cambridge at the rather unripe age of twelve years and three months, spending two or three years there with his brother Anthony, three years older.<sup>260</sup> Despite his tender years, Bacon later told his biographer William Rawley that at Cambridge, "he first fell into the dislike of the philosophy of Aristotle; not for the worthlessness of the author, to whom he would ever ascribe all high attributes, but



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for the unfruitfulness of the way; being a philosophy only strong for disputations and contentions, but barren of the production of works for the benefit of the life of man.”<sup>261</sup>

Accordingly, Bacon dedicated his life to developing a new, all-encompassing philosophy suitable for his times. In 1592, he wrote to William Cecil, the first Baron Burghley, married to his mother’s sister, “I have taken all knowledge as my province,” following Cicero, who said in *Orations*, “The art of speaking well, that is to say, of speaking with knowledge, skill, and elegance, has no delimited territory, within whose borders it is enclosed and confined.” In this manifesto of intent, Bacon said that he was most concerned to “purge [knowledge] of two sorts of rovers, whereof the one with frivolous disputations, confutations, and verbosities, the other with blind experiments and auricular traditions, [for they] hath committed so many spoils,” that is, so much damage.<sup>262</sup>

However, he was not destined to devote his life entirely to the world of learning. When Bacon was eighteen, his father died, not leaving him enough money to pursue his interests. So he became a lawyer, trained at Gray’s Inn, and a politician, as a member of parliament. He did not always having an easy time, despite his uncle being the chief advisor to Queen Elizabeth I. Nevertheless, under James I, Bacon did eventually rise to Solicitor General (in 1607), Attorney General (in 1612), and Lord Chancellor (in 1618), the highest judicial position in the government, as the first Baron Verulam, promoted to Viscount St Alban in 1621. However, his worldly success was to be short lived. In that same year, he was impeached for taking bribes and disbarred from holding public office.<sup>263</sup>

It was while holding the position of Lord Chancellor that Bacon began to publish his magnum opus titled *Instauratio Magna*, the *Great Instauration* or *Great Renewal*, from Latin *instaurāre* ‘to restore, renew; set up, establish’. Bacon envisaged that the *Great Renewal* would consist of six parts:

First, *The Divisions of the Sciences*.

Second, *The New Organon*, or *Directions for the Interpretation of Nature*.

Third, *Phenomena of the Universe*, or *A Natural and Experimental History towards the foundation of philosophy*.

Fourth, *The Ladder of the Intellect*.

Fifth, *Forerunners*, or *Anticipation of Second Philosophy*.

Sixth, *Second Philosophy*, or *Practical Science*.<sup>264</sup>

We see here a major attempt to develop the Theory of Everything as a coherent body of knowledge, in both its cognitive and practical aspects. Of course, Bacon never completed this ambitious project, for it was not the right time in evolutionary history to do so. Nevertheless, the overall structure of the *Great Renewal* has some similarities with the Unified Relationships Theory and Integral Relational Logic being presented in this treatise. We are seeking a final great renewal through the Alliance for Mystical Pragmatics, healing the damage to the world of learning that has arisen from a misconception of Bacon’s all-encompassing aims.

In 1620, only the second part was reasonably complete, as a collection of aphorisms. The title *Novum Organum* (*The New Organon*) is a reference to Aristotle’s *Organon* or *Instrument for Rational Thinking*, in which he defined the syllogism, laying down the foundations of deductive logic. So, even though Bacon was a member of the British establishment, on the fringes of the aristocracy, he was well aware that he was propounding a system of reasoning to supersede Aristotle’s, suitable for the pursuit of knowledge in the age of science, quite an undertaking, changing the direction of Western thought,<sup>265</sup> nearly two millennia after its foundations were established.

*Unifying Polarizing Opposites in Nondual Wholeness*

In the Preface to the *Great Instauration*, Bacon said, “the wisdom we have drawn in particular from the Greeks seems to be a kind of childish stage of science ... too weak and immature to produce anything.”<sup>266</sup> Accordingly, he saw the need to go beyond the Pillars of Hercules, where Plato considered Atlantis to lie,<sup>267</sup> depicted on the title page of *Instauration Magna*, symbolically representing the limits of learning.<sup>268</sup>

In his Plan for the *Great Renewal*, Bacon sought to place the foundations deeper and further back than ever done before, saying, “What the sciences need is a form of induction which takes experience apart and analyses it, and forms necessary conclusions on the basis of appropriate exclusions and rejections.”<sup>269</sup> To this end, Bacon regarded the physical senses as the primary way of acquiring knowledge and natural philosophy as the great mother of the sciences, for the arts and sciences cannot grow when they are cut off from their roots.<sup>270</sup>

When *Instauration Magna* was published, Bacon said that the first part, on the divisions of the sciences, was lacking, referring readers to the second book of *The Proficiency and Advancement of Learning, Divine and Human* published in 1605 in English, later translated into Latin.<sup>271</sup> In Book I of the *Advancement of Learning*, Bacon famously said, “the last or furthest end of knowledge ... [is] for the glory of the Creator and the relief of man’s estate,”<sup>272</sup> reflecting the arrogant belief that Nature is separate from humanity and that human beings hold dominion over our natural environment. He repeated this sentiment in the opening of the Preface to the *Great Renewal*, saying, “A quite different way must be opened up for the human intellect than men have known in the past, and new aids devised, so that the mind may exercise its right over nature.”<sup>273</sup>

Then in Book II of the *Advancement of Learning*, he developed a classification of all varieties of learning, distinguishing science or philosophy with history and poesy, History relating to Memory, Poesy to Imagination, and Philosophy to Reason.<sup>274</sup> This survey of the world of learning was a revision of the core curriculum that most universities in Europe had offered since the first university was founded in Bologna in 1088, based on the seven liberal arts: grammar, logic, and rhetoric (the *Trivium*), and geometry, arithmetic, astronomy, and music (the *Quadrivium*). Students then proceeded to specialize in one of the professional faculties of medicine, law, and theology, an approach to didactics that prevailed until the end of the eighteenth century.<sup>275</sup>

Then, in 1623, Bacon published a major extension of the *Advancement of Learning*, intended as Part I of *Instauration Magna*, titled *De Dignitate et Augmentis Scienentiarum*, consisting of nine parts, addressing not only the natural sciences, but also a classification of disciplines devoted to the study of the mind and soul. Bacon thus demonstrated the encyclopaedic breadth of his new philosophy.<sup>276</sup>

Such a study of all the disciplines of learning, how they relate to each other, determining which is the most fundamental, must clearly be a key characteristic of the genuine Theory of Everything, which is transdisciplinary, embracing all specialist disciplines of learning. As such, panosophy cannot possibly lie just in the domain of physics or any other specialist subject, not even mystical psychology.

For instance, in the decimal library classification system that Melvil Dewey introduced in 1876, books on the scientific and philosophical perspectives of space-time are catalogued ‘530.11’ and ‘115’ (‘115.4’ before the seventeenth edition), respectively.<sup>277</sup> On the other hand, we could classify books on panosophy in category ‘000’ Generalities, which Dewey originally left unallocated, but which was changed to ‘computer science, knowledge, and general works’ between the seventeenth and twenty-second editions in 1979 and 2003, respectively. This is a clear sign that computer science, based on mathematical logic, contains the abstract, general concepts that provide the seeds for a megasynthesis of all knowledge.

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Regarding natural philosophy, as we have seen, Bacon argued vigorously that Aristotle's deductive logic was entirely unsuitable for the pursuit of knowledge in the 'modern' age,<sup>278</sup> introducing the notion of induction as an alternative, "seemeth familiar with Plato".<sup>279</sup> This principle of induction then became the cornerstone of scientific method, defining the way that generalizations could be made from particular observations, the opposite process from deduction, as the diagram on page 87 illustrates. However, as we see there, the eighteenth-century Scottish philosopher David Hume pointed out there is serious weakness in the inductive method,<sup>280</sup> which Karl Popper, in particular, attempted to resolve in the twentieth. To no avail, for no number of observations can lead to certain knowledge about the ever-changing relativistic world of form.

Bacon's analytical approach to learning well demonstrates a central problem of science, revealed in the root of *science*, which is Latin *scientia* 'knowledge', past participle of *scire* 'to know', from Proto-Indo-European (PIE) base *\*skei-* 'to cut, split', also root of *schizoid*, *scire* meaning here 'to separate one thing from another, to discern'. The emphasis in science is thus more on analysis than synthesis, a divisive approach to reason that goes back to Aristotle's *Prior Analytics*, in which he defined the syllogism, the beginnings of deductive logic. However, when discernment—from Latin *discernere* 'to separate'—becomes the primary way of acquiring knowledge, we create unreal divisions between us. It is then up to our artistic abilities to put back together that which has been separated, for *art* derives from Latin *ars* 'skill, way, method', from PIE base *\*ar-* 'to fit together', also root of *coordinate*, *reason*, *harmony*, and *order*.

By unifying art and science in this way, we are able to follow E. F. Schumacher's maxim for mapmaking, given in *A Guide for the Perplexed*: 'Accept everything; reject nothing.'<sup>281</sup> As Bacon indicated, this is not the normal way of conducting scientific research. Thankfully, there are some tentative signs today that people are beginning to take a much broader, holistic approach to studies of what it truly



means to be a human being, often inspired by the astronauts who travelled to the Moon.

They were able to see the Earth as a unity, where all the divisions that we create between the nations, religions, races, businesses, and so on no longer exist. One of these, Edgar Mitchell, was so moved by the 'sense of universal connectedness' that arose from his journey in 1971 that when he returned, he set up the Institute of Noetic Sciences (IONS) to initiate research into consciousness and human potential.<sup>282</sup>

### **Johannes Kepler**

Bacon's contemporary, Johannes Kepler (1571–1630), also spent much of his adult life assimilating all knowledge as he understood it at the time, seeking the unifying harmony that underlies geometry, music, poetry, architecture, and astronomy, integrating them all into a glorious whole, published in 1619 as *The Harmony of the World*.

Kepler was one of those very rare individuals who manage to retain their innate intelligence and innocence throughout life, not having these natural human qualities hammered out of them by the cultures in which they live. In 1952, Carola Baumgardt published a revealing collection of the open-hearted, soul-searching letters that Kepler wrote to his associates, comparing Kepler to Mozart. As she said, "Both ... were filled with an unshakeable serenity in the face of overwhelming odds in life and in the development of their gifts. ... They were



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both endowed with a gay sense of inner freedom, which allowed them to colour even highly vexatious situations around them with a golden tint.”<sup>283</sup> Baumgardt then went on to say:

Despite their rather disparate fields of activity, in their work, too, Kepler and Mozart reveal the same seldom united gifts: utmost aesthetic grace and charm with intellectual accuracy and precision. There is a radiance of rare beauty, not only in Mozart’s world of tones, but also in many reflections and statements of Kepler; and there is the exhilarating clarity, not only in the exact thinking of Kepler, but also in the musical structure of the great Mozartian compositions.<sup>284</sup>

It was while writing *The Harmony of the World* that Kepler stumbled across his third law of planetary motion almost by accident. The first two laws, showing that all the planets, including the Earth, rotate around the Sun, situated at a focal point of ellipses, were published in *New Astronomy* in 1609, the book that laid down the foundations of modern astronomy.

How Kepler came to write *New Astronomy* and *The Harmony of the World* is relevant to our own panosophical endeavours to realize our True Nature as Wholeness. At the age of twelve, Kepler recalls an incident that tells us much about his questioning approach to life and learning. “He heard a sermon in Leonberg given by a young deacon who spoke vehemently and at length against the Calvinists.” Kepler was much disturbed by this sermon, determined to make it a practice to investigate the truth for himself rather than take any authority’s word for what the scriptures, for instance, might mean. Besides, even though he was a practising Lutheran, he felt that the Calvinists had every right to practice their Christian faith in their own way. As Kepler later recalled, “There was nothing I could state that I could not also contradict,” a classic expression of intelligent, all-inclusive, both-and thinking, very rare then, as now.<sup>285</sup>

At the time, Kepler was attending the Latin school in his home-town, required to speak Latin rather than German even to his friends in the school grounds. He lived in the Duchy of Württemberg, which took an enlightened approach to social matters, giving those who merited it a free education to university level. Not only did the Duke need an efficient administrative service, he also required erudite clergymen who could hold their own in the battles between the various Christian denominations then taking place. Accordingly, the authorities, not aware of Kepler’s ecumenical attitude, gave him scholarships to be educated as a theologian at Tübingen University from 1589 to 1594.

However, it was not Kepler’s destiny to engage in religious wars, for which he had no taste. Before he could complete his studies, a request for a mathematics teacher was made to Tübingen University from the Protestant School in Graz, 677 kms away in Styria, in southern Austria. His biographer Max Caspar thinks that the Tübingen senate recommended Kepler for the post, not so much because of a suspicion about his heterodox religious views, as is sometimes suggested, but simply because “he was by far the most suitable candidate for the teaching position there, the only one worthy of consideration and likely to bring honour to Tübingen University.”<sup>794</sup>

It was at Graz that Kepler threw himself wholeheartedly into the study of astronomy, asking simple, searching questions, like a child, which academics at his time did not ask because they could not answer them within the cognitive structures that governed their thinking. Michael Mästlin, his astronomy teacher at Tübingen, who was required to teach the Ptolemaic geocentric planetary system, had privately introduced Kepler to the Copernican system. So that was one hurdle he did not need to jump.

However, there were others. The main reason for astronomers’ lack of curiosity is that Aristotle had defined physics as the subject that studied what he identified as the four causes, while astronomy was the practical application of mathematics, not concerned about such theoretical matters.<sup>286</sup> But mathematical calculations could not explain why the outer planets not only have a longer way to travel around the Sun

but also do so more slowly the greater the distance from the Sun. So Kepler set about healing the split between physics and astronomy<sup>287</sup> that Aristotle had opened up in *Physics*.

There are some features of *New Astronomy* that are directly relevant to the revolution in science taking place today. Part I contains a detailed mathematical study of the three planetary models being debated at the time. In between the geocentric view of Aristotle and Ptolemy and the heliocentric view of Aristarchus and Copernicus, Tycho Brahe developed a compromise in which the inner planets revolve around the Sun, while the Sun, Moon, and outer planets revolve around the Earth.<sup>288</sup> Kepler undertook this study to demonstrate that mathematics, on its own, could not solve the problem he had set himself. From a mathematical perspective, he showed that all three worldviews were equally valid, requiring a consideration of causal factors to make a choice between them.

Similarly, many today have not found a way of resolving the three fundamental cosmologies regarding the relationship of consciousness to the physical universe. For instance, in *Global Mind Change*, Willis Harman hedged his bets, defining three metaphysical perspectives: M-1, in which matter gives rise to mind (materialistic monism), M-2, in which matter and mind coexist as two fundamentally different kinds of stuff, à la Descartes (dualism), and M-3, in which the ultimate stuff of the Universe is recognized as consciousness, mind thus giving rise to matter (transcendental monism).<sup>289</sup>

Another feature of *New Astronomy* is relevant to the presentation of the Theory of Everything in this treatise. Normally, in scientific dissertations, the results of research projects are presented without describing the twists and turns that researchers often need to make in their studies. But if this approach were taken in this exposition, there would be nothing to say; the result of the thought processes that have led to the megasynthesis of all knowledge is Ineffable, Nondual Consciousness.

Kepler, himself, compared his presentation process to the journeys of the great explorers. As he said, “in telling of Christopher Columbus, Magellan, and of the Portuguese, we do not simply ignore the errors by which the first opened up America, the second, the China Sea, and the last, the coast of America; rather we would not wish them omitted, which would indeed be to deprive ourselves of an enormous pleasure in reading.”<sup>290</sup> So from time to time in this treatise, there are a few autobiographical notes on the history of its development, as we have already seen.

In developing the laws of planetary motion, Kepler not only unified mathematical astronomy and causal physics. He also healed the split between science and religion by observing, “There is a single moving soul in the centre of all the spheres, that is, in the Sun, and it impels each body more strongly in proportion to how near it is.” He wrote these words in *Mysterium Cosmographicum*, ‘*The Cosmic Mystery*’ or ‘*The Secret of the Universe*’, published in 1596, his first, rather naïve attempt to solve the riddle. This is clear evidence that Kepler was in touch with Reality, with his True Nature, intuitively seeing the Sun’s soul as a projection of the Divine, Cosmic Soul, present within all beings as Love, as the Ultimate Source of Life. By considering that God is the power that lies in the Sun, Kepler thus came close to discovering the universal law of gravitation.<sup>291</sup>

We can see other evidence of Kepler’s ability to stand outside himself from the way he determined the orbit of the Earth around the Sun. For if the Earth is no different from the other planets, it should behave in exactly the same way as all the others, an issue that is not relevant in a geocentric planetary worldview. To calculate the orbit of the Earth around the Sun, Kepler imagined that he was standing on Mars, observing the Earth, a thought experiment that Albert Einstein said was ‘true genius’.<sup>292</sup>

However, Galileo Galilei (1564–1642) did not read *New Astronomy* or reply to Kepler’s letters, arrogantly thinking that he was the foremost astronomer in the world. He had read the introduction to

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*Mysterium Cosmographicum* and could not imagine that its author could succeed where he had failed. So when the deeply flawed *Dialogue on the Two Chief Systems of the World* was published in 1632, he got into deep trouble with the Catholic authorities for claiming that he had ‘conclusive physical proof’ for the heliocentric worldview. But every cloud has a silver lining, as they say. For being placed under luxurious house arrest, Galileo was able to write *Dialogues Concerning Two New Sciences*, these being terrestrial dynamics and a science of materials,<sup>293</sup> for which he is rightly famous. Even today, Kepler’s *New Astronomy* is out of print in English translation, while Galileo’s inferior treatise is widely available in bookshops and libraries.

In the event, it was left to Isaac Newton (1642–1727) to read Kepler’s books, showing how Kepler’s celestial physics could be integrated with Galileo’s terrestrial dynamics in the *Mathematical Principles of Natural Philosophy* (*Principia*) in 1687. As for Kepler, in 1621, Ferdinand, the new Holy Roman Emperor, confirmed Kepler in his position as Imperial Mathematician, a position he had held since 1601, when he took over from Tycho Brahe, whose measurements of the orbit of Mars gave Kepler the accuracy he needed to find the underlying pattern in the apparently incomprehensible mass of figures.

However, this great hero of the first scientific revolution got caught up in the Thirty Years’ War between the Catholics and Protestants, which he wanted nothing to do with. For while nominally a Lutheran, he did not regard Catholics and Calvinists as enemies, as many around him did. So not being welcome even in his own land, he became a refugee for the last four years of his life, an outcast from society, having nowhere where he could dedicate himself to his peaceful studies, undisturbed and free of care. He died alone, as a pauper, even being separated from his wife and family.

### **René Descartes**

A generation later, René Descartes (1596–1650) *did* fight in the Thirty Years’ War for a couple of years, discharging himself in 1619. In that same year, returning home to France from the war, he had a dream in the Bavarian village of Ulm, where Einstein was to be born 260 years later, of “the unification and the illumination of the whole of science, even the whole of knowledge, by one and the same method: the method of *reason*”.<sup>294</sup> That year, Descartes wrote to Isaac Beeckman, a Dutch mathematician who had encouraged him to concentrate his attention of the problems of mathematical physics, “What I want to finish is ... an absolutely new science enabling one to resolve all questions proposed on any order of continuous or discontinuous quantities.”



Like the experiment in learning described in this treatise, Descartes set out to create an entire cognitive structure from the very beginning, which Bertrand Russell described thus:

While it is true that [Descartes] retains much of scholasticism, he does not accept foundations laid down by predecessors, but endeavours to construct a complete philosophic edifice *de novo*. This had not happened since Aristotle, and is a sign of the new self-confidence that resulted from the progress of science.<sup>295</sup>

Descartes began his inquiries with four rules, the first of which was the principle of systematic scepticism in order to find something that he could trust with complete certainty. This first rule was “never to accept anything as true that I did not know to be evidently so: that is to say, carefully to avoid precipitancy and prejudice, and to include in my judgements nothing more than what presented itself so clearly and so distinctly to my mind that I might have no occasion to place it in doubt.”<sup>296</sup> Following these rules, he was then led to write:

But immediately afterwards I became aware that, while I decided thus to think that everything is false, it followed necessarily that I who thought must be something; and observing that this truth: *I think, therefore I am*, was so certain

### *The Theory of Everything*

and so evident that all the most extravagant suppositions of the sceptics were not capable of shaking it, I judged that I could accept it without scruple as the first principle of the philosophy I was seeking.<sup>297</sup>

However, in order to obtain permission to publish his revolutionary treatise, Descartes inserted a third discourse emphasizing his political and religious orthodoxy. He began by writing that one cannot begin rebuilding a house in which one lives until one has also provided oneself with some other accommodation in which to be lodged conveniently while the work is going on. Accordingly, he said that he formed a provisional moral code, beginning:

The first was to obey the laws and customs of my country, firmly preserving the religion into which God was good enough to have me instructed from childhood, and governing myself in all matters according to the most moderate opinions and those furthest from excess, commonly accepted in practice by the most prudent people with whom I should have to live.<sup>298</sup>

Of course, such a cultural environment no longer prevails. The house in which most prudent people live is collapsing around our ears, but, as yet there is no accommodation in which we can all be safely housed, a really tricky situation. Nevertheless, there are still some things we can learn from Descartes in our present circumstances.

Actually, Descartes wrote in French rather than Latin, the language of *Academe*, because he was seeking to reach “the cultured public of society, the ladies of the ‘salons’ rather than the pedants of the University”.<sup>299</sup> It was only later that the *Discourse* was translated into Latin, *Je pense, ergo je suis* becoming *Cogito ergo sum*, giving the name *Cogito* to Descartes’s philosophy, perceived as the foundation of all knowledge.

As illustrations of his method, Descartes also published three essays on *Optics*, *Geometry*, and *Meteorology*, which were not intended to be separated from the *Discourse*, which he regarded as a preface. Yet, this is very much what has happened, as Paul J. Olscamp tells us, having put these disparate parts back together again.<sup>300</sup> Today, Descartes’ *Geometry* provides an algebraic system of coordinates for Euclidean space. Similarly, IRL provides the system of coordinates or framework for the Theory of Everything, in order to bring universal order to all our thoughts. However, the Cartesian scholar Bernard Williams has said that while such an idea was still a reasonable project in the first half of the seventeenth century, it would be regarded as ‘megalomaniac insanity’ in today’s postmodern world.<sup>301</sup>

There is one more critical aspect of Descartes’ philosophy that we need to address before moving on. Many scientists today believe that human beings are machines and nothing but machines and so one day soon computers with artificial intelligence will replace human beings at the leading edge of evolution on Earth. We can trace this erroneous belief to *Meditations on the First Philosophy in which the Existence of God and the Real Distinction between the Soul and the Body of Man Are Demonstrated*, published in 1641 in Latin.

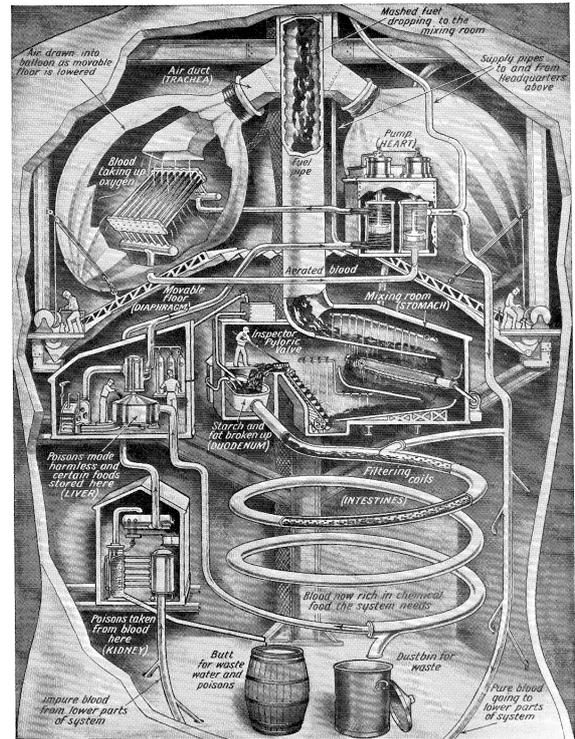
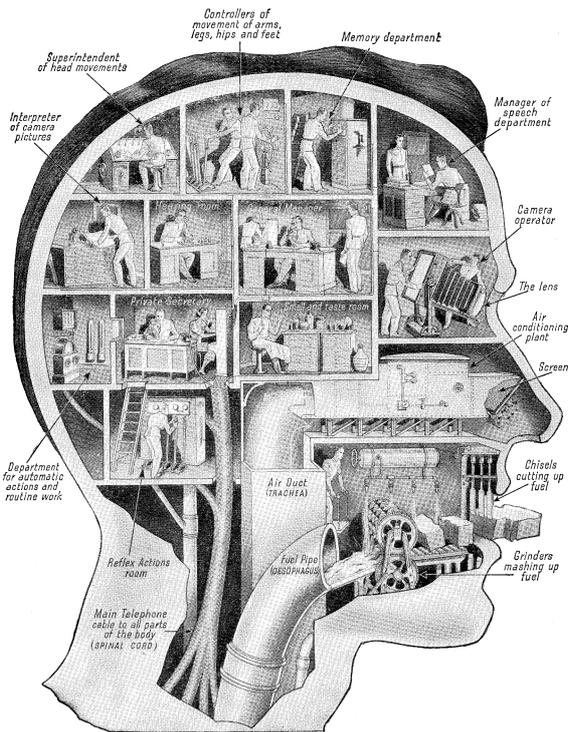
Comparing the human body, as a machine, consisting of bones, nerves, muscles, veins, blood, and skin, to a clock, made up of wheels and counterweights, Descartes thought that the body would move mechanically, like such a clock, even though it had no mind in it.<sup>302</sup> He based this mechanistic worldview on the separation of mind and body. As he said, “I am only a thinking and unextended being ... entirely and truly distinct from my body, and may exist without it.”<sup>303</sup>

This belief that humans are machines and nothing but machines living in a mechanical universe still holds sway in scientific circles. As a consequence, one of the fundamental principles of scientific knowledge is that predictions can be made on the assumption that the future is like the past. Scientists cannot therefore explain what causes spontaneous creativity, for such events lie outside science.

*The Miracle of Life*, published in 1938 and edited by Harold Wheeler, used different metaphors for mechanical humans, which I learned about when I was a teenager in the 1950s from one of my father’s

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books. Before the Second World War, scientists likened the various parts of the head to a telephone exchange and the body as a whole to a chemical factory, illustrated here.<sup>304</sup>



But today, we can use the stored-program computer as a metaphor for a machine, with the hardware and software corresponding to our brains and minds, respectively, which Descartes thought could exist separately. This divisive view gave rise to the split between *res cogitans* ‘thinking substance, mind, or soul’<sup>305</sup> and *res extensa* ‘extended substance’, by which Descartes meant an object with breadth, width, and height occupying space.<sup>306</sup> As Bryan Magee tells us “‘Cartesian dualism’, the bifurcation of nature between mind and matter, observer and observed, subject and object ... has become built into the whole of Western man’s way of looking at things, including the whole of science.”<sup>307</sup>

But we should not blame Descartes, as the father of modern philosophy, for pushing Western thought even further into the evolutionary dead-end it has reached today. As we see on page 151, the Universe is governed by the Principle of Unity, constantly bifurcating and unifying the consequent opposites, as they appear in the manifest world of form. So viewed as a whole, Descartes and Kepler exemplified these contrasting aspects of the Cosmos, which we can see when we study pansophy.

### **Jan Ámos Komenský (Comenius)**

Before writing this treatise, I did not associate the name of Jan Ámos Komenský (1592–1670) with the great revolution in ideas that took place during the sixteenth and seventeenth centuries, because I did not discover his life and work until July 2014, when investigating the first uses of *pansophy* in English, mentioned in the *Oxford English Dictionary*. Yet, Johannes Amos Comenius—as he called himself from his early twenties, when he became a teacher and priest—was as broad a revolutionary as Kepler and Newton, taking the search for Wholeness far further than Descartes.



Comenius met Descartes, who was four years younger, in the Netherlands in October 1642, spending four hours together, with Descartes outlining the ‘mysteries of his philosophy’, published as *Meditations* the previous year, and Comenius “maintaining all human

knowledge, such as derives from the senses alone and reasonings thereon, to be imperfect and defective”.<sup>308</sup> They parted on friendly terms, but with little mutual understanding. Descartes summarized their differences in a parting comment: “I will not go beyond the realm of philosophy; accordingly, I shall deal with only a part of that which you will treat in entirety.”<sup>309</sup>

Today, Comenius is best known as the ‘father of modern education’, which UNESCO acknowledged in 1992—the four-hundredth anniversary of Comenius’ birth—with the establishment of a Comenius Medal within the auspices of the International Bureau of Education. This is awarded from time to time to a maximum of ten laureates, “to reward outstanding achievements carried out in the fields of educational research and innovation and exceptional examples of personal devotion to education and the ideals of UNESCO demonstrated throughout an important part of one’s life”.<sup>310</sup>

However, as Descartes saw, Comenius’ vision was much deeper and broader than just reforming the education system. This is summarized by the subtitle of *The Great Didactic*, written in the mid 1630s, but not published until 1657 in Part I of his *Collected Works, Opera didactica omnia: Setting Forth the Whole Art of Teaching All Things to all Men*, by which he meant women and well as men, girls as well as boys, at all levels of ability. Such a pansophic education system lay at the heart of Comenius’ vision of a Christian Pansophia, to appear on Earth at the end of time, very similar to the vision of the Age of Light outlined in this treatise.

To understand how this Utopian vision appeared in consciousness, we need to look briefly at Comenius’ background. He was a Czech, born in Moravia to parents who were devout members of *Unitas Fratrum* ‘Unity of Brethren’, founded by Petr Chelčický (c. 1390–c. 1460) in 1457. Chelčický was horrified by the Hussite wars, which arose after Jan Hus (c. 1370–1415) was burned at the stake as a heretic for seeking to reform the Catholic Church, inspired by John Wycliffe (c. 1330–1384), a century before the Protestant Reformation of Martin Luther (1483–1546), Huldrych Zwingli (1484–1531), and John Calvin (1509–1564).<sup>311</sup>

Chelčický was “an early prophet of absolute pacifism and of the separation of the church from the state, [regarding] all use of force as un-Christian and the state as a necessary evil”.<sup>312</sup> In 1893, Leo Tolstoy (1828–1910) referenced Chelčický’s “marvellous book” *Šit Vírý* (*The Net of Faith*) from 1440 in *The Kingdom of God Is Within You* as an example of non-resistance,<sup>313</sup> Tolstoy’s book being an inspiration for Mohandas Gandhi’s policy of passive resistance to oppression.<sup>314</sup>

Needless to say, in the decades leading up to the Thirty Years’ War (1618–1648), a group of Christians seeking to live in love and peace with each other had a rather tough time. In the sixteenth century, Bohemia and Moravia were ruled as one country, as now, permitting just two legalized religious communions: the Roman Catholic and the Ultraquist. Eventually, in 1627, as the Czechs came to be ruled by the Hapsburgs, the Roman Catholic Church was proclaimed to be the only religion of the state and Comenius and his fellow Unity Brethren were driven into exile the following year, in Leszno in Poland, never to return to their native land.<sup>315</sup>

Comenius also had a series of personal tragedies in his life, which his mystical awareness gave him the strength to deal with. First, his parents and two of his four sisters died when he was ten years old, probably from the plague. Comenius was then sent to live with an aunt, who sent him to a Latin school, being painfully subjected “to the crudities and consequent cruelties inherent in the current system of education system”.<sup>316</sup> He ruefully described his experiences in *The Labyrinth of the World and The Paradise of the Heart*, an autobiographical satirical allegory, published in Czech in 1623, as applicable today as it was then, given the horrors of the current education system.

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In 1618, Comenius married Magdeline Vizovská, a wealthy member of the Brethren, two years after being ordained as a priest, but she died four years later along with their two children probably from a pestilential plague. In 1624, Comenius married Dorothy Cyrill, the daughter of a fellow priest,<sup>317</sup> but she too died in the mid 1640s, when some of their children were still young, marrying a third wife, Jane Gajus, to care for them.<sup>318</sup> Then in 1656, when Comenius was a senior bishop in the Unity of Brethren—the last, as it turned out—a contingent of Catholic Poles looted and burned the city of Leszno, destroying his unpublished pansophic writings, stored there.<sup>319</sup>

These are just some of the adversities that Comenius had to overcome in his Pansophic quest to look at every isolated and particular problem within a universal setting. As John Edward Sadler writes in *J. A. Comenius and the Concept of Universal Education*, “Such a project smacks of the grandiose, if not the ridiculous, and it is not surprising that Comenius has been attacked for chasing shadows of his own imagination,” not really knowing what he meant by the word *Pansophia*.<sup>320</sup>

Nevertheless, in the spring of 1614, the twenty-two-year-old Moravian, having richly profited by three years of study in Germany, set out on the colossal task of writing, single-handed, a sixteen-volume encyclopaedia, comprising all things from the creation to his day, titled *A Theatre of All Things*, written in Czech, yet another attempt to develop the Theory of Everything. As Matthew Spinka, his biographer, says, “The young man undoubtedly had ideas and courage—or maybe the foolhardiness of youth!”<sup>321</sup>

In the event, Comenius did not get very far with this overambitious undertaking. Rather, he began to make a name for himself with the publication of *Janua linguarum reserata* (*The Gate of Languages Unlocked*) in 1631, translated from Latin into a dozen or more languages—Arabic and Persian, as well as European. This work was an instant and phenomenal success because Comenius proposed a radically new way of teaching Latin, responding to his own painful experiences as both a pupil and teacher. Most significantly, pupils were required to learn words by rote from the Latin classics with no reference to the things they signified.<sup>322</sup>

Comenius was particularly concerned with the meaning of meaning, making a clear distinction between words and the ideas of things that they represent, language often acting as an iron curtain inhibiting meaningful communications.<sup>323</sup> As he said, “men commonly do not speak, but babble: that is, they transmit not as from the mind to mind things or the sense of things, but exchange between themselves words not understood, or little or ill understood.”<sup>324</sup> Comenius thus recognized the existence of the triangle of meaning, some two hundred years before Charles Sanders Peirce came up with a similar construct, as we see on page 61. So in this seminal work, which I have not yet found in English translation, Comenius proposed a quite new approach to teaching Latin, solidly grounded on pupils’ everyday experience. In *Comenius: A Critical Reassessment of His Life and Work*, Daniel Murphy calls this sensible approach to teaching ‘learner-centred’,<sup>325</sup> not unlike ‘client-centred therapy’, which Carl Rogers introduced in the 1940s and 50s.<sup>326</sup>

Encouraged by the success of *Janua linguarum reserata*, Comenius then set out to write a draft of his Pansophic vision of Universal Wisdom. However, Comenius didn’t coin the word *Pansophia*. This was introduced in a now forgotten book by Peter Laurenburg, published in Rostock in 1633, titled *Pansophia, sive Pædia Philosophica (Universal Wisdom, or A Philosophy of Education)*,<sup>327</sup> from Greek *paideia* ‘education’, from *pais* ‘child’, from PIE base *\*pau-* ‘few, little’, also root of *Paul*. However, Comenius did not feel that this book lived up to its title and set out to write a work that did. In his words, translated into English in 1642, “nothing was therein contained of the object and fountain of true wisdom, which is Christ, nothing of the life to come, and the way thereto, &c. wherein to be wise is wisdom indeed.”<sup>328</sup>

In Comenius' pansophy, he was not just concerned with *how* pupils are taught, but also with *what* they are taught. Most significantly, inspired by Francis Bacon's scientific principle of induction and his *Novum Organum*, Comenius spent a lifetime as a generalist, seeking to integrate all specialist knowledge into a coherent whole. For as he wrote:

Metaphysicians sing to themselves alone, natural philosophers chant their own praises, astronomers dance by themselves, ethical thinkers make their laws for themselves, politicians lay their own foundations, mathematicians rejoice over their own triumphs, and theologians rule for their own benefit. Yea, men introduce even into the same field of knowledge and science contradictory principles whereby they build and defend whatever pleases them, without much troubling themselves about the conclusion as derived from the premises of other men.<sup>329</sup>

Comenius' initial attempt to develop pansophy from 1634 to 1636, as the ecumenical union of all sciences and religions, thus prefigured David Bohm's endeavours to overcome the problem of fragmentation, outlined on page 53. Indeed, Comenius believed that men could be trained to see the underlying harmony of the universe and thus to overcome its apparent disharmony, writing, "pansophy propoundeth to itself so to expand and lay open to the eyes of all the wholeness of things that everything might be pleasurable in itself and necessary for the expanding of the appetite."<sup>330</sup>

However, rather than publishing this first treatise on pansophy, Comenius sent a draft to Samuel Hartlib (c. 1600–1662) in England, a German merchant and intelligencer with a wide range of contacts throughout Europe. But rather than opening a correspondence, as Comenius wished, Hartlib published this draft without Comenius' permission in 1637 under the title *Connatum Comenianorum praeludia* (*Prelude to an Undertaking by Comenius*), republished in 1639 as *Pansophiæ Prodomus* (*Introduction to Pansophy*), Latin *prodōmus* meaning 'forerunner'. However, Hartlib did get permission to publish from an Oxford professor of metaphysics, acting as censor, much to Comenius' consternation, for he was "always a careful and meticulous worker as far as the preparation of his manuscripts for publication was concerned".<sup>331</sup> Furthermore, like the Bacons, Comenius felt that a full working out of the theory of pansophy required a collaborative team effort, and was constantly seeking others to take up the work so that it would attain perfection.<sup>332</sup>

Nevertheless, *Prodomus*, as it is known today, was generally received with hearty and enthusiastic acclaim. However, inevitably, there were some critics, not the least René Descartes, who accused Comenius of confounding philosophy with theology. Similarly, even a noble member of his Polish community opposed Comenius' attempt to educate the young on the grounds that the scheme confounded "matters divine and human, theology and philosophy, Christianity with paganism, and thus darkness and light".<sup>333</sup> Little has changed in nearly four hundred years, with the split between mystical psychology, mathematical logic, and materialistic science as wide as it has ever been.

For Comenius, himself, he felt moved to refute these critics in a further treatise in 1639, titled *Connatum pansophicorum dilucidatio* (*Clarification of the Pansophic Project or Explanation of Pansophy*), known as *Dilucidatio* today. In 1642, Hartlib published an English translation of both *Prodomus* and *Dilucidatio* under the title *A Reformation of Schooles, Designed in Two Excellent Treatises: The First whereof Summarily Sheweth, the Great Necessity of a Generall Reformation of Common Learning. What Grounds of Hope there Are for Such a Reformation. How It May Be Brought To Passe*. *Prodomus* was addressed "To all those that love Wisdom, Light, and Truth, Health, and Peace from Christ, the fountain of them all", and the dedication of *Dilucidatio* was "To the Judicious, and Learned Readers, Lovers of Truth and Light, and Surveyors of the Design, All true happiness in CHRIST our Truth and Light".<sup>334</sup>

In the *Clarification*, Comenius addressed both his supporters and detractors of pansophy in this way: "For though many learned and worthy men, forecasting much good from such a work, encouraged us very

much, and still persist to press us, not to relinquish the design, and some of more excellent spirits, and abilities, do promise their helping hands, and endeavours. Yet some there were, who thought us not excusable of strange and unusual rashness for attempting of things so impossible and above the reach of human understanding.” He continued in a similar vein, summarizing his position with these words: “Our draught of Pansophy is no dream, but a real work. ... Here lurks no Monster, but our ... intent is to unveil before all men’s eyes, the true and amiable faces of Things.”<sup>335</sup>

Most interestingly, Comenius visualized Wisdom as a Temple, using *temple* in its ancient Latin meaning “to signify any open place, whence there was a fair prospect on every side, as it were a large place for beholding. Whence the word *Contemplārī* (contemplate) signifies to behold any thing without impediments.” In Comenius’ imagination, the Temple of Christian Pansophy has seven parts, the first citation in the OED of the word *pansophy*, although he used it thirty-five times in *Prodomus*. These parts mark the way of entering the Temple of Wisdom, the first five being the Threshold, Gate, Outward Court, Middle Court, and Innermost Court. Seekers are then led into “The last and most secret part of the Temple of Wisdom called the HOLY OF HOLIES”, the sixth part. The seventh denotes the Divine Source of the energy we need to enter the Temple of Wisdom: “The Fountain of Living Waters”, that is “Of the use of true WISDOM, flowing out of the temple of God: to wit, that it may stream forth, and run over all the earth, to fill it with the knowledge of the Lord, as the waters cover the Sea.”<sup>336</sup>

Today, we know the Temple of Wisdom as Consciousness—a seamless borderless continuum—which enlightens our journeys in life, and Self-reflective Intelligence as the capability to view the Totality of Existence without impediments. Some also realize that Christ is not a person—as Jesus of Nazareth—but the Divine Essence we all share, synonymous with Buddhahood, Godhead, and Love, for instance. This is the Origin of the Universe, from which Life springs, like a fountain. We can thus see that Comenius had a profound intuitive understanding of the mystical worldview, necessary to unify natural philosophy and Christianity, in his terms. However, he did not quite reach its pansophical zenith because he was writing three hundred years before the invention of the stored-program computer, as an extension of the mind. So while he had some understanding of the Contextual Foundation for all our lives, he did not discover the coordinating framework for pansophy, necessary to fulfil his pansophic vision.

Nevertheless, it is of great interest to explore a little further Comenius’ pansophic quest, not the least because it has much relevance to us living today. Hartlib, in particular, and John Dury (1596–1680), a Scottish Calvinistic minister living in the Netherlands seeking ecclesiastical peace, were most interested in putting Comenius’ pansophic and irenic theories into practice, and for some time urged Comenius to meet a few co-workers to explore the possibilities. However, Comenius was a bishop and rector of the Leszno Gymnasium and didn’t feel he could leave his community in Poland.

The turning point came when John Gauden (1605–1662), an influential clergyman, who later became a bishop in the Church of England, preached a sermon in November 1640 to the House of Commons in the newly formed Long Parliament, which was to last twenty years. In this discourse, Gauden recommended that the assembly invite Comenius and Dury to London with the purpose of advancing *Truth and Peace*. Although the members of parliament commanded that this sermon be published as *The Love of Truth and Peace* the following year (fancy that!), they did not explicitly invite Comenius to London. Nevertheless, he received the impression that they did and felt obliged to leave his community with its permission, intending to return as soon as possible.<sup>337</sup>

Given the confusion around the invitation, it is perhaps not surprising that Comenius and Hartlib’s vision of a College of Pansophy to be set up in England did not take off, even though such a project

seemed to have the blessings of both the bishops and members of parliament. For while these pioneers of peace were pursuing their aims, the English Civil War broke out on 22nd August 1642, not a suitable environment in which to promote pansophy as Universal Wisdom. So, in the event, Comenius spent just nine months in London, from 21st September 1641 to 21st June 1642.<sup>338</sup>

Nevertheless, Comenius did have the opportunity to meet several leading thinkers of the day and to write a new treatise on his educational vision titled *Via Lucis (The Way of Light)*, translated into English in 1938, a copy of which I have so far been unable to obtain. Although this “ill-drawn and discursive treatise” was written under difficult conditions,<sup>339</sup> Spinka tells us that five points stand out:

1. Universal textbooks should be used everywhere to train scholars for an intelligent, purposeful life rather than merely cramming their heads with uncoordinated bits of knowledge.
2. These universal textbooks should be based on the idea that nothing is known unless it is known in its development.
3. As a corollary, the plan included a digest of past learning, drawing out the quintessence of what authors have previously decided and agreed upon. “A few men must undertake the task of swallowing and digesting all that troublesome mass of writings once and for all, so that all other men may be relieved and set free from it for ever.”
4. In contrast, Comenius was not satisfied with the status quo and keenly felt the need for a fresh, creative approach to education, coordinated in a central research institution: the Pansophic College.
5. The scope of the education system should be international, transcending national boundaries.<sup>340</sup>

Spinka comments in 1943, “Were the grandiose project accomplished in our day, what a boon it would be! But alas! the world is still waiting for its realization, and we seem to be further away from it than ever.”<sup>341</sup> To realize this boon, the researches on which this treatise is based follow very closely Comenius’ method, preferring the word *evolution* rather than *development*. Also, we recognize that we need to study past ideas in order to give them up, when necessary, because they do not all fit together as a coherent whole, rather like the way spiritual seekers bring memories and past traumas into consciousness in order to be free of them.

One of the ideas we need to give up is described in a book that Comenius wrote between 1630 and 1632, published in 1633 as *Physicæ ad lumen divinum reformatæ synopsis* and translated into English in 1651 as *Natural Philosophy Reformed by Divine Light or, A Synopsis of Physic*. The Prolegomena of his initial attempt to explore the relationship between science and religion begins by distinguishing Nature and Art, created by God and humans, respectively. Comenius regarded the Heavens, the Earth, the Sea, Rivers, Mountains, Stones, Metals, Herbs, and living Creatures, as examples of natural things. In contrast, examples of art, which humans have formed from natural things as artefacts, are Cities, Houses, Ponds, Channels, Statues, Coins, Garments, and Books.<sup>342</sup>

Now, as natural things are created by God, not humans, Comenius regarded ‘Physick’ to be more fundamental than Mathematics and Logic, as well as the ‘prudential Arts’. This view of the relationship of the various disciplines of learning, explored by Francis Bacon and many people since, as we see in this treatise, has some interesting consequences. When natural scientists use their ingenuity to conduct experiments, creating artificial phenomena that do not occur naturally, they are interfering with ‘God’s plan’.

So even though Comenius clearly had a mystical awareness, he nevertheless split humanity from the Divine and the arts from the sciences, as had been customary for thousands of years, even to this day, following the first and second pillars of unwisdom. This deep wound in the collective consciousness

became institutionalized in the establishment in 1662 of the Royal Society, whose title was changed the following year to the Royal Society of London for Improving Natural Knowledge.<sup>343</sup>

In *Comenius in England* in 1932, Robert Fitzgibbon Young explored the evidence that Comenius' proposal for an international College of Pansophy, outlined in *The Way of Light*, influenced the founding of this august body.<sup>344</sup> As Spinka also points out, Theodore Haak (1605–1690), who was a close friend of Hartlib and was one of the co-workers on the pansophic scheme in 1641, arranged meetings from 1645 of a few “worthy persons inquisitive into Natural Philosophy”, forming a club known as the ‘Invisible College’.<sup>345</sup> This association of natural philosophers promoting knowledge of the natural world through observation and experiment was officially founded in 1660, receiving its Royal Charter two years later from Charles II, newly restored to the British throne.<sup>346</sup>

However, in 1967, Margery Purver published a book titled *The Royal Society: Concept and Creation* disputing the Royal Society's own history of its foundation, still on its website. By studying many original documents, she argued that the Royal Society did not evolve from Comenius' proposal for an Academy of Universal Wisdom and Light. She said that the evidence indicates that the Royal Society evolved from the Oxford Experimental Science Club founded by John Wilkins about 1648, then Warden of Wadham College, moving to London in 1660, nothing do with ‘Pansophia’.<sup>347</sup> So although Francis Bacon inspired both the Pansophic College and the Royal Society, Hugh Trevor-Roper wrote in his introduction to *The Royal Society* that the Hartlib-Comenius mystical expansion of Bacon's proposals was nothing more than a ‘vulgarization’,<sup>348</sup> nothing to do with scientific method.

As Steven Shapin and Simon Schaffer also point out, the Royal Society, influenced by Robert Boyle, sought to distance itself from the Hermetics of alchemy,<sup>349</sup> which much influenced Newton's alchemical studies, as we see on page 41. We thus see here why science began to move away from Reality, erecting opaque shutters between the Coherent Light of Consciousness, which enlightens our lives, and the so-called natural sciences, which keep us in darkness.

For as Comenius wrote in *Panaugia (Universal Light)*, published in 1660, humans “see things which animals cannot see even with the eyes of a lynx or an eagle [because] Man has a certain inborn light shining within him,” providing the Collumination necessary for Self-reflective Intelligence to function with full power and clarity. Comenius well understood this in his own way, for he went on to write, “If the darkness of brutality is to comprehend God's light shining within us and surrender to it, we must disperse it in every possible way. In my opinion the most effective way would be to unite all rays of divine light within us and direct one powerful beam upon the infamous chaos of darkness.”<sup>350</sup> Just so.

Regarding *Via Lucis*, when this draft for a College of Universal Wisdom and Light was eventually published in 1668, Comenius dedicated the book to the Royal Society of London, as if the establishment of this learned body were a part of his general plan for a Pansophic College.<sup>351</sup> If scientists and technologists are to discover what is causing them to drive the pace of evolutionary development at unprecedented rates of acceleration, it is of the utmost urgency that we re-establish Comenius' vision with the recognition of pansophy as the Theory of Everything—the transdisciplinary union of all specialist branches of learning.

Concerning Comenius himself, he was in much demand in Europe when he left England in 1642, even being invited to Paris by the all-powerful Cardinal Richelieu. In the event, Comenius chose to accept an offer from Chancellor Oxenstierna to reform the Swedish education system, even though Oxenstierna was rather sceptical of the pansophic vision. However, Comenius was not in a position to refuse this offer, receiving considerable funds from Louis de Geer, a Walloon industrialist and philanthropist. In this

capacity, he met Queen Christina when she still a teenager, conversing in Latin, which she had learnt from Comenius' textbooks, receiving encouragement for his pansophic project.<sup>352</sup> This was some seven years before Descartes also met Queen Christina in Stockholm, being asked to instruct her in his philosophy at five in the morning, which was to lead to his death from pneumonia on 11th February 1650, as he could not stand the freezing Swedish nights.<sup>353</sup>

However, addressing the immediate practical needs of this impecunious exile distracted Comenius from his ecumenical and pansophic interests, much to the distress of his British friends. As Comenius explains in the Introduction to the Second Part of *Opera Didactica Omnia* in 1657, they wrote, "What has been done as an example in didactics suffices, the way of rectifying all its errors is now plain enough; but this is not the case in respect of scientific studies. Others may be left to deal with didactics, and teachers are already arising in different places who will incite each other to industry by their competition. Far more benefit will accrue to the public from explanations of the ways of true wisdom, than from Latin grammatical studies."<sup>354</sup>

In order to find a way of balancing his responsibilities, Comenius lived in Elbing in Prussia on the Baltic coast (today Elbląg in Poland) with his family for a few years in the 1640s. This gave Comenius the opportunity in 1644 to begin work on his pansophic magnum opus, titled *De rerum humanarum emendatione consultatio catholica* (General Consultation on an Improvement of All Things Human),<sup>355</sup> envisaged in seven parts:

*Panegersia*: 'Universal Awakening'

*Panaugia*: 'Universal Light or Dawning'

*Pansophia*: 'Universal Wisdom' (seven or eight volumes)

*Pampædia*: 'Universal Education'

*Panglottia*: 'Universal Language'

*Panorthosia*: 'Universal Reform'

*Pannuthesia*: 'Universal Admonition or Warning'<sup>356</sup>

In the event, only the first two parts were published, in 1656, and it was long thought that the others were lost. However, in 1935, Dmitry Chyzhevsky found the others in the library of the Orphanage of Halle, where they had been deposited by Daniel, Comenius' son, and his associates Christian Nigrin and Paul Hartmann.<sup>357</sup> *Consultatio*, as it is called, has been available to scholars in its Latin version only since 1966. Then in the 1980s and 90s, A. M. O. Dobbie translated all these works into English,<sup>358</sup> but it is not easy to find them even in the libraries and *Pansophia* is nowhere to be seen in the catalogues.

What was published in Comenius' lifetime (in 1657) was his *Collected Works* titled *Opera didactica Omnia* consisting of four volumes, written (1) in Leszno (1627–1642), (2) in the Swedish period (1642–1650), (3) in the Hungarian period (1650–1654), and (4) in Amsterdam, where Comenius was then living. For after the Treaty of Westphalia ended the Thirty Years' War in 1648, Comenius was never able to return home to Moravia and Bohemia, his great dream.

In summary, during the few weeks I have been studying Comenius' life and work, it has not been easy to get access to English translations of his writings, so I do not yet have a clear picture of the similarities and differences between pansophy and panosophy. I understand that the Czechs have collected his Latin and Czech works as *Veškeré spisy* (*All Writings*). But there does not seem to be a collection of English translations, similar to those for Carl Gustav Jung and Charles Sanders Peirce, which do not need translating.

But maybe this does not matter too much. While humanity is in a transition period today, not unlike

that of the sixteenth and seventeenth centuries, their characteristics are quite different. Not the least, the materialistic, mechanistic worldview that emerged from these times, denying the existence of the creative power of Life, bubbling up from the Origin of the Universe, has led to the belief that scientists are about to create machines with artificial intelligence, making humanity redundant, as a species.

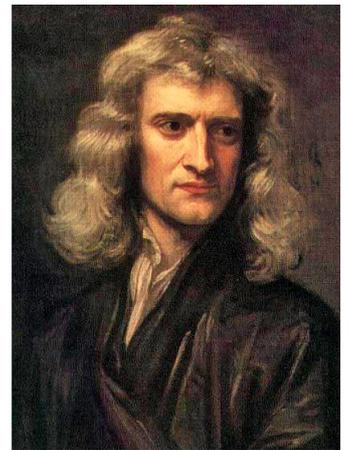
To counteract this fundamental misconception, we can be much inspired by Comenius' pansophic vision and cocreate a twenty-first-century association of autodidacts, seeking to understand themselves through self-inquiry. For pansophy cannot be taught by teachers in our external world. We can only learn to integrate all knowledge into a coherent whole with Self-reflective Intelligence, following our own inner authority, not any external authorities, who base their teachings on the seven pillars of unwisdom.

We explore some of the possibilities in Section 'Living the Vision' on page 203, explained more fully on the website for the Alliance for Mystical Pragmatics at [mysticalpragmatics.net](http://mysticalpragmatics.net). In the meantime, we need to explore a little more why humanity finds itself in the mess that it is in today, continuing to focus attention in this section on a few leading lights who similarly sought to realize the impossible dream.

### **Isaac Newton**

What is most relevant about Isaac Newton's life and work for this treatise is not his epoch-making scientific and mathematical achievements. Rather, to fully understand how these emerged in consciousness, we need to go much deeper into the breadth and depth of his psyche. Most significantly, Newton was a profoundly religious man, intensely pious and puritanical. As a consequence, he was not tolerant and ecumenical, like Kepler and Comenius.

Rather, Newton was a fervent Protestant, detesting the Roman Catholic Church for its Trinitarianism, the belief that Jesus, alone, is Divine. This is the basis of the Great Taboo in Western civilization, as we see on page 10. However, Newton went further, asserting that *no one* can live in complete union with the Divine, a topic we look at further on page 155 in Subsection '1-2-3-4-5'.



Again, unlike Kepler and Comenius, Bernard de Fontenelle said in 1727, in his *Eloge du Chevalier Newton*, partially based on a memoir that John Conduitt, Newton's greatest admirer, had sent him, "He never married, and perhaps never had Leisure to think of it, taken up as he was at first in profound and continual Study, and afterwards employ'd in an important and considerable Post, that left no void in his Life, nor any Occasion for Domestick Society."<sup>359</sup> If we are to free the world of learning from all the delusions that have afflicted it during the past 5,000 years and more, it is similarly necessary to dedicate one's entire life to this healing project, while, at the same time, enjoying intimate domestic bliss as much as possible.

Newton, himself, was severely hampered by his religious beliefs in fulfilling his great dream: "to plumb the mind of God and his eternal plan for the world and mankind." So, as Richard S. Westfall writes in *Never at Rest*, Newton's principal biography, "When we examine Newton's grandiose adventure minutely, it turns out to be a mixture of discrete pieces rather than a homogenous melange. His career was episodic. What he thought on, he thought on continually, which is to say exclusively, or nearly exclusively."<sup>360</sup>

Nevertheless, Newton was a systems builder, developing a radically new model of what was then thought of as the Universe, using a method of investigation and learning that is quite similar to that required to develop the genuine Theory of Everything, recognizing that Consciousness is all there is. The principal difference is that while Newton looked outwards, as was the custom at his time, prevailing even

to this day, to understand the full implications of the invention of the electronic computer in the middle of the last century, we need to look inwards, mapping the Cosmic Psyche.

About three years after entering the University of Cambridge as a menial sizer in 1661, Newton began a notebook titled *Quaestiones Quaedam Philosophicae* 'Certain Philosophical Questions',<sup>361</sup> containing notes on his wide reading of the philosophers. In this, he wrote, "Plato is my friend—Aristotle is my friend—but my greatest friend is truth."<sup>362</sup>

But, what is Truth? Did Newton know the Truth that sets us free, as Jesus taught? Apparently not, for he was unable to declare, "I am the Truth," as al-Hallaj had done seven hundred years earlier. While Newton was nominally a member of the Church of England, which also believed in the Christian Trinity, and a fellow of Trinity College at the University of Cambridge, he utterly denied the first pillar of wisdom as an Arian, also called a Unitarian today. *The Oxford Dictionary of World Religions* suggests that Newton adopted this heresy, like his friend John Locke, from the Socinians, inspired by the ideas of Lelio Sozzinin (1525–1562) and his nephew Fausto (1539–1604), who hoped to form a primitive Christianity through reason, rejecting the accretions of Rome.<sup>363</sup>

It is not surprising therefore that Newton's search for Wholeness and the Truth and answers to the Big Questions of human existence led to much psychological turmoil. Or maybe this was the other way round. Using psychoanalytic methods, in *A Portrait of Isaac Newton*, Frank E. Manuel suggests that Newton's early traumatic experiences could well have been the motivating power behind his lifelong quest to make sense of the world he lived in.<sup>364</sup> For Newton's father, also called Isaac, died aged thirty-six, less than six months after he married his mother Hannah Ayscough, then aged about twenty-six, apparently in April 1642, for there is no record of her birth, baptism, or this marriage in the registers. Then, when Newton was born on Christmas Day in the Julian calendar still operating in England, he was very weak, perhaps being a little premature, and was thought unlikely to survive.<sup>365</sup>

When Newton was just past his third birthday, his mother married Barnabus Smith, a wealthy elderly clergyman in a neighbouring parish, who wanted nothing to do with his wife's first born. As a consequence, Newton went to live with his maternal grandmother, being forced to call his stepfather 'father', which he hated, never having known his biological father. Newton was not to live with his mother again, and his three half-siblings, until he was ten, when the Rev. Smith died. But this reunion was short lived. "In less than two years, Isaac was sent off to grammar school in Grantham."<sup>366</sup> He was the first Newton to be so educated, his father being unable to sign his name on his will,<sup>367</sup> even though he was 'Lord of a manor', a mantle that Newton inherited from his great grandfather Richard Newton, whose father John had bought the manor of Woolsthorpe for him, where Isaac was born. However, his maternal uncle William was clearly a major influence on Newton's development, being a Christian priest in a neighbouring village, as a Cambridge M.A.<sup>368</sup>

When Newton, himself, went up to Cambridge as an eighteen-year-old, he had a certain degree of freedom to study what he wanted as an autodidact. For the existing curriculum, which had prevailed since the Middle Ages, was in disarray, but a new curriculum, which was to be much influenced by Newton's researches, had not yet emerged, a situation that Comenius spent a lifetime attempting to resolve, as we saw in the previous subsection. Although we live in similar transitional times, children today do not have the same freedom. The government education ministers who I am aware of emphasize a curriculum based on the seven pillars of unwisdom in order to sacrifice the young to the great god of economic growth.

So if youngsters today are to realize the Truth that sets us free, they need to live double lives, like Newton, keeping their search for Wholeness, or even Oneness, hidden from the ruling authorities, a

critical issue we explore further in Section 'Becoming free of our ancestry' on page 192. Newton, himself, fell well short of reaching evolution's glorious culmination. While it was his destiny to complete the first major revolution in science, when he lived was not the right time to complete the last revolution, which has been unfolding for the past few decades.

The minute study of Newton's life and works is an ongoing exercise because his voluminous writings on alchemy and theology, which are expressions of his secret career, are still coming to light. When Newton died in 1727 aged eighty-four, John Conduitt, who had married Catherine Barton, Newton's closest relative, the daughter of his half-sister Hannah Smith, gathered together all Newton's unpublished papers and scribblings, some 4,000 folios. These then passed into the Portsmouth family for the Conduitts' only child Catherine then married Viscount Lymington, the eldest son of the first Earl of Portsmouth.<sup>369</sup>

Then in 1872, the fifth earl, appropriately named 'Isaac Newton Wallop', "generously decided to donate the scientific papers in his possession to Cambridge University in order 'to advance the interests of science by placing these [Portsmouth] Papers at the service of the University'," which were in much disarray, taking sixteen years to catalogue. Those relating to alchemy and theology were returned to the Portsmouth family as they were not considered to be of scientific interest.<sup>370</sup> In 1936, Viscount Lymington, who was to become the ninth earl, then sold the papers on theology and alchemy, some million words on each, at Sotheby's in numerous lots, which were scattered around the world, making it difficult for scholars to study them.<sup>371</sup>

In the event, the economist John Maynard Keynes managed to acquire the bulk of the alchemical papers, spending some six years studying them, which he donated to King's College, Cambridge in 1946, when he died. He summarized the results of his researches in a lecture delivered to the Royal Society Club in 1942 thus:

In the eighteenth century and since, Newton came to be thought of as the first and greatest of the modern age of scientists, a rationalist, one who taught us to think on the lines of cold and untinctured reason.

I do not see him in this light. I do not think that any one who has pored over the contents of that box which he packed up when he left Cambridge in 1696 and which, though partly dispersed, have come down to us, can see him like that. Newton was not the first of the age of reason. He was the last of the magicians, the last of the Babylonians and Sumerians, the last great mind which looked out on the visible and intellectual world with the same eyes as those who began to build our intellectual inheritance rather less than 10,000 years ago. Isaac Newton, a posthumous child born with no father on Christmas Day, 1642, was the last wonder-child to whom the Magi could do sincere and appropriate homage.<sup>372</sup>

Rather curiously, many of the theological papers ended up in the Jewish National and University Library in Jerusalem (now National Library of Israel), having been collected by Abraham Yahuda, a Jewish scholar and businessman.<sup>373</sup> Some of these relate to chronology, because Newton sought to answer the Big Questions "Where have we come?" and "Where are we going?" by studying the Bible, particularly relating to the latter. Indeed, some of Newton's confused thoughts on these fascinating subjects were published shortly after his death. Regarding the former, concerning history, *The Chronology of Ancient Kingdoms Amended* was published in 1728, to be followed five years later by *Observations upon the Prophecies of Daniel and the Apocalypse of St John*.<sup>374</sup>

The sale of the Portsmouth Papers in 1936 has led Michael White, author of *Isaac Newton: The Last Sorcerer*, to describe Newton as a 'mystic', albeit a neurotic, obsessive, driven one.<sup>375</sup> As Keynes observed, "He parted with and published nothing except under the extreme pressure of friends,"<sup>376</sup> not unlike Copernicus and Darwin with their revolutionary treatises. However, as an Arian, Newton denied the possibility of Gnosis. Frank E. Manuel, author of *Isaac Newton, Historian*, the first study of the Yahuda

papers, put it in this way in the first of four Freemantle Lectures at Balliol College, Oxford in February 1973 on *The Religion of Isaac Newton*: “Newton’s scriptural religion was ... charged with emotion as intense of the effusions of mystics who seek direct communion with God through spiritual exercises and illumination—a path to religious knowledge that for Newton was far too facile and subjective to be true.”<sup>377</sup>

Not realizing that the mystical experience is neither subjective nor objective, that everybody is Divine, put Newton in something of a dilemma. As Rob Iliffe, Director of the AHRC Newton Papers Project, dedicated to publishing in full an online edition of all Newton’s writings, has said, Newton saw himself as one of God’s chosen few. “Newton came to believe that the architect of orthodox Christianity, Athanasius [and his followers], ... had polluted doctrine. ... At the heart of their project was the hideous view, as Newton saw it, that Christ was identical to God. Newton believed that he had been chosen by God to discover the truth about the decline of Christianity,”<sup>378</sup> and its rebirth following the Apocalypse supposedly prophesied in the book of Revelation.

Emphasizing the split between God and Jesus was key to Newton’s development. As he never knew his biological father, Manuel points out, “History had begun afresh with [Newton]. Among contemporaries he and he alone had access to the significant truths about God his Father’s world. ... He was the only son of God and could not endure the rivalry of Christ.” To illustrate this grandiose point, on one of his alchemical writings, Newton signed himself *Jeova sanctus unus* ‘God’s holy one’, an anagram of his Latin name *Isaacus Neuutonus*.<sup>379</sup>

It is not surprising, therefore, that Newton spent many years as a solitary scholar, having few friends. In *The Dynamics of Creation*, Anthony Storr says that Newton had a schizoid personality—that is separate from the ‘real world’ of his contemporaries. Yet such a characteristic was vital for his development. Storr writes, “Newton’s discoveries, like Einstein’s, depended on an extreme scepticism of authority combined with a powerful drive to make a new synthesis which would make sense out of the universe.”<sup>380</sup> It is rather unfortunate that Storr used the word *schizoid* here, for most people living in what they call the ‘real world’ are actually split from Reality, the Immortal Ground of Being that we all share. So the whole of Western civilization is schizoid, as we see in Subsection ‘Our sick society’ on page 17.

Nevertheless, there is much that we can learn from Newton’s ontogeny in our endeavours to heal our fragmented, split minds and hence our sick society. Most significantly, such a healing process needs to begin in infancy and childhood, perhaps even earlier in the womb, before birth. For our species is currently engaged in taking evolution in a radically new direction, a transformation of Cosmic proportions.



One early sign of Newton’s genius was his ability to make mechanical models when lodging in Grantham when attending King’s School in his teens. One of the first books that young Isaac found there was *The Mysteries of Nature and Art* by John Bate, describing many mechanical contrivances. This inspired him to build a model of a windmill being built in the vicinity.<sup>381</sup> Such craftsmanship led Newton to build a reflecting telescope in

1668 able to magnify nearly forty times, to the amazement of the ‘experts’, overcoming the problem of chromatic aberration in refraction telescopes. Newton was justly proud of his achievement, as he told John Conduitt sixty years later, not able to keep it secret, like his other work, greatly impressing the fellows of the Royal Society in 1671, who elected Newton as a Fellow the following year.<sup>382</sup>

In Grantham, Newton lodged with a Mr Clark, a town apothecary, which could have well have sown

the seeds for his interest in alchemy, which he devoted twenty-five years to studying from 1668 to 1693.<sup>383</sup> But what is alchemy and why on earth did Newton spend so long with this illegal and clandestine practice? It was illegal because many charlatans and fraudsters claimed to have found the Philosophers' Stone, whatever this might be.

Well, even the etymology of *alchemy* is not entirely clear. One view is that alchemy derives from Arabic *alkīmyā*, from *al-* 'the' and Late Greek *chemēiā* 'art of alloying metals', from *chein* 'to pour', from a PIE base *\*gheu-* 'to pour, pour a libation', also the root of *found* 'cast metal', via Latin *fundere* 'to melt, pour out'. There has also been some speculation that Arabic *kīmyā* and Greek *chemēiā* were rather associated with *Chemeiā*, the ancient name for Egypt, meaning 'the land of the black earth', because alchemy was practiced early on in Egypt. But some authorities now feel a closer affinity with *chemēiā* 'pouring', as it applied to the mixing of juices from various plants among the Alexandrian alchemists.

Regarding alchemy itself, one clue to why Newton spent more time on alchemical experiments than on natural philosophy while at Cambridge is contained in a document written in his hand, found in the Keynesian papers. This is a copy of *Tabula Smaragdina*, the most fundamental of alchemical tracts, also called the *Emerald Tablet*, at the heart of the Hermetic Corpus, first written in Arabic in the eighth century, although its origins are pre-Islamic. The first two paragraphs of the 12-paragraph *Emerald Tablet* clearly illustrate the mystical worldview underlying alchemical studies:

1. In truth certainly and without doubt, whatever is below is like that which is above, and whatever is above is like that which is below, to accomplish the miracles of one thing.
2. Just as all things proceed from One alone by meditation on One alone, so also they are born from this one thing by adaptation.<sup>384</sup>

In a BBC drama documentary on 'Newton: The Dark Heretic', first broadcast in 2003, Piyo Rattansi explained the significance of *Tabula Smaragdina* to alchemists:

Alchemists believe that this document not only described how God created the Universe, it also enabled the alchemist to imitate the work of God. By imitating the work of God, he could achieve miracles in Nature. He is not a magician in the sense that he wants to master these forces so that he can use them to do marvellous things. It is ultimately to understand the mystery and secrets of God's creation.<sup>385</sup>

In *Alchemy*, Titus Burckhardt explains why this is so. Alchemists recognize that forms and structures have both an inner and outer quality, ultimately grounded in *materia prima*, the formless Ground of Being, also called Quintessence, Æther, and Akasha, as the Universal Quantum Field. So while gold and the sun may appear to be different on the surface, symbolically they share the same inner essence, a fundamental principle that lies at the root of alchemy,<sup>386</sup> and, indeed, all mystical, esoteric studies, called 'occult' because they are hidden from the five physical senses. For *occult* derives from Latin *occultus* 'secret', participle of *occultare* 'secrete', frequentative of *occulere* 'to cover over, conceal', from PIE base *\*kel-* 'to cover, conceal, save', also root of *hell*, *hole*, *colour*, and *cell*. This occult understanding is absolutely essential if we are to answer the most fundamental question of human existence, "Who are we?", as we see in Subsection 'Our Shared Identity' on page 197.

In 2005, the Mystics and Scientists conference in Winchester, England, organized by David Lorimer of the Scientific and Medical Network, explored this theme with the title 'Healing the Split: An Alchemy of Transformation'. The introduction to the conference stated: "This year's theme addresses one of the most important cultural issues of our time: the need to heal the split between inner and outer, subject and object, science and spirituality, masculine and feminine, quantity and quality, self and other, humanity and the earth."<sup>387</sup>

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In her enlightening talk at the conference, Anne Baring explained the mystical meaning of the word *alchemy*: “Base metal to the alchemists was our present level of consciousness, which is capable of transformation, but which remains stuck in certain patterns of thought, in certain beliefs, and these patterns continually bring into being suffering and evil without our being the least aware of what we are doing. The gold is the revelation of the radiant light of the divine Ground, the light that shines in all and through all, yet is tragically invisible to most of us.”

Then in the foreword to Jay Ramsay’s *Alchemy*, Anne wrote, “No one can write about alchemy who is not living it and no one can pass on his or her knowledge and insight who has not walked the difficult path of self-discovery.”<sup>388</sup> For as Jay said, “Above all, alchemy is about wholeness.” “It brings spirit and matter together rather than separating them. It is profoundly non-dualistic in this sense, as opposed to the orthodox Christian Church.” “Alchemy is vibrant: it reaches to the source of life.” It is “a physical process to do with self-knowledge”.<sup>389</sup>

So the search for the Philosophers’ Stone is not about finding a substance that can transform lead into gold. Rather, it is about coming into union with God, the Divine Essence we all share with all other beings in the Cosmos. But to what extent Newton really understood the spiritual purpose of alchemy is unclear. He wrote in his notes:

Whence is it that Nature doth nothing in vain? And whence arises all that order and beauty we see in the world? Does it not appear from phænomena that there is a Being incorporeal, living, intelligent, omnipresent, who in infinite space, as it were in his Sensory, sees the things themselves intimately, and thoroughly perceives them, and comprehends them wholly by their immediate presence to himself.<sup>390</sup>

This last phrase seems to indicate that Newton felt in direct contact with the Divine, as indeed he was, like everyone else. But his cognitive worldview would not allow him to explicitly admit this experience into his cosmology. Nevertheless, he did not like Descartes’ mechanistic worldview, in which God created the Universe as a giant clockwork machine, which was then left to run. In Cartesian cosmology, there was no role for God after the Creation of the Universe, a principle that was alien to Newton’s beliefs.<sup>391</sup>

Yet, in some muddled way, it is clear that Newton’s alchemical studies were key to his world-changing discoveries in science, as Michael White points out.<sup>392</sup> So it is a gross injustice to associate Newton with Descartes in establishing the mechanistic paradigm that grievously afflicts scientific research today. As Simon Schaffer has pointed out, scientists took God out of Newton’s world in the eighteenth century, leading science to accelerate away from Reality ever since.<sup>393</sup>

In a similar fashion, Robert Boyle (1627–1691), the father of modern chemistry, was initially connected with the Hartlib-Comenius circle as an alchemist, referring to the ‘Invisible College’ a few times in his correspondence<sup>394</sup> and to Pansophia as late as 1674 in *The Excellency of Theology Compar’d with Natural Philosophy*, the OED tells us. However, after moving to Oxford around 1655, he began to treat alchemy in a less esoteric way, distancing himself to some extent from the Hartlib group,<sup>395</sup> which could well have influenced Newton’s own interest in alchemy.<sup>396</sup>

Accordingly, while physicists know what causes apples to fall to the ground and the Moon to circle the Earth, they don’t understand what causes such scientific theories to emerge in the mind and consciousness. For while the infinitesimal calculus, developed by Newton and Leibniz, is the mathematical theory of change, we need to develop the *semantic* principles of natural philosophy to understand what is causing the pace of change in society to accelerate exponentially.

So it is clear that Joseph-Louis Lagrange (1736–1813), an Italian mathematician and astronomer, was somewhat premature in saying that Newton was “the most fortunate, for we cannot find more than once a

system of the world to establish.” Similarly, the English poet Alexander Pope (1688–1744) was moved to write this epitaph, which the authorities at Westminster Abbey refused to put on Newton’s tomb:

*Nature and nature’s laws lay hid in night;  
God said, “Let Newton be” and all was light.*<sup>397</sup>

Newton, himself, was well aware that he had not realized his great dream to discover how the Universe is intelligently designed. As David Brewster, his Victorian biographer, tells us, a short time before Newton’s death, Newton uttered this memorable sentiment: “I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.”<sup>398</sup>

### **Charles Sanders Peirce**

To see how we can fulfil Newton’s dream, we now need to fast forward two hundred years to the polymath Charles Sanders Peirce (1839–1914), whose architectonic is as significant a precursor to the Theory of Everything presented in these pages as Comenius’ Pansophia, a fact that I did not discover until the autumn of 2012, when I had almost completed my own studies. For as Max H. Fisch wrote of Peirce (pronounced *Purse*) in 1979:

Who is the most original and the most versatile intellect that the Americas have so far produced? The answer ‘Charles S. Peirce’ is uncontested, because any second would be so far behind as not to be worth nominating. Mathematician, astronomer, chemist, geodesist, surveyor, cartographer, metrologist, spectroscopist, engineer, inventor; psychologist, philologist, lexicographer, historian of science, mathematical economist, lifelong student of medicine; book reviewer, dramatist, actor, short story writer; phenomenologist, semiotician, logician, rhetorician, metaphysician.<sup>399</sup>



However, the full scope of Peirce’s contribution to the history of ideas has taken many decades to be revealed, a project that is still ongoing. When he died, his widow donated all his writings to the department of philosophy at Harvard, which number some 80,000 manuscript-pages. As the Peirce Edition Project says on its home page, “much of what Peirce wrote remains in manuscript form, unpublished and in significant disarray.”<sup>400</sup> If all the writings that exist at Harvard and elsewhere were to be published, they would constitute around a hundred volumes. So it is not easy to grasp the essence of Peirce’s thinking.

One of the difficulties here is that Peirce never completed the book that he intended to describe his endeavours to realize the impossible dream. One book that he did complete was *Studies in Logic*, which he edited when lecturing on logic at the John Hopkins University in 1883. This book comprises a collection of articles that his students wrote, with an appendix on the ‘Logic of Relatives’ by Peirce himself. It describes Peirce’s pioneering studies of the calculus of relatives and first-order predicate logic, which have directly influenced the way that businesses are managed today.

These studies, and those of others, have evolved into the abstract business modelling methods that information systems architects use to build the Internet. These mapmaking systems are of the utmost generality, applicable in all cultures, industries, and disciplines. If this were not the case, the Internet could neither exist nor expand at hyperexponential rates of acceleration. Peirce’s *Studies in Logic* thus contains the seeds that have evolved, blossomed, and fructified in Integral Relational Logic, the system of coordinates that we need to develop the Theory of Everything.

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However, various magazines did publish many articles that Peirce wrote, and he gave a number of lecture series at Harvard University and elsewhere, although these were not published at the time. In the event, Charles Hartstone and Paul Weiss published six volumes of Peirce's *Collected Works* from 1931 to 1936, organized by subject in a not altogether satisfactory manner. Then in 1958, Arthur W. Burks added two further volumes, including an invaluable bibliography. Carolyn Eisele then edited five books in four volumes of Peirce's mathematical writings in 1976. That same year, Fisch launched the Peirce Edition Project at Indiana University-Purdue University Indianapolis (IUPUI) with the mission to organize and date the manuscripts and to produce an approved scholarly edition of Peirce's writings in thirty volumes, seven of which have so far been published. All these large volumes occupied around a metre of shelf-space in the autumn of 2012, when I borrowed them from the University of Gothenburg library.

What this has taught me is that if we are to make sense of Peirce's endeavours to create a synthesis of all knowledge, we need to focus attention, not on disciplinary specialisms, but rather on the profound transformation that he went through during the four years either side of his fiftieth birthday in 1889. We can see the beginnings of Peirce's endeavours to integrate all knowledge into a coherent whole from an unpublished piece he wrote in 1885, when he felt that he may have "found the key to the secret of the universe",<sup>401</sup> writing to his lifelong friend William James, "I have something very vast now. I shall write it for Mind. They will say that it is too vast for them. It is ... an attempt to explain the laws of nature, to show their general characteristics and to trace them to their origin & predict new laws by the law of the laws of nature."<sup>402</sup> Nevertheless, reflecting on this endeavour nearly twenty years later, he wrote that he was applying a method that any intelligent person could master.<sup>403</sup>

This initial piece was intended as Chapter 1, 'One, Two, Three: Fundamental Categories of Thought and Nature' in an uncompleted book titled *A Guess at the Riddle*. As the title of this chapter indicates, the guess was the proposition that the basic building block of all knowledge is the triad, inspired by Immanuel Kant, "the King of modern thought, ... who first remarked the frequency in logical analysis of *trichotomies* or three-fold distinctions."<sup>404</sup> In *Critique of Pure Reason*, Kant had defined four groups, each of three categories,<sup>405</sup> as a refinement of Aristotle's ten categories as the foundation of his logic.<sup>406</sup> Peirce, himself, began his own search for a new list of categories in a published essay in 1868, in which he began with just two categories—substance and being—writing "substance and being are the beginning and end of all conception,"<sup>407</sup> likening them to subject and predicate in Aristotelian syllogistic logic.<sup>408</sup>

However, in *A Guess at the Riddle*, he felt a triadic approach was necessary to obtain the highest level of generalization, the triads being isomorphic to first, second, third. So the proposed second to ninth chapters of this first attempt to write his magnum opus were titled 'The triad of  $x$ ', where  $x$  stood successively for 'reasoning', 'metaphysics', 'psychology', 'physiology', 'biology', 'physics', 'sociology', and 'theology'.<sup>409</sup>

Then in the autumn and winter of 1887 and 1888, Peirce wrote an introduction to *A Guess at the Riddle*, beginning with these words: "To erect a philosophical edifice that shall outlast the vicissitudes of time, my care must be, not so much to set each brick with nicest accuracy, as to lay the foundations deep and massive,"<sup>410</sup> the very first sentence of the first volume of *Collected Papers*. He then went on to write in the same paragraph:

The undertaking which this volume inaugurates is to make a philosophy like that of Aristotle, that is to say, to outline a theory so comprehensive that, for a long time to come, the entire work of human reason, in philosophy of every school and kind, in mathematics, in psychology, in physical sciences, in history, in sociology, and in whatever department there may be, shall appear as the filling up of its details. The first step toward this is to find simple concepts applicable to every subject.<sup>411</sup>

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However, the concepts he used as building blocks for his synthesis of all knowledge, albeit simple, were not general enough for him to realize the impossible dream in his lifetime. It is curious that neither Aristotle nor Peirce discovered that Aristotle's ontological concept of 'being' is the most fundamental category of thought needed to develop the Theory of Everything, as explained on page 138. So Peirce never completed his life's mission, which is the way with evolution. Everything must take its time. We cannot force creative development to go faster than it is able to do.

Nevertheless, we can see the direction of Peirce's thoughts from five metaphysical essays he wrote from 1891 to 1893 for the *Monist*, edited by Paul Carus, who was the compiler of *The Gospel of Buddha: Compiled from Ancient Records*, the classic text on Buddhism that first introduced many Westerners to Buddha and his teachings, first published in 1894.<sup>412</sup>

In the first of these essays, titled 'The Architecture of Theories', Peirce explained what he meant by First, Second, Third in his triadic logic: "First is the conception of being or existing independent of anything else. Second is the conception of being relative to, the conception of reaction with, something else. Third is the conception of mediation, whereby a first and second are brought into relation."<sup>413</sup> Peirce thus came close to discovering the fundamental law of the Universe, the Principle of Unity in IRL.

In the other four essays, Peirce described the three pillars of his evolutionary cosmology: "*tychism*, the theory that chance is really operative in the universe; *synechism*, the theory that continuity prevails and that the presumption of continuity is of enormous methodological importance for philosophy; and, finally, *agapism*, the thesis that love, or sympathy, has real influence in the world."<sup>414</sup>

First, in 'The Doctrine of Necessity Examined', Peirce showed that the doctrine of absolute necessity, alternatively called the 'mechanistic philosophy', could not be maintained. By observing that evolution is a process of growth and increasing complexity, he surmised "there is probably in nature some agency by which the complexity and diversity of things can be increased, ... thus admitting pure spontaneity or life as a character of the universe."<sup>415</sup>

Then in the third essay, titled 'The Law of Mind', he named this hypothesis of chance-spontaneity *tychism*, from Greek *tukhē* 'chance', which is really the much ridiculed vitalism in disguise, writing "I have begun by showing that *tychism* must give birth to an evolutionary cosmology, in which all the regularities of nature and of mind are regarded as products of growth."<sup>416</sup>

Also in 'The Law of Mind', Peirce showed that concepts could not be looked at in isolation from each other; they are all interrelated, ultimately in Ineffable, Nondual Wholeness. By basing his architectonic on self-awareness, Peirce was thus breaking the great taboo that holds Western science, philosophy, and religion in a straitjacket. Although he did not explicitly state that our minds create our reality and govern our behaviour, this is implicit in this essay, which he began writing shortly after having a sudden and overwhelming mystical experience when making a rare visit to church on 24th April 1892. As he described in a letter to the priest afterwards, "when the instant came [to take communion], I found myself carried up to the altar rail, almost without my own volition." Having this direct experience of the power of the Divine, Peirce went on to write, "I have never before been mystical, but now I am."<sup>417</sup>

Nevertheless, Peirce was rather ambivalent about this revelation, as he sardonically indicated in an introductory autobiographical paragraph to this seminal essay. It seems that he sought to distance himself from the transcendentalists, some influenced by "minds stricken with the monstrous mysticism of the East", yet still recognizing, "it is probable that some cultured bacilli, some benignant form of the [transcendental] disease was implanted in my soul, unawares, and that now, after long incubation, it comes to the surface, modified by mathematical conceptions and by training in physical investigations."<sup>418</sup>

So what was so critically foundational in ‘The Law of Mind’? Well, Peirce began by writing that there is but one law of mind, defining it thus: “ideas tend to spread continuously and to affect certain others which stand to them in a peculiar relation of affectibility. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas.”<sup>419</sup>

Peirce called this basic principle of existence *synechism*, from Greek *synekhēs* ‘holding together, continuous, contiguous’, from *sun* ‘together, with’ and *ekhein* ‘to have, hold’, not unlike *synergy* ‘working together’. He regarded continuity to be an idea of prime importance in philosophy.<sup>420</sup> But not only in philosophy. The synechistic principle, similar to *holistic* and *integral* tendencies today, is fundamental to all aspects of human endeavour, challenging virtually everything that we have learnt about ourselves and of our relationship to God and the Universe since the dawn of history.

In Peirce’s case, he first illustrated synechism with Georg Cantor’s infinitesimal continuum, questioning the opinion of many mathematicians at the time “that an infinitesimal quantity is an absurdity.”<sup>421</sup> For a few years earlier, Cantor had shown that there is not just one infinite cardinal; there are at least two. First, there is an infinite set of rationals between any two rationals, which can be mapped to the integers in a one-to-one correspondence, which Cantor called countable. However, Cantor also showed that the real numbers cannot be mapped to the integers and so an innumerable infinite cardinal must also exist,<sup>422</sup> an idea that fascinated Peirce, as it has done many mathematicians ever since.

The fourth essay was titled ‘Man’s Glassy Essence’, a reference to Shakespeare’s *Measure for Measure*, in which Isabella says to Angelo that man is “Most ignorant of what he’s most assured”: “His glassy essence”.<sup>423</sup> For as Kenneth Laine Ketner, explains in *His Glassy Essence*, curiously subtitled *An Autobiography of Charles Sanders Peirce*, *glassy* in Shakespeare’s time could mean ‘mirror-like’, mirrors being used as literary images of self-awareness.<sup>424</sup> *Glassy* could also refer to the reflection of Divinity, as a glossary of Shakespeare’s words tells us.<sup>425</sup>

To help readers understand that which they are most ignorant of, Peirce sought to use the doctrines of tychism and synechism to shed light on “the relation between the psychical and physical aspects of a substance.” Using experience gained from being educated as a chemist and employed as a geophysicist for nearly thirty years, he likened consciousness to protoplasm, which he called ‘life-slime’.<sup>426</sup>

Peirce’s use of protoplasm to illustrate synechistic principles in the physical universe highlights a central issue about humanity’s relationship to the Divine, made most clear by studying the archaeology of language. For *protoplasm* derives from Late Latin *prōtoplasma* ‘first thing created’, from Greek *prōto-* ‘first’ and *plasma* ‘moulded thing, figure, form’, from *plassein* ‘to shape’, from PIE base *pelə* ‘flat, to spread’, also root of *field*, *plane*, *floor*, and *plastic*. Yet, as I understand the situation, never actually having seen protoplasm, protoplasms appear as amorphous, from Greek *amorphos*, from *a-* ‘without’ and *morphē* ‘shape’.

Shortly after these five metaphysical essays were published in *The Monist*, in May 1893, Peirce submitted a much shorter essay to the magazine titled ‘Immortality in the Light of Synechism’, by far the most profound expression of Peirce’s architectonic. However, this article was not published due to a misunderstanding with Paul Carus and was not published until 1958, when Arthur W. Burks edited the seventh volume of Peirce’s *Collected Works*.

In this highly significant three-page essay, Peirce showed that the principle of synechism requires us to look deeply into what it truly means to be a human being. As he wrote, likening synechism to a Brahmanical hymn on the Bliss of the pure and infinite Self:

Nor must any synechist say, “I am altogether myself, and not at all you.” If you embrace synechism, you must abjure this metaphysics of wickedness. ... Your neighbours are, in a measure, yourself, and in far greater measure than, without

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deep studies in psychology, you would believe. Really, the selfhood you would like to attribute to yourself is, for the most part, the vilest delusion of vanity.<sup>427</sup>

What this means is “Synecism refuses to believe that when death comes, even the carnal consciousness ceases quickly,”<sup>428</sup> a phenomenon widely accepted today, as Anne Baring describes in *The Dream of the Cosmos*.<sup>429</sup> For “A man is capable of a spiritual consciousness, which constitutes him one of the eternal verities, which is embodied in the universe as a whole.”<sup>430</sup> So when we realize that our Authentic Self is nothing but the Absolute Whole, we become Immortal Beings, free of the fear of death.

Peirce concluded his essay by saying, “though synecism is not religion, but, on the contrary, is a purely scientific philosophy, yet should it become generally accepted, as I confidently anticipate, it may play a part in the ‘onement of religion and science’.”<sup>431</sup>

To this end, we note that the Greek word *synekhēs* could mean both ‘continuous’ and ‘contiguous’. This is a vitally important distinction. For instance, the pieces in a completed jigsaw puzzle are contiguous, for the borders between the pieces are visible, while the picture on the box appears continuous. Similarly, a process industry, such as oil, gas, and electricity, is continuous, while the products produced by a company manufacturing cars, television sets, and boxes of washing power, for instance, are contiguous, or better continual.

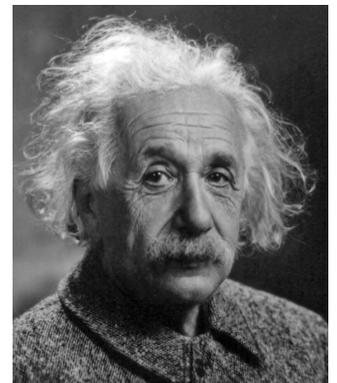
The key point here is that the continuity of consciousness is not sufficient, encapsulated in the new-age mantra “We are all one,” often sung while still holding on to an egoic notion of self. If we are to realize that our True Nature is Immortal, we need to realize the seamless continuousness of Cosmic Consciousness. In this respect, as Joseph Brent, Peirce’s biographer, points out, the continuous doctrine of synecism is very similar to Bohm’s concept of “unbroken wholeness in flowing movement”,<sup>432</sup> inspired by the process philosophy of Heraclitus and A. N. Whitehead, which Bohm called the holomovement, which he likened to a flowing stream, whose substance is never the same.<sup>433</sup>

Peirce’s studies of semiotics, existential graphs, philosophy of science, structure of knowledge, and pragmatism were also important precursors to panosophy, synthesizing all the various disciplines of learning. But rather than addressing these here, we look at most of them in Section ‘Further evolutionary precursors’, starting on page 57.

### **Albert Einstein**

A generation later, Albert Einstein (1879–1955) was destined to make a further major attempt to solve the ultimate problem of science with his Unified Field Theory, to which he devoted the last thirty years of his life. However, with science becoming ever more constrained and limited by its materialistic and mechanistic philosophy, he was bound to fail, as are today’s physicists seeking to develop what they erroneously call the Theory of Everything.

For the study of scientists’ thought processes is not included within the scientific domain, even though Einstein had some understanding of his own creative process, which he described in a famous letter in 1945 to Jaques Hadamard, who was then conducting a survey of some of the leading mathematicians of his day into how they develop their ideas. Einstein wrote:



The words or the language, as they are written or spoken, do not seem to play any role in my mechanism (sic) of thought. The physical entities (sic) which seem to serve as elements in thought are certain signs and more or less clear images which can be ‘voluntarily’ reproduced and combined.

There is, of course, a certain connection between those elements and relevant logical concepts. It is also clear that the desire to arrive finally at logically connected concepts is the emotional basis of this rather vague play with the above

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mentioned elements. But taken from a psychological viewpoint, this combinatory play seems to be the essential feature in productive thought—before there is any connection with logical construction in words or other kinds of signs which can be communicated to others.

The above mentioned elements are, in my case, of visual and some of muscular type. Conventional words or other signs have to be sought for laboriously only in a secondary stage, when the mentioned associative play is sufficiently established and can be reproduced at will.

According to what has been said, the play with the mentioned elements is aimed to be analogous to certain logical connections one is searching for.

In a stage when words intervene at all, they are, in my case, purely auditive, but they interfere only in a secondary stage as already mentioned.<sup>153</sup>

We can see from this letter that Einstein had some understanding of the psychodynamics of his inner world, intuitively recognizing the emergence of ideas from the Ground of Being that we all share before they can be expressed in language, a key distinction that Charles Sanders Peirce and Ferdinand de Saussure made around 1900, when founding the science of semiotics, introduced on page 60. But, from the language Einstein used, he was still viewing his creative processes in a materialistic, mechanistic manner, which, needless to say, lies outside the domain normally studied by physicists, not understanding the root meaning of the word *physics*.

Nevertheless, Einstein's awareness of his inner world was to play a vital role in his path-breaking discoveries, often initially formed through visualized thought experiments (*Gedankenexperiment*), a hallmark of his career, highlighted in Walter Isaacson's 2007 biography.<sup>434</sup> Similarly, as we see in Subsection 'An experiment in learning' on page 113, we need to use a thought experiment to awaken our intelligence, rising above the level of our machines, as extensions of thought. For we can only understand the world we live in with a deep understanding of the difference between humans and computers. Furthermore, as our maps and models of the external universe are formed in our minds, we can only understand the outer by understanding the inner universe.

Einstein learned to create pictures in his mind from Johann Heinrich Pestalozzi, a Swiss educational reformer, who wrote, "Visual understanding is the essential and only true means of teaching how to judge things correctly, the learning of numbers and language must definitely be subordinated." In 1895, when Einstein was sixteen, Pestalozzi was a teacher at the cantonal school in Aarau, forty kilometres from Zurich, whose prestigious Polytechnic Einstein was preparing to attend. Einstein loved the year he spent at Aarau, where he had the freedom to think for himself, unlike the authoritarian gymnasium he had previously attended in Munich, which required students to learn by rote, like machines, not understanding what they were learning.<sup>435</sup>

It was in Aarau that Einstein formed his first thought experiment, which was to lead to the special theory of relativity, as he later told a friend. "If a person could run after a light wave with the same speed as light, you would have a wave arrangement which would be completely independent of time."<sup>436</sup> To put this another way, someone with telescopic eyes travelling away from a mirror at the speed of light would see their reflection at the moment they left the mirror; time would have stopped for such an observer.

However, it took ten years for Einstein to express the full implications of this scenario in the language of mathematics. As he explains in his popular exposition on *Relativity*, at the heart of this problem is the apparent incompatibility between the constancy of the speed of light, expressed in the electrodynamic equations of James Clerk Maxwell (1831–1879), and the principle of relativity, which states that the mechanical laws of Galileo–Newton are exactly the same, no matter what co-ordinate system they are viewed from.<sup>437</sup>

In his 1905 paper 'On the Electrodynamics of Moving Bodies', Einstein resolved this dilemma by abandoning Newton's worldview, in which space and time are absolute. In four-dimensional space-

time—a concept that Hermann Minkowski (1864–1909) introduced in 1908<sup>438</sup>—everything is relative to everything else. To my mind, the oddest consequence of the special theory of relativity is that simultaneity is a relative phenomenon. While two events A and B might appear simultaneous to one observer, to other observers, A could appear before B and the other way round.

In Integral Relational Logic and the Universal Relationships Theory being presented in this treatise, this basic principle is generalized in two ways. First, everything in the world of form, not only in space-time, is relative to everything else. There are no absolutes in the relativistic world of form, not even the Absolute Truth. But this does not mean that the Truth does not exist, for to say so would assert an absolute truth, contradicting the assertion, as Ken Wilber points out in one of his many books, I forget which. Secondly, in the URT, not only is everything relative to everything to everything else, all beings are *related* to each other in a multitude of different ways. In human terms and in Reality, none of us is ever separate from God, Nature, or any other being for an instant. A deep understanding of this fundamental principle is essential if we are to resolve the existential crisis caused by the invention of the stored-program computer.

As a corollary of the special theory of relativity, published in Volume 17 of *Annalen der Physik* in Berlin in 1905, Einstein derived the famous equation  $E = mc^2$  in a three-page paper, titled ‘Does the Inertia of a Body Depend on Its Energy Content?’, published in Volume 18 the same year. In English translation, “If a body emits the energy  $L$  in the form of radiation, its mass decreases by  $L/V^2$ ,” where  $V$  is the velocity of light in empty space, a universal constant. In other words, “The mass of a body is a measure of its energy content.”<sup>439</sup> But where does this energy come from? Well, as material bodies are structures consisting of forms and the relationships between them—called binding energy—the energy can only come from these relationships, through fusion or fission. Once again, we generalize this principle in the URT by recognizing that meaningful structure-forming relationships, generally called synergy, are energetic. In other words, in the most general sense, *meaning is energy*, mass being a special case of this universal principle.

To demonstrate the paradoxical nature of the bifurcating universe, in 1905—Einstein’s ‘miraculous year’—Einstein wrote another paper titled ‘On a Heuristic Point of View Concerning the Production and Transformation of Light’, which refuted the wave theory of light, implicit in Maxwell’s equations. In 1900, Max Planck (1858–1947) had made the bold suggestion, known as Planck’s postulate, that the radiation energy of a black body is emitted, not continuously, but rather in discrete packets called quanta. The energy  $E$  of the quantum is related to the frequency  $\nu$  by  $E = h\nu$ , where  $h$  is known today as Planck’s constant. Einstein then extended Planck’s hypothesis to explain the photoelectric effect, which is the emission of electrons by a metal surface when it is irradiated by light or more-energetic photons.<sup>440</sup> In other words, light appears as *both* a wave *and* a particle, an apparent contradiction that Niels Bohr called complementarity,<sup>441</sup> a ubiquitous phenomenon.

By 1905, two fundamental theories of the physical universe were thus becoming established: the theory of relativity and quantum theory, applicable at the macro and micro levels, respectively. However, as these are incompatible with each other and as they cannot be unified within the materialistic worldview that we have inherited from the Babylonians some 5,000 years ago, the so-called new physics has been in great confusion and disarray ever since.

Einstein, himself, in his constant quest for unifying theories that would reveal the underlying order and harmony of his universe, began by addressing the problems that arose from the special theory of relativity. He was dissatisfied with this theory for two reasons. First, it applied only to uniform constant-velocity motion and secondly it did not incorporate Newton’s theory of gravity. He began to find a way of

addressing these issues with a thought that occurred to him in November 1907, when sitting in a chair at the patent office in Bern. “If a person falls freely, he will not feel his own weight,” an idea he would later call “the happiest idea in my life”. He later refined this thought experiment, imagining “that the falling man was in an enclosed chamber, such as an elevator in free fall above the earth”.<sup>442</sup>

But turning this picture into a sound scientific theory was even more demanding than developing the special theory. As he, himself, said, “Never before in my life have I troubled myself over anything so much. ... Compared with this problem, the original theory of relativity is child’s play.”<sup>443</sup> It was well known among physicists that every object has a gravitational mass, which determines its weight on the earth’s surface, and an inertial mass, which determines how much force must be applied to it in order to make it accelerate. Einstein therefore set out to show that the local effects of gravity and acceleration are equivalent, no matter what the system of coordinates might be, which he called ‘the equivalence principle’.<sup>444</sup>

This reconciliation was a great challenge, for two reasons. First, Einstein had to abandon the belief that the universe is governed by Euclidean geometry, recognizing that space-time is curved, applying the generalized geometries that Bernhard Riemann (1826–1866) introduced in a lecture in 1854, published in 1868.<sup>445</sup> Secondly, to quantify his vision, he needed to use a mathematical tool called tensor analysis, which his friend Marcel Grossmann (1878–1936) gave him much help with.<sup>446</sup>

The general theory of relativity is thus even more revolutionary than the special theory in the history of ideas. For while the latter merely overturned Newton’s absolute space-time framework, a little over two hundred years old, the former showed that Euclidean geometry, which had provided the framework for the mathematical study of space for well over two thousand years, is not universally applicable. To emphasize this point, Einstein began *Relativity* in 1916, translated into English four years later, with these words:

In your schooldays most of you who read this book made acquaintance with the noble building of Euclid’s geometry, and you remember—perhaps with more respect than love—the magnificent structure, on the lofty staircase of which you were chased about for uncounted hours by conscientious teachers. By reason of your past experience, you would certainly regard everyone with disdain who should pronounce even the most out-of-the-way proposition of this science to be untrue. But perhaps this feeling of proud certainty would leave you immediately if some one were to ask you: “What, then, do you mean by the assertion that these propositions are true?” Let us proceed to give this question a little consideration.<sup>447</sup>

So what is so unusual about Einstein’s ontogeny that led him to stand out from his contemporaries? Well, from his writings and from many biographies, it is clear that Einstein had an innate sense of wholeness, which never left him, despite living in a fragmented, divided world. As Wholeness is the True Nature of each and every one of us, this led Einstein to appear as much as a mystic as a scientist to those who knew him. For instance, Antonia Vallentin (1893–1957), a family friend through her friendship with Einstein’s second wife Elsa (1876–1936), wrote in her personal biography in 1954, “Einstein has achieved a detachment which few other people have ever attained. He is equally dissociated from the impression he makes on the world and from the repercussions of his fame.”<sup>448</sup>

The one exception to Einstein’s aloofness to personal relationships was Elsa, both a first and second cousin, their mothers being sisters and fathers first cousins.<sup>449</sup> Vallentin says that Elsa, who Einstein had known as a child, was the only permanent personal relationship in his life, dominating his private life. Einstein met up with Elsa again in 1913, when he was appointed a professor of physics at the University of Berlin. At the time, Elsa, the mother of two daughters, was divorced from her first husband Max Löwenthal, while Einstein’s marriage to fellow physicist Mileva Marić, the mother of their two sons, was coming to an end. So their marriage in 1919 seemed the most obvious thing in the world to both of them.

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During their affair during the First World War, Elsa, fluent in both English and French, protected Albert against the hostile world, as she was to protect him later on against the assaults of admiration or curiosity.<sup>450</sup>

Finding solace once again within womb of his own family greatly helped Einstein to deal with the world at large. The deep inner sense of authority that arises inevitably from Wholeness led Einstein to distance himself from external authority, in the form of both teachers and parents, from a very early age. However, as Vallentin tells us, he did not revolt from the ‘barrack-square’ atmosphere of the school in Munich that he attended from the age of ten, for this would have been inexpedient and absurd. Rather, “with characteristic logic, he simply ignored an authority which appeared incomprehensible.”<sup>451</sup>

Similarly, in *The Dynamics of Creation*, Anthony Storr (1920–2001) wrote “Very early indeed, Einstein set himself the task of establishing himself as an entirely separate entity,” a rather unfortunate expression, for Einstein did not fully share the sense of separation that has prevailed in human society for many thousands of years. Despite being one of the most insightful psychiatrists of his age, much influenced by Carl Gustav Jung, Storr did not recognize that the whole of society is suffering from schizophrenia, detached from Reality. Rather, he wrote, “Einstein provides the supreme example of how schizoid detachment can be put to creative use.”<sup>452</sup>

Storr points out that this is a characteristic that Einstein shared with both Newton and Bertrand Russell (1872–1970). In the case of the latter, both had a love of humanity greater than that of the love for individuals,<sup>453</sup> which led them to issue the Russell-Einstein manifesto in 1955 calling for an end to the nuclear arms race with the motto ‘Remember your humanity, and forget the rest,’<sup>454</sup> hardly a characteristic of a schizoid attitude. But as a corollary, neither found it easy to maintain long-lasting relationships with individuals who did not share their innate sense of wholeness. As Vallentin says about Einstein:

He has never really needed human contacts, but has deliberately freed himself more and more from all emotional dependence in order to become entirely self-sufficient. Real intimacy and the unconditional sharing of thoughts and feelings with another person, so that they become almost another self, is an experience he has hardly ever had: he fears it because it threatens the complete inner freedom which is essential to him.<sup>455</sup>

At the age of fifteen, Einstein took his need for freedom and independence far further than would be practical today. In 1894, the electrical business run by Einstein’s father and uncle, Hermann and Jakob, suddenly went bust, and they emigrated to Milan to start afresh, leaving young Albert in Munich to complete his education. However, rather than doing this, Einstein obtained a medical certificate saying that he was suffering from nervous exhaustion and left school, intending to pursue his own line of study. He then went to Milan to tell his parents that he was renouncing his German citizenship, remaining stateless for six years until he obtained Swiss citizenship at the age of twenty-one.<sup>456</sup>

With Western civilization, in particular, being built on the seven pillars of unwisdom, we similarly need to become autodidacts, free of the constraints imposed on us all by the deluded, schizoid education system. Of course, this can lead to great difficulty, not only with the ruling authorities but also in our relationships with family and friends, who are not quite ready to awaken to Total Freedom, a critical situation we explore further in Subsection ‘Becoming free of our ancestry’ on page 192.

In Einstein’s case, we also see his steadfast quest for freedom and independence in his religious outlook. He was born in Ulm in Swabia into a closely-knit Jewish family, outsiders within the essentially Christian society of south-east Bavaria. However, his parents were liberal-minded Jews and sought to become assimilated into mainstream society as much as possible, without actually converting. To this end, they sent young Albert to a Catholic school, where he received lessons in the catechism. However, when a

teenager, to emphasize his independence of the predominant culture, he went through a period of religious fervour, emphasizing his Jewish origins.<sup>457</sup>

Then, as an adult, Einstein naturally adopted his own individual view of God, which puzzled both religionists and non-religionists alike. Before he went to the USA in 1930, having first visited the country in 1921 to rapturous acclaim, practising orthodox Jews wanted to know whether he was really one of them. So “the Rabbi of New York cabled to him in advance as though examining his credentials: ‘Do you believe in God?’ Einstein cabled back this truthful and brief reply: ‘I believe in Spinoza’s God who reveals himself in a harmony among all people, not in a God that worries about the destiny and actions of man.’”<sup>458</sup>

During the second half of his life, Einstein’s religious outlook deeply affected his scientific studies. As a mystic, Spinoza knew that no one is ever separate from the Divine for an instant, a principle encapsulated in the first pillar of wisdom. As Einstein well knew, this means that there is no such entity as a personal god, despite the beliefs of Jews and Christians alike. This deistic perspective also means that we humans do not actually have the free will to act independently of either evolution as a whole or of society in particular. This situation led Einstein to believe in a deterministic universe, one in which “everything is determined ... by forces over which we have no control. It is determined for the insect as well as for the star. Human beings, vegetables, or cosmic dust—we all dance to a mysterious tune, intoned in the distance by an invisible piper.”<sup>459</sup>

It seems therefore that Einstein believed that God is both distant and is everywhere and everywhen, a *Weltanschauung* that many Jews and Christians believe in today, not unlike Newton’s religious cosmology. However, a deterministic universe is generally conceived to be more like Descartes’ mechanistic cosmology, in which God creates the universe and then leaves it to run of its own accord, in perpetuity. Einstein was not able to resolve these apparent contradictions because he did not understand the primary-secondary relationship between the vertical and horizontal dimensions of time, as few do, even today.

Throughout his life, Einstein, like Planck, also maintained another major inhibiting belief: he believed in the existence of a physical reality independent of the observer. As Antonia Vallentin tells us, “One of his colleagues, [Arnold] Somerfeld [(1868–1951)], asked him one day: ‘Is there a reality outside us?’ Einstein replied: ‘Yes, I believe there is.’ He believed that with the exploration of this reality outside us a new era would begin for humanity.”<sup>460</sup> He said much the same thing at the centenary of Maxwell’s birth, as we see on page 87.

But separating humanity from Divinity cannot lead to a new era for our species, for when studying subatomic phenomena, the observer must inevitably affect the observed; it is not possible to separate them. Einstein’s beliefs in absolute determinism and logical positivism thus led him to deny the probabilistic phenomena of quantum theory, a viewpoint expressed in a famous letter to Max Born in 1926: “Quantum mechanics is certainly imposing. But an inner voice tells me that this is not yet the real thing. The theory yields much, but it hardly brings us closer to the Old One’s secrets. I, in any case, am convinced that He does not play dice.” Nearly twenty years later, at the age of sixty-six, Einstein was still expressing much the same sentiment, writing to a former student, “Though I am now an old fogey, I am still hard at work and still refuse to believe that God plays dice.”<sup>461</sup>

Einstein was thus severely circumscribed in his attempts to develop his unified field theory, first announced in 1923 in his Nobel acceptance speech: “A mathematically unified field theory is sought in which the gravitational field and the electromagnetic field are interpreted only as different components or

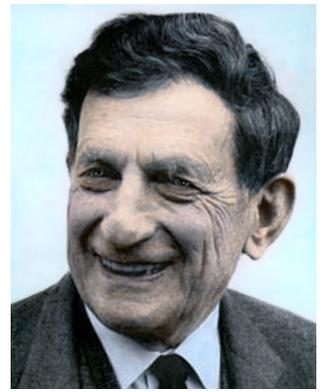
*Unifying Polarizing Opposites in Nondual Wholeness*

manifestations of the same uniform field, the field equations where possible no longer consisting of logically mutually independent summands.”<sup>462</sup>

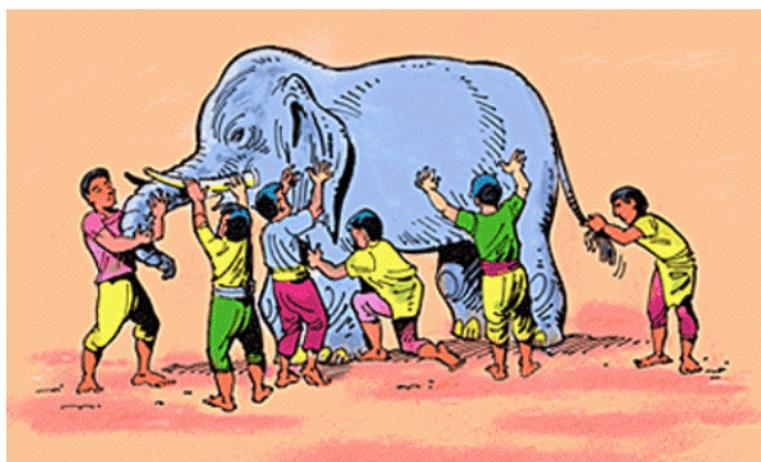
For the next thirty-two years—to his dying breath, according to a BBC drama documentary first broadcast in 2005—Einstein fruitlessly sought a simple field equation that could describe the uniform field that underlies the gravitational and the electromagnetic fields. Such a quest was utterly futile for the simple reason that in gravitational fields, like attracts like, while in electromagnetic fields, opposites attract, like homosexual and heterosexual relationships, respectively. The equation that Einstein sought for so long is thus  $W = A \cup \sim A$ , an expression of the Principle of Unity, the fundamental design principle of the Universe, where  $W$  is the Universal Field of Consciousness.

**David Bohm**

We now jump forward another generation and a half, to David Bohm (1917–1992), who I first met at Birkbeck College, a constituent of London University, in November 1980. It was a most unlikely meeting, for Bohm had been a friend and colleague of both Albert Einstein and J. Krishnamurti, while I had abandoned physics as a seventeen-year-old prior to majoring in mathematics at university, moving on to a career in the information technology industry, mostly with IBM as a manager and systems engineer in sales and marketing.



However, what brought us together was a passionate interest in healing the fragmented mind in Wholeness so that we could solve the immense problems facing humanity today. The problem of fragmentation is not new, as the ancient Indian story of the six blind men and the elephant well illustrates. There are several versions and interpretations of this story, but basically six blind men are asked to touch a part of an elephant and say what the elephant as a whole is like. As depicted in this picture, they touch the trunk, tusk, ear, leg, side, and tail and say that the elephant is a snake, spear, fan, tree, wall, and rope, respectively. Of course, they don’t agree and much conflict and argument ensues, the story of the human race.



One way of interpreting this story is for us to learn that whatever our specialisms might be, we should respect the views of others, who might be looking at the elephant from a different perspective. But such specialist perspectives do not tell us anything about the elephant as a metaphor for the Absolute Whole, Ultimate Reality, and the Supreme Being. For, as J. Krishnamurti wrote in *Education and the Significance of Life*, “Can any specialist experience life as a whole? Only when he ceases to be a specialist.”<sup>463</sup>

### *The Theory of Everything*

This is how Bohm described the most critical problem in society today in the opening paragraphs of the first chapter of *Wholeness and the Implicate Order*:

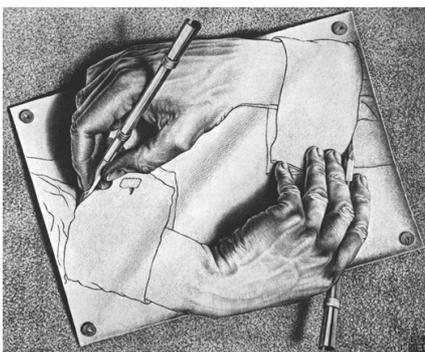
Fragmentation is now very widespread, not only throughout society, but also in each individual; and this is leading to a kind of general confusion of the mind, which creates an endless series of problems and interferes with our clarity of perception so seriously as to prevent us from being able to solve most of them.

Thus art, science, technology, and human work in general, are divided up into specialities, each considered to be separate in essence from the others. Becoming dissatisfied with this state of affairs, men have set up further interdisciplinary subjects, which were intended to unite these specialities, but these new subjects have ultimately served mainly to add further separate fragments. Then, society as a whole has developed in such a way that it is broken up into separate nations and different religious, political, economic, racial groups, etc. Man's natural environment has correspondingly been seen as an aggregate of separately existent parts, to be exploited by different groups of people. Similarly, each individual human being has been fragmented into a large number of separate and conflicting compartments, according to his different desires, aims, ambitions, loyalties, psychological characteristics, etc., to such an extent that it is generally accepted that some degree of neurosis is inevitable, while many individuals going beyond the 'normal' limits of fragmentation are classified as paranoid, schizoid, psychotic, etc.<sup>464</sup>

Bohm was not the only one seeking to heal the fragmented mind in Wholeness. In 1970, a group of academics convened in Nice to address the problem of specialisms in the universities, Erich Jantsch coining the word *transdisciplinarity*, in contrast to *interdisciplinarity* and *multidisciplinarity*.<sup>465</sup> Basarab Nicolescu then points out in *Manifesto of Transdisciplinarity* from 2002 that the discoveries of quantum physics mean that we need to abandon the Laws of Contradiction and Excluded Middle as the basis of logical reasoning, both in science and in society, in general.<sup>466</sup> However, he does not go so far as embracing the Principle of Unity, and thereby the mystical, in his worldview.

At the heart of Bohm's own solution to the problem of fragmentation is the principle that the observer and observed are one, a notion that led him to Krishnamurti around 1960, subsequently holding a series of dialogues on the relationship of science and mysticism. This principle holds not only in quantum physics, where an observing particle can affect that which is being observed, leading to Heisenberg's uncertainty principle. It is also critical if we are to intelligently and consciously heal the fragmented mind. As he said,

The fragmentation involved in a self-world view is not only in the content of thought, but in the general activity of the person who is 'doing the thinking', and thus, it is as much in the process of thinking as it is in the content. Indeed, content and process are not two separately existent things, but, rather, they are two aspects or views of one whole movement. Thus fragmentary content and fragmentary process have to come to an end *together*.<sup>467</sup>



Nothing is more important for the health and well-being of our species. Yet, thinking in this healthy way might seem impossible because it is rather like a TV camera filming itself filming, illustrated by Escher's famous lithograph 'Drawing Hands'.<sup>468</sup> Nevertheless it is in this wholesome manner that evolution can become fully conscious of itself, going even further than Julian Huxley foresaw. In his foreword to the first English translation of Pierre Teilhard de Chardin's *The Phenomenon of Man*, he wrote, "in modern scientific man, evolution was at last becoming conscious of itself—a phrase which I found delighted Père Teilhard."<sup>469</sup> It is interesting to note that Richard Dawkins is also delighted by this statement, as he told the world in 2012 at a debate with Rowan Williams, then the Archbishop of Canterbury.<sup>470</sup>

Now as Bohm pointed out that a theory is primarily a form of insight, this means that the genuine Theory of Everything does not exist in the words and other symbols written in this treatise. Rather, it is an ever-changing image, which can be felt and sensed in consciousness, but which paradoxically always stays the same, based as it is on and within the seamless, borderless continuum that is Consciousness or Ultimate Reality.

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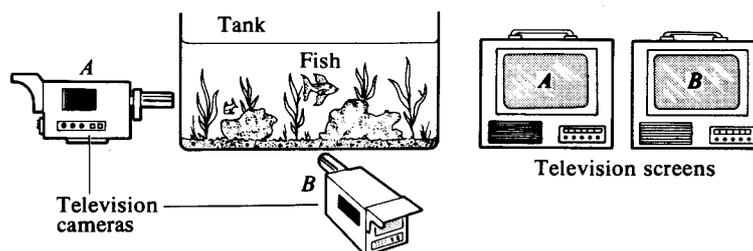
To explain this wonderful sense of Wholeness, Bohm used the hologram as a metaphor for the undivided wholeness of both relativity and quantum theories, illustrating a quite new type of order—the implicate order—underlying the explicate, where we see phenomena as being separate from each other, including each of us as human beings. For *hologram* derives from Greek *ólos* ‘whole’ and *gramma* ‘letter of the alphabet’, from *graphein* ‘to write’.<sup>471</sup> So a hologram or holograph is something that ‘writes the whole’, like collumination, mentioned on page 20.

Bohm used this metaphor to unify the theories of relativity and quantum mechanics, which he said should really be called ‘quantum *non*-mechanics’.<sup>472</sup> For they display opposite characteristics, the former having the properties of continuity, causality, and locality, with the latter being characterized by noncontinuity, noncausality, and nonlocality.<sup>473</sup>

Inspired by the process thinking of Heraclitus and A. N. Whitehead, Bohm reconciled these incompatibilities by recognizing the existence of a continuous power underlying the surface of the material universe, accessible to our five physical senses, which he likened to a flowing stream, called the holomovement, whose substance is never the same. As he said, “On this stream, one may see an ever-changing pattern of vortices, ripples, waves, splashes, etc., which evidently have no independent existence as such. Rather, they are abstracted from the flowing movement, arising and vanishing in the total process of the flow.”<sup>474</sup>

Bohm thus went much deeper than most physicists do, even today, even when they recognize the necessity for doing so. For instance, Martin Rees has said, “Einstein’s theory and the quantum theory cannot be meshed together: both are superb within limits, but at the deepest level they are contradictory. Until there has been a synthesis, we certainly will not be able to tackle the overwhelming question of what happened right at the very beginning.” As he goes on to say, “Interpretations of quantum theory today may be on a ‘primitive level’, analogous to the Babylonian knowledge of eclipses: useful predictions, but no deep understanding.”<sup>475</sup>

As well as using a river as a metaphor for what underlies the material universe, Bohm used the metaphor of a fish swimming in a tank with two television cameras filming it to show how relativity and quantum theories could be unified. The television screens would then display opposite characteristics of this single, underlying reality, illustrated here.



But what is the fish to make of all this? Well, the Sufi poet Kabir wrote in the fifteenth century, “I laugh when I hear that the fish in the water is thirsty,”<sup>476</sup> using water as a metaphor for Consciousness. But that is not how astrophysicists understand our Environment, or the Arena in which we live, leaving much to be understood. For instance, Martin Rees has said, “In the twenty-first [century], the challenge will be to understand the arena itself, to probe the deepest nature of space and time,” going on to say, “A fish may be barely aware of the medium in which it swims.”<sup>477</sup> For as Kabir the weaver says in the fish poem, “You do not see that the Real is in your home, and you wander from forest to forest listlessly.”

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Of course, such a wholesome worldview is not new, for it is ever present to those with the necessary sensitivity. For instance, this is how William Blake beautifully described such a holographic way at looking at Totality in *Auguries of Innocence*:

*To see a world in a grain of sand,  
And a heaven in a wild flower,  
Hold infinity in the palm of your hand,  
And eternity in an hour.*

Yet, even today, few scientists have understood or accepted Bohm's reconciliation of quantum and relativity theories. This is because the theory of the implicate order is as much about healing the fragmented mind as it is about physics, which requires us to go to the quick of the matter, beneath the surface of appearances. The transpersonal psychologist Stanislav Grof well understands this, for he says in *Beyond the Brain*, "Bohm's theory, although primarily conceived to deal with urgent problems in physics, has revolutionary implications for the understanding of not only physical reality but also of the phenomena of life, consciousness, and the function of science and knowledge in general."<sup>478</sup>

However, despite Bohm's lifelong search for Wholeness, he did not regard the theory of the implicate order as the Theory of Everything, essentially because he did not know how to include the concept of the Absolute in his cosmology. So when I asked him at our first meeting what is the source of all the energy in the Universe, he replied, "Energy does not have a source; it is contained within structure." As, I now know, energy is a property of meaningful, structure-forming relationships, whose Divine Source is the Origin of the Cosmos, called the Universal Quantum Field in Ervin Lazlo's Akashic paradigm.

So Bohm was a sceptic about the possibility of realizing the impossible dream, like so many others, as William Keepin pointed out in an appreciate view of his life and work following his death in 1992:

The artificial separation of process and content in knowledge becomes especially problematic in systems of thought that seek to encompass the totality of existence (as do grand unified theories in physics, for example). Bohm suggests that the movement in thought is a kind of artistic process that yields ever-changing form and content. He says, "there can no more be an ultimate form of such thought than there can be an ultimate poem (that would make all further poems unnecessary)". Indeed, imagine a Grand Unified Symphony that encompassed all possible symphonies—past, present, and future—thereby rendering all further musical composition redundant and unnecessary. The idea is preposterous, and yet many physicists, not recognizing their theories as art forms, strive for just such an ultimate scientific theory.<sup>479</sup>

I'm not sure where Keepin found this Bohm quotation, for it is just this ultimate form of undivided thought that I first described in an essay for my primary scientific mentor in December 1983 titled 'The Thoughtful Society: The Problems and Ethics of Communicating my Universal System of Coherent Thought'. I likened it to a meditation technique, although at the time, I had not learnt or practiced any traditional spiritual exercise, giving it a name that fitted into Bohm's rheomode, the flowing mode of language, putting the verb first, rather than the noun, as is normal in European languages.

Most importantly, what I realized while writing this essay is that in order to create and see a holographic worldview, a coherent system of thought is required, just as a laser beam is needed to create and see a hologram, today called collumination, the meditation technique outlined in Subsection 'Starting afresh at the very beginning', beginning on page 134. This fully integrated system of thought emerged in consciousness in order to solve a fundamental business management and modelling problem that I had been wrestling with three years earlier during the winter of 1979 and 80, when developing an innovative marketing programme Decision Support Systems for IBM in London, outlined on page 122.

## **Further evolutionary precursors**

Before we learn to colluminate, healing the fragmented mind as transdisciplinary panosophers, it should help to understand how the divergent streams of evolution have led to the multitude of academic specialisms that exist in the world today and how universities look at how the various disciplines relate to each other. Most important here is which discipline of learning has been considered the most fundamental, as the basis for all others and for managing our practical business affairs.

To Plato, the most fundamental of the disciplines needed to govern an ‘ideal society’ was philosophy, as we can see from this famous statement on governance:

The society we have described can never grow into a reality or see the light of day, and there will be no end to the troubles of states, or indeed, dear Glaucon, of humanity itself, till philosophers become kings in this world, or till those we call kings and rulers really and truly become philosophers, and political power and philosophy thus come into the same hands, while the many natures now content to follow either to the exclusion of the other are forcibly debarred from doing so.<sup>38</sup>

For Plato, a philosopher, as a lover of wisdom, is “the man who is ready to taste every branch of learning, is glad to learn and never satisfied.”<sup>480</sup> Knowing the immense power of abstract thought, a philosopher is therefore a generalist rather than a specialist, more focused on Wholeness than fragments. Philosophers also “have the capacity to grasp the eternal and immutable”. In contrast, those who are not philosophers “are lost in multiplicity and change”, and so are not qualified to be in charge of a state.<sup>481</sup> Furthermore, philosophers “will be self-controlled and not grasping about money. Other people are more likely to worry about the things which make men so eager to get and spend money”.<sup>482</sup> So a society ruled by financiers, economists, bankers, and accountants is not viable.

However, the meaning of the word *philosophy* has gone through many changes over the years, as have *science* and *religion* or *theology*, literally ‘the study of God’. In *History of Western Philosophy*, Bertrand Russell regarded philosophy as intermediate between theology and science, lying in a “No Man’s Land, exposed to attack from both sides,” a metaphor no doubt derived from his horrors of the First World War. But clearly, there can never be World Peace while there is a war going on between science and theology. Panosophy, as the Theory of Everything, heals this deep wound in the collective psyche, opened up over many centuries of human learning. As most people have not yet learnt to colluminate and become panosophers, in this section we look at some other evolutionary precursors, more familiar to thinkers than IRL and the URT.

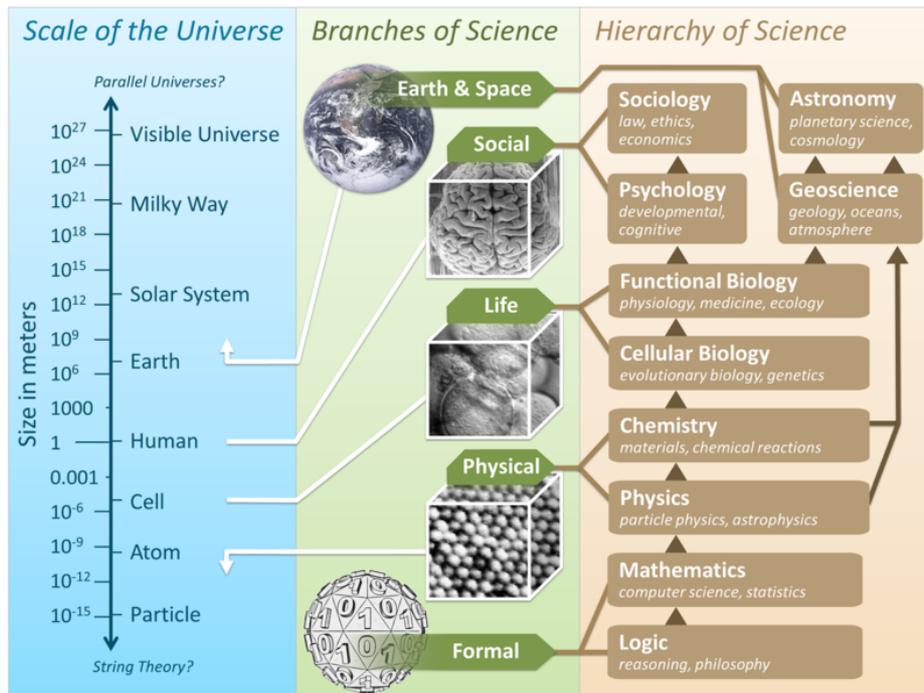
On page 23, we saw how Francis Bacon attempted to bring a sense of order to the categories of learning, somewhat different from the seven liberal arts being taught in the European universities, which were also known as the seven (liberal) sciences. For one meaning of *science* in the fourteenth century was ‘a particular branch of knowledge or study’, in keeping with the root meaning of the word, defined on page 24. But it was not until 1834 that ‘some ingenious gentleman’, later identified as William Whewell (1794–1866), coined the term *scientist* by analogy with *artist*, to refer to this analytical approach to learning, the OED tells us. Writing in 1840, Whewell said, “We need very much a name to describe a cultivator of science in general. I should incline to call him a Scientist.” So the so-called natural philosophy of Newton’s day became the misnamed natural science.

This nineteenth century saw a great explosion in human learning, leading to a multitude of different ways to categorize academic disciplines. During the two decades either side of 1900, Peirce made several attempts to bring a sense of order to this confusion in his architectonic.<sup>483</sup> For instance, in 1892, on a piece of paper found in his manuscripts, he listed ‘The Sciences in Their Order of Generality’, regarding pure and applied mathematics, as the most general, with logic, as a branch of philosophy, and psychology, as a

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branch of ‘numology’, taking second and third place, respectively.<sup>484</sup> For, as he wrote four years later, in a published paper emphasizing the primacy of mathematics, “Mathematics is the most abstract of all the sciences. For it makes no external observations, nor asserts anything as real fact.”<sup>485</sup>

Around the turn of the same century, Gottlob Frege and Bertrand Russell took a somewhat different view, attempting to base mathematics on logic.<sup>486</sup> In so doing, they absurdly separated logic, as the science of reason, from psychology, as the science of mind, as Peirce also did, as we see on page 71. Today, the split between logic and psychology is even wider, as this diagram, posted on Wikipedia in 2013, indicates.<sup>487</sup>



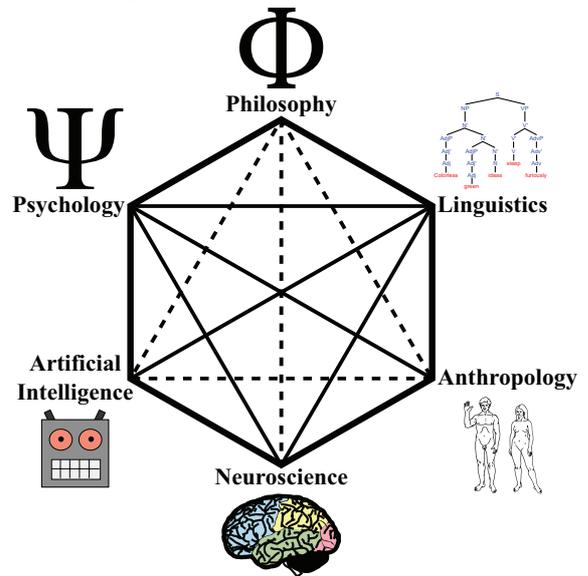
The astrophysicist Martin Rees takes a similar view: “The sciences are sometimes likened to different levels of a tall building: logic in the basement, mathematics on the first floor, then particle physics, then the rest of physics and chemistry, and so forth, all the way up to psychology, sociology, and economics in the penthouse. But the analogy is poor,” because “Problems in chemistry, biology, the environment, and human sciences remain unsolved because scientists haven’t elucidated the patterns, structures, and interconnections, not because we don’t understand subatomic physics well enough.”<sup>488</sup>

In other words, Rees acknowledges that discoveries in astrophysics, quantum physics, and genetics, can tell us little about how the mind works. So why is it that physicists have persuaded the general public that physics is the most fundamental of the sciences, convincing governments to give them billions of euros of taxpayers’ money in a futile search for a fundamental particle of matter and billions of dollars in a pointless search for life and the origin of the universe in outer space?

Following the invention of the stored-program computer, cognitive science emerged attempting to make sense of this epoch-making invention. In the 1950s, cognitive scientists believed that they were on the threshold of making the greatest breakthrough in human learning since the ancient Greeks. However, it was not until the 1970s that the various disciplines that were to form cognitive science came together. The trigger was the Alfred P. Sloan Foundation, which wished to invest a considerable amount of money in a scientific project that would stimulate significant progress in understanding the relationship between the brain and the mind.

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However, when the psychologist George A. Miller learned of this project, he suggested that AI was just a part of a much bigger movement, which needed to include psychology, linguistics, neuroscience, computer science, anthropology, and philosophy. As he said, “I saw psychology, linguistics, and computer science as central, the other three as peripheral.” The Sloan Foundation accepted this proposal, and in 1978 a dozen leading scholars drafted a State of the Art Report (SOAP), which included a sketch of the six constituent fields, called the cognitive hexagon, depicted in this diagram. The unbroken and broken lines indicate strong and weak interdisciplinary ties.



Integral Relational Logic can be seen as cognitive science, but rather than attempting to create artificial intelligence in machines, it reverses this process by using the discoveries of cognitive science to liberate intelligence from its mechanistic conditioning. For the methods and constructs of cognitive science, as it is conceived today, cannot solve the business modelling problem outlined on page 122, necessary to develop a comprehensive, self-reflective model of the psychodynamics of society. Solving this problem will bring about an even greater cognitive revolution than that of the past few decades.

### **Semiotic structures**

Because Western civilization is more focused on superficiality and materialism than on mystical profundity, there is a widespread belief that one of defining characteristics of *Homo sapiens* is humans' ability to speak and write language. But computers, as data-processing machines, also have this ability. So we need to look for another characteristic of what it truly means to be a human being.

Rather, as Teilhard pointed out in *The Human Phenomenon*, the most striking ability of human thought is that it is reflective. As he says, this is the power of consciousness to turn in on itself, not only to know, but to know that it knows.<sup>489</sup> However, it is better to say that Self-reflective Intelligence is the defining characteristic of our species. For Consciousness is the brilliant light that enables Divine Intelligence, as the eyesight of Consciousness, to look into the depths of the Cosmic Psyche, including the sub- and unconscious of the entire species.

Recognizing that the observer and observed are one is crucial, not only to heal the fragmented mind in Wholeness, as we saw on page 54, but also to solve the most fundamental modelling problem in business, necessary if we are to intelligently manage our business affairs with full consciousness of what we are doing.

Sadly, however, the human characteristic of Self-reflective Intelligence is not well known and fully experienced, for our innate intelligence tends to be stultified through acculturation, most cultures favouring the intellect over Divine Intelligence, which can see what the authorities do not want people to see in order for them to maintain the power structure of society. We address the psychological implications of this critical issue in Subsection 'Becoming free of our ancestry' on page 192.

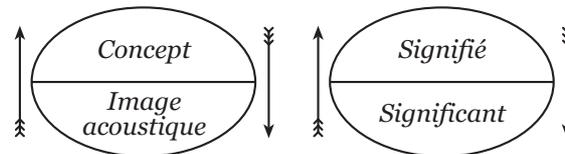
In the meantime, we note that regarding the observer and observed as one means that we need to abandon Alfred Korzybski's famous assertion, "A map is *not* the territory it represents, but, if correct, it has a *similar structure* to the territory, which accounts for its usefulness."<sup>490</sup> For, if evolution is to become

fully conscious of itself within us humans, the process of creating a comprehensive map of the psychodynamics of society must be included within the territory that is being mapped.

Nevertheless, looking at the structure of our linguistic maps—the subject of structural semiotics—can help us understand the conceptual meanings that underlie them, as Korzybski suggested. The word *semiotics* derives from Greek *sēmeiōtikos* ‘significant, observant of signs, interpreting symptoms’, from *sēmeiōsis* ‘indication’, from *sēmeioun* ‘to signal’, from *sēmeion* ‘sign’, from *sēma* ‘sign’. So since 1670, semiotics has been “The branch of medical science relating to the interpretation of symptoms”, also called *semiology* in the nineteenth century. So, observing the symptoms of our fragmented, split minds is the first step in healing them.

Then in 1880, *semiotics* came to mean ‘The science of communication studied through the interpretation of signs and symbols as they operate in various fields, especially language’. Two men are credited with founding semiotics with this meaning: Charles Sanders Peirce and Ferdinand de Saussure, working in the USA and Europe, respectively.

Although semiotics lies at the heart of Peirce’s architectonic, it is simpler to begin in Europe, rather than the USA. First of all, we need to look carefully at our maps, for they exist in two forms, as concepts and as words, sounds, and other signs that denote them. This is a distinction that de Saussure made in *Cours de linguistique générale*, which his students published posthumously in 1915. In this seminal book of structural semiology, as semiotics ‘science of signs’ was known in Europe at the time, de Saussure said: “I propose to retain the word *sign* [*signe*] to designate the whole and to replace concept and sound-image respectively by *signified* [*signifié*] and *signifier* [*signifiant*],” illustrated in this diagram.<sup>491</sup>



For instance, the concept of , as a mental image, could be represented by *tree*, *träd*, *arbre*, or *Baum* in English, Swedish, French, and German, respectively. No matter which language we use to express our ideas, we all have much the same understanding of the concept of tree, although there are some fuzzy edges, as there are with many concepts. Similarly, we could have the number three in our minds as the signified, where the signifier, such as 3 or III, is called a numeral. This distinction between numbers, as concepts, and numerals, as signifiers, is something that computers cannot make. Both concepts and the signifiers that represent them need strings of bits to denote them. This is the simplest way of proving that humans are not machines and hence that technological development cannot drive economic growth indefinitely, requiring a radical change in the work ethic that has governed human affairs for thousands of years.

However, what de Saussure omitted in his dyadic view of signs was a representation of the territory being mapped. To obtain a complete picture, we need to adapt Peirce’s triadic view of semiotics, which is not easy to follow because what he published on the subject in his lifetime is rather confused. The clearest statement of his semiotics is contained in an unpublished fragment he wrote about 1897, first partially published in the second volume of his *Collected Works* in 1932. In the first paragraph, Peirce wrote, “Logic, in its general sense, is, as I believe I have shown, only another name for *semiotic*.”<sup>492</sup> Then in the second paragraph, he wrote, “A sign ... addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*.”<sup>493</sup>

*Unifying Polarizing Opposites in Nondual Wholeness*

This triadic approach to semiotics is illustrated in what J. F. Sowa of IBM calls the ‘meaning triangle’ in *Conceptual Structures*,<sup>494</sup> inspired to do so by *The Meaning of Meaning* by C. K. Ogden and I. A. Richards, who learned about Peirce’s semiotics in England from Victoria, Lady Welby, who had corresponded extensively with Peirce after he favourably reviewed a book she had written titled *What is Meaning?*<sup>495</sup>

What this diagram illustrates is that there is an indirect relationship between language and the territory that language describes, not generally recognized by modern academic philosophers, focusing more attention on language than on the conceptual structures underlying language.

Indeed, the focus of attention in academia is so much on the superficial that the article on ‘concept’ in *The Oxford Companion to the Mind* states, “In psychology, concepts of mind must be invented or discovered, for we cannot see at all clearly into our own minds by introspection.”<sup>496</sup> Amazingly, psychologists, in general, do not know how the concept of concept is formed, a central concept in psychology. We shed light on our critical ignorance of the origins of our thinking on page 139.

In the meantime, there is nevertheless much that we can learn from the meaning triangle. First of all, the signifier, expressed in language, is also a concept, as a meaningful mental image, a relationship that Peirce, himself, recognized, rather confusingly using the word *sign* for both signifier and concept. This led Umberto Eco to use the phrase ‘unlimited semiosis’ to refer to the way this could lead to a series of interpretants *ad infinitum*.<sup>497</sup>

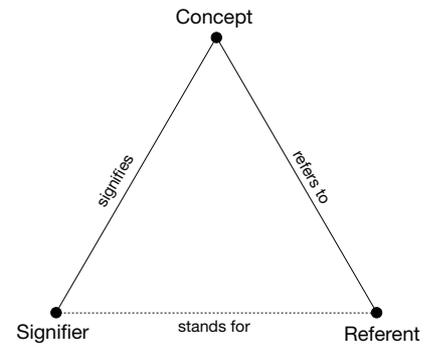
To distinguish what Peirce called ‘more developed signs’ from signs, as signifiers, we could call the former symbols in Jung’s meaning of this word. For, in his view, symbols having a profounder meaning than signs, often appearing as archetypes in the depths of the psyche.<sup>498</sup> So rather than saying that words are concepts in symbolic form, it would perhaps be better to say that they exist as *signate* forms.

Such symbols in the unconscious and dream world generally appear in pictorial form in the outer world, which Jung often explored, both within himself and his patients. For instance, in ‘A Study in the Process of Individuation’ published in Part I of the ninth volume of his *Collected Works* titled *The Archetypes and the Collective Unconscious*, Jung describes an extended case study of one of the patients he treated for ten years from 1928. In this book, he reproduces twenty-four pictures that his patient drew during this period, well illustrating her healing process, as she came to draw mandalas, indicating how the disturbed mind was being healed in Wholeness. The last in the series is shown here.



Concerning the problem of infinite regress that arises when we recognize signifiers as concepts, this disappears when we remember that in Transfinite Reality, Formless Wholeness is both the referent, as the territory being mapped, and the map itself. But as our minds create our reality and govern our behaviour, even in everyday life, what is called the referent is actually a projection of the conceptual models within our minds.

This is most noticeable in social institutions, much studied by a group of academics called ‘structuralists’. Like systems theory, structuralism is much concerned with seeking the general patterns underlying a wide range of different domains, such as anthropology, studying the actual evolution and



psychodynamics of human societies; literature, studying fictional stories depicting human behaviour; and linguistics, the study of the languages we use to communicate with each other.

Although Plato initiated the study of the origin of language in *Cratylus* (Cratylus being a follower of Heraclitus) and Aristotle began a study of the structure of language in *Poetics* and *On Interpretation*,<sup>499</sup> Giambattista Vico (1668–1744) was the first in modern times to attempt to create a science of human society, as Terence Hawkes tells us in *Structuralism and Semiotics*.<sup>500</sup>

In *The New Science*, published in three Italian editions from 1725 to 1744, Vico aimed “to perform for ‘the world of nations’ what [renaissance scientists such as Galileo, Bacon, and Newton] had achieved for ‘the world of nature’.”<sup>501</sup> Vico thus prefigured Fromm’s call for a new science of humanity two hundred and fifty years later, a call that can only be answered by realizing the impossible dream, as this treatise describes.

Vico began his New Science with 114 axioms or propositions about human nature and institutions, derived from a study of the chronology of pagan societies from the Biblical Flood to the Romans.<sup>502</sup> From this study of what he took to be the earliest stages of human phylogeny, corresponding to infancy in human ontogeny, he saw that the basic principle of the common origins of languages and letters is that the first peoples were *poets* or creators, who spoke through *poetic symbols*.<sup>503</sup> For *poet* derives from Greek *poiētēs* ‘maker, composer’, from *poiein* ‘to make, do, produce, create’.

Then beginning Book 4 on ‘The Course of Nations’, Vico wrote, “The first human nature was a poetic or creative nature produced by the powerful illusions of the imaginations, which is most vigorous in people whose powers of reasoning are weakest. Indeed, we might call it a divine nature, since it endowed physical objects with the animate substance of real gods, each of which represented an idea.”<sup>504</sup>

However, as he said in the ‘Idea of the Work, “to our more civilized natures, the poetic nature of the first people is utterly impossible to imagine, and can be understood only with the greatest effort”,<sup>505</sup> a sentiment that is even truer today, with another three hundred years of mechanistic, cultural conditioning. To address this critical issue, we look further at the relationship between the individual and society in Subsection ‘Becoming free of our ancestry’ on page 192.

At the heart of Vico’s New Science is the principle that we humans possess an inherent *sapienza poetica* ‘poetic wisdom’, which informs our responses to our environment in the form of a metaphysics of metaphor, symbol, and myth. Indeed, by turning to the ‘crude origins’ of poetic wisdom and mystical theology, Vico regarded metaphysics as the most fundamental of all the disciplines, from which various sciences branch out as if from a tree trunk, poetic logic, poetic politics, and poetic physics being some of the branches.<sup>506</sup> Inevitably, this structure is not unlike the hierarchies of the structure of the world of learning, outlined from page 57 onwards. In Hawkes’ words, “The gift of *sapienza poetica* could thus be said to be the gift of structuralism. It is a principle which informs the way all human beings always live. To be human, it claims, is to be a structuralist.”<sup>507</sup>

But what is structuralism? Well, in *Structuralism*, the definitive book on the subject, Jean Piaget begins by writing, “Structuralism is often said to be hard to define because it has taken too many different forms for a common denominator to be in evidence.”<sup>508</sup> Nevertheless, Piaget set out to find an ideal of intelligibility that all structures have in common, rather like the way that Pierce sought to find simple concepts applicable to every subject in his architectonic, as mentioned on page 44.

What Piaget found is that a structure is a system of transformations, comprising three key ideas: wholeness, transformation, and self-regulation, rather like the principle of homeostasis ‘same state’ in systems theory. By wholeness, Piaget meant a sense of internal coherence, distinguishing *structures* and

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*aggregates* in that the latter are “composites formed of elements that are independent of the complexes into which they enter”. Secondly, structures are not just static; they are also dynamic. The laws governing structures must be structuring, called *autopoiesis* ‘self-producing’ or ‘self-organizing’ in systems theory, from Greek *poiein*, cognate with *poetry*, as we have seen. Thirdly, structures are self-regulating, “self-regulation entailing self-maintenance and closure”, like closed systems in science, whose entropy, as a measure of disorder, can only increase according to the second law of thermodynamics.<sup>509</sup>

Piaget then went on to describe how these general principles apply within a large range of disciplines, from mathematics and logic, through physics and biology, to psychology, linguistics, and social sciences. This is similar to the way that Integral Relational Logic provides the generalizing framework for the Unified Relationships Theory, the Theory of Everything.

However, as structuralists are not generally aware that they are using IRL to form concepts and organize their ideas, they do not fully make explicit the ultimate abstract concepts underlying the structure of the Universe. Hawkes approaches this understanding when he says, “The true nature of things may be said to lie not in things themselves, but in the relationships which we construct, and then perceives, *between* them.”<sup>510</sup> Structuralists thus take a holistic view, rather than the reductionist approach of traditional science.

We can see the importance of including relationships in a coherent worldview from the word *interesting*, which is the third person singular indicative of Latin *interesse* (used directly as a noun in Middle English) ‘to be between, take part in’, from *inter* ‘between’ and *esse* ‘to be’. So what is interesting, important, and essential is not the interest that banks receive in today’s debt-driven, divisive economy, or more generally things in themselves, but the *relationships* between entities, a word also derived from *esse*. In contrast to holistic scientists, reductionist scientists, focused on objects rather than the relationships between them, throw the interesting associations and connections away!

But Hawkes omits to say that things are forms, in the most general sense, at the heart of all the *information* systems that constitute the Cosmos. Of particular interest here is the Russian formalists’ study of the structure of literature. Most significantly, in 1928, the Russian linguist Vladimir Propp (1895–1970) published a book called *Morphology of the Folktale*, which was to have a major influence on structural semioticians, such as Claude Lévi-Strauss, Roland Barthes, and Algirdas Greimas, after it was translated into English in 1958. In the plots of Russian folktales, Propp identified thirty-one functions or happenings involving the *Dramatis Personae*, who were just seven in number: hero, villain, donor, magical helper, dispatcher, false hero, and princess.<sup>511</sup> This structural analysis thus bears a striking resemblance to Joseph Campbell’s study of myths and fairytales, outlined on page 191, which can be regarded as metaphors for our spiritual journeys, recapitulating the Cosmogonic Cycle.

Having abstracted the concepts of form and relationship from structures, we now need to look at the third characteristic of structures, that of meaning. For structures do not obtain their cohesive power and strength from any old relationships. Relationships must be meaningful and significant within the context being considered. But “What is meaning?” a question that is just as great a challenge as asking, “What is life?” in today’s materialistic, mechanistic culture. The Lithuanian linguist Algirdas Greimas (1917–1992) addressed this tricky problem in an essay *Du sens: Essais sémiotiques* published in 1970. This was translated into English in 1990 in *The Social Sciences: A Semiotic View*, the opening paragraph of the first chapter titled ‘The Meaning of Meaning’ being:

It is extremely difficult to speak about meaning and to say something meaningful about it. The only way to do this adequately would be to construct a language that signified nothing. In this way an objective distance could be established that would allow holding meaningless discourses on meaningful ones.<sup>512</sup>

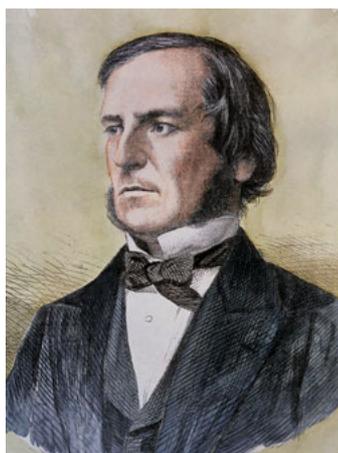
The abstract transcultural, transdisciplinary information systems modelling methods underlying the Internet enable us to hold almost meaningless discourse on meaningful ones, represented as the ontological level in IRL, illustrated in the diagram on page 132. However, bringing semantics, as ‘the study or science of meaning in language’, into science is not easy, for, as Greimas pointed out in 1966 in *Structural Semantics*, semantics is the poor relation of linguistics, its very name not being coined until the end of the nineteenth century,<sup>513</sup> the OED giving 1883 as the first use of the word, in French: *sémantique*, from Greek *sēmantikós* ‘significant’, from *sēmaínein* ‘to show, signify, indicate by a sign’, from *sēma* ‘sign’.

There are three central issues here. First, it is not possible to quantify meaningful relationships, not the least because synergistic structures, as wholes, contain more energy than the sum of energies in their constituent wholes. So while it is possible to represent the value of money in information systems models, the meaning of information, and hence its value, cannot be represented in financial models. Secondly, structural semiotics studies signifiers, not the meaningful concepts, denoted by symbols, underlying signs on the surface of things. Thirdly, structures in semiotics are not linear, unlike deductive logic, mathematical proof, and a sequence of instructions in a computer program.

### **Logical evolutionary predecessors**

To Peirce, semiotics, as the science of signs, is essentially logic, the science of reason, as mentioned on page 60. So let us spend a moment looking at the logical evolutionary predecessors of Integral Relational Logic, which we could call the science of conceptual modelling. In particular, we explore how the linear structures of deductive logic can be transformed into nonlinear ones, producing a taxonomy of taxonomies.

As most educated people know, Aristotle laid down the foundations of formal Western logic during the fourth century BCE with his treatise *Prior Analytics*, in which he described the rules that determine the validity of syllogistic reasoning. In a syllogism, a conclusion can be inferred from a major and minor premise. For instance, if “All humans are mortal,” and “All Greeks are human,” then “All Greeks are mortal.”



Other than adding a fourth syllogistic figure in the Middle Ages, which Aristotle had overlooked for some curious reason, nothing much happened in the development of deductive logic until 1833, when seventeen-year-old George Boole (1815–1864) had a life-changing mystical experience, in which the thought flashed through him as he was walking across a field that logical relations could be expressed in symbolic or algebraic form.

This was an idea that Gottfried Wilhelm Leibniz (1646–1716) had explored during the last third of the seventeenth century,<sup>514</sup> although Boole was unaware of this at the time. By thus explaining the logic of human thought, he felt it possible to delve analytically into the spiritual aspects of man’s nature. As Desmond MacHale, his biographer, tells us, “Boole referred to the incident many times in later life and seems to have regarded himself as cast in an almost messianic role.”<sup>515</sup>

However, it was to be another twenty years before Boole laid down the foundations of what was to become mathematical logic. Before this, in 1844, Boole wrote a paper titled ‘On a General Method in Analysis’ published in the *Philosophical Transactions of the Royal Society of London*.<sup>516</sup> Drawing on Duncan F. Gregory’s generalizing principles, Boole helped free mathematics from the tyranny of number systems, regarding the essence of mathematics as “the study of form and structure rather than content, and that ‘pure mathematics’ is concerned with the laws of combination of ‘operators’ in their widest sense.” For

instance, he noted that the commutative and distributive laws of arithmetic could equally apply to differential operators and geometric transformations.<sup>517</sup>

However, the fellows of the Royal Society did not readily accept Boole's major contribution to what is called 'operator theory', for he was precocious autodidact, working outside the constraining mainstream of mathematics at the University of Cambridge. As Gregory advised him, becoming an undergraduate at Cambridge, which Boole made some tentative inquiries to do, would have been unbearable to a man of his intelligence and hunger for original research, even if Boole had had the funds to attend the university.<sup>518</sup> For Boole was the son of a shoemaker, who was much more interested in science, literature, and mathematics to attend fully to his business.<sup>519</sup>

So to support his parents and siblings, Boole had been a humble schoolteacher from the age of sixteen, setting up his own school in Lincoln at nineteen.<sup>520</sup> Thankfully, one of the referees—Phillip Kelland, Professor of Mathematics at the University of Edinburgh—saw the merits of Boole's paper and strongly recommended its publication. As a result, Boole was awarded the Royal Society's first gold medal for mathematics, known as the Royal Medal.<sup>521</sup>

By thus gaining a reputation as one of the leading mathematicians of his day, Boole applied for and was appointed the first professor of mathematics at Queen's College in Cork in 1849, even though he did not have a degree.<sup>522</sup> There he met Mary Everest, the niece of both John Ryall, the Professor of Greek at the College, and Lieutenant-Colonel Sir George Everest, the Surveyor-General of India, who gave his name to the world's highest mountain.<sup>523</sup> Although Boole was seventeen years older than Mary, the daughter of a clergyman, they married in 1855, having some remarkable progeny.<sup>524</sup>

As an aside, one of the most noteworthy was Alicia Stott, who discovered by synthetic means that there are just six regular four-dimensional polytopes, corresponding to the five Platonic solids in three dimensions, creating three-dimensional cardboard models of their cross-sections, much to the amazement of professional analytical geometers, such as P. H. Schoute and H. S. M. Coxeter.<sup>525</sup> As Coxeter, himself, said, "Only one or two people have ever attained the ability to visualize hyper-solids as simply and naturally as we ordinary mortals visualize solids."<sup>526</sup>

Before becoming established in the post of professor of mathematics, Boole laid down the foundations of signate logic—as symbolic logic can most clearly be called—with the publication of *The Mathematical Analysis of Logic: Being an Essay towards a Calculus of Deductive Reasoning* in 1847, further developing it with his magnum opus *An Investigation of the Laws of Thought on Which Are Founded the Mathematical Theories of Logic and Probabilities* in 1853. Here is the first sentence of this latter work: "The design of the following treatise is to investigate the fundamental laws of those operations of the mind by which reasoning is performed," with the purpose of exploring "the nature and constitution of the human mind".<sup>527</sup>

So right at the outset, Boole saw signate logic, as the science of reason, as lying within psychology, where, of course, it properly belongs. In this respect, he was following a long line of thinkers, from Aristotle to Leibniz, who had dreamt of making logic a precise science, which could be formalized and symbolized in such a manner that these principles could be applied "in a more or less mechanical or automatic way to the analysis of a wide range of human, linguistic, ethical, and scientific situations".<sup>528</sup> However, while Boolean logic was to lead to the invention of the stored-program computer, Boole's dream that logic could form the basis of a science of mind and consciousness can only be fulfilled by realizing the impossible dream. For, as has been said over and over again in this treatise, the idea that

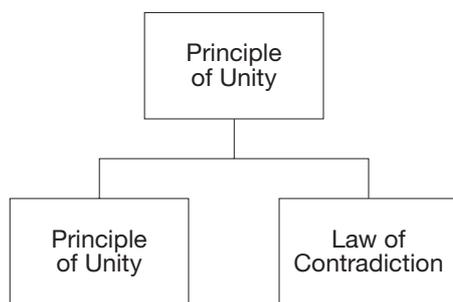
human thought can be mechanized is based on the false belief that human beings are machines and nothing but machines.

Nevertheless, Boole's books were to have an immense influence. In *Laws of Thought*, Boole said in his first proposition that all the operations of language, as an instrument of reasoning, could be considered to be a set of literal symbols, such as  $x$ ,  $y$ , and  $z$ , representing concepts, and signs of operation, such as  $+$ ,  $-$ , and  $\times$ , with a sign of identity  $=$ , to compare expressions. For instance,  $x$  could denote 'all men', while  $y$  could serve as a representation of the class 'good things'. So  $xy$  would denote 'all good men', as would  $yx$ .<sup>529</sup> Alternatively,  $y$  could denote 'all women', exclusive to  $x$ . In this case,  $x + y$  would denote 'all men and women'. And  $z(x + y) = zx + zy$  could denote 'European men and women', these expressions obeying commutative and distributive laws.<sup>530</sup> It seems, however, that Boole did not consider the associative law, one of the oversights in his trail-blazing work.<sup>531</sup>

Now one key result of his algebraic logic is that if  $x$  and  $y$  have the same signification, their combination expresses no more than either of the symbols taken alone would do. In this case  $xy = x$ , as 'good, good things' is essentially the same as 'good things', just with added emphasis. But as  $x = y$ , we can say  $xx = x^2 = x$ .<sup>532</sup> By the Principle of Unity, there are two ways that we can view this relationship.

First, in algebra, this equation has the roots 0 and 1, constants that Boole took to denote the empty set and 'universe of discourse', respectively. So the expression  $1 - x$ , alternatively written  $\bar{x}$ , would denote 'all things that are not  $x$ ' within some particular domain of discourse. Furthermore, as  $x^2 = x$  could be rewritten  $x(1 - x) = 0$  or  $x \cdot \bar{x} = 0$ , this equation represents Aristotle's Law of Contradiction, not as the most basic of axioms, but as a proposition. For as he said, if  $x$  represents 'men' and  $\bar{x}$  'not men', then the expression  $x \cdot \bar{x}$  represents "a class whose members are at the same time men and not men," which is the empty class. Boole called this equation the 'law of duality',<sup>533</sup> later to be called by academics at Cambridge University 'Boole's equation', for in general, it applies no matter what class of beings that  $x$  might denote, assuming that the Law of Contradiction is universally true. As Mary his widow tells us, "George afterwards learned, to his great joy, that the same conception of the basis of Logic was held by Leibnitz, the contemporary of Newton."<sup>534</sup>

Alternatively, we could write the equation  $x^2 = x$  as an expression or function,  $f(x) = x^2 - x$  or  $x(x - 1)$ , which could take values other than 0. For instance,  $x(x - 1) = 1$  or  $x \cdot \bar{x} = 1$  could be interpreted as "the



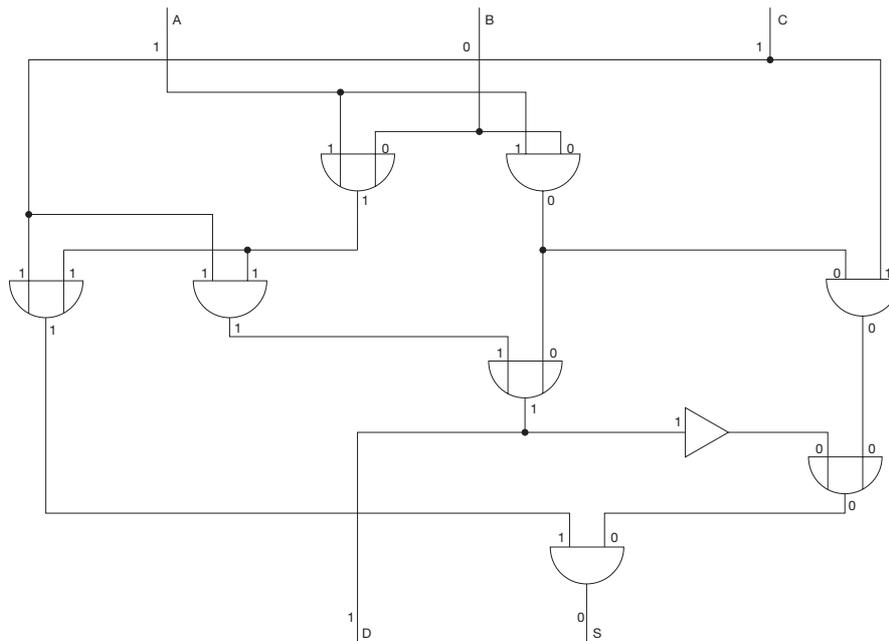
union of all opposites is the Universe or Wholeness." In other words, the Principle of Unity. As such, Boole's function could represent both the Principle of Unity and the Law of Contradiction, depending on whether it is equal to 1 or 0, respectively. To put the latter into perspective, we should not forget that as Wholeness is fundamental, there is a primary-secondary relationship between Aristotle and Heraclitus' view of opposites, depicted here.

In the case of the former, the roots of the algebraic equation are  $(1 \pm \sqrt{5})/2$  or 1.618 and -0.618, the former known as the golden ratio or section ( $\phi$ ) or divine proportion in sacred geometry,<sup>535</sup> becoming very popular today, not the least because it appears abundantly in both mathematics and nature. For instance, it appears in the small and great stellated dodecahedra, discovered by Kepler, and in the Fibonacci series, 0, 1, 1, 2, 3, 5, 8, 13, 24, 55, 89, 144 ... defined recursively as  $F_n = F_{n-1} + F_{n-2}$ , where  $F_0 = 0$  and  $F_1 = 1$ . Kepler, when asking why plants and snowflakes form in fives and sixes, saw that the ratio between consecutive terms probably has a finite limit, which he conjectured would be  $\phi$ , a key characteristic of the dodecahedron and icosahedron.<sup>536</sup>

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Boole's function is an example of a general principle by which Boolean algebra could be used for the purely symbolic manipulation of classes. In an example given by Desmond MacHale, much clearer than in Boole's book, consider the classical syllogism 'all As are B, all Bs are C; therefore all As are C'. "In Boole's notation, the hypothesis could be written  $a=ab, b=bc$ . By substitution  $a=ab=a(bc)=(ab)c=ac$ ."<sup>537</sup>

As the result of this seminal book, Boole's name has been immortalized in the operators of AND, OR, and NOT in Boolean algebra, well familiar to anyone engaged in making searches of databases on the Internet, and in the Boolean data type in many programming languages, having the values 'true' or 'false'. Basic arithmetical operations of binary digits can also be represented in Boolean algebra, as this diagram of a one-bit adder shows.<sup>538</sup>



Here, two bits, A and B, are added to a carry over, C, from a previous operation. The result is S, with a new carry over, D. Using the modern notation of Boolean logic:

$$S = (C \vee (A \vee B)) \wedge (\neg((C \wedge (A \vee B)) \vee (A \wedge B))) \vee ((A \wedge B) \wedge C)$$

and  $D = (C \wedge (A \vee B)) \vee (A \wedge B)$ .

As arithmetic can thus be seen in terms of Boolean logic, Boole could be considered one of the founding fathers of computer science, as much as Charles Babbage and Ada Lovelace, as the parents who worked on Babbage's Analytical Engine, as mentioned on page 107.

But we can go further in this reductionistic, analytical process. These expressions might appear as the most fundamental constructs lying at the core of all computer systems. However, in 1913, Henry M. Sheffer showed that Boolean operators could be defined in terms of a single NAND gate, known today as a Sheffer stroke ( $|$ ),<sup>539</sup> which has a dual with the same properties: a NOR gate.<sup>540</sup>

As with so many ideas in logic, Peirce anticipated Sheffer's landmark paper in 1880 with an unpublished manuscript titled 'A Boolian [sic] Algebra with One Constant', but not published until 1933 in Volume IV of his *Collected Papers*, titled *The Simplest Mathematics*, as the editors Charles Hartshorne and Paul Weiss pointed out.<sup>541</sup>

So, in theory, all computers could be programmed using just the Sheffer stroke, the most fundamental example of active data in computers, acting on bits of passive data, which, could, in theory, be included in a process-entity matrix, illustrated on page 122. Of course, such a program would be semantically indigestible, not representing concepts that programmers use in developing programs. If we are to find

general concepts that can serve as the basic building blocks for the Theory of Everything, we must look elsewhere, as described in Section ‘Integral Relational Logic’ on page 126.



However, in 1901, Mary Everest Boole (1832–1916), added a postscript on the real meaning of Boole’s contribution in a remarkable open letter written to a Dr Bose titled ‘Indian Thought and Western Science in the Nineteenth Century’, published in *The Ceylon National Review* in June 1909 and printed in booklet form in 1911 under the title of *The Psychologic Aspect of Imperialism*, stretching to twenty-one pages in her voluminous collected works.<sup>542</sup>

Mary was a widow for some 52 years, living to the age of 84, to her husband’s 49, having had five daughters with him during nine years of marriage. She seems to have been one of the few people who understood the real intention behind his life’s work, which is well explained by her letter. For Boole was an outsider to the mainstream of Western thought, not fully understood even today, like Johannes Kepler, John Amos Comenius, Ada Lovelace, Charles Sanders Peirce, Carl Jung, and David Bohm, for instance.

Although Mary Boole was the daughter of a clergyman in the Church of England in Gloucestershire, her father was far from being conventional. Because of suspected consumption, he moved to Paris in 1837, when Mary was five, to be near Samuel Hahnemann, the founder of homoeopathic medicine.<sup>543</sup> On returning to England when Mary was eleven, her father was not a typical priest, regarding himself as a servant of the people, appointed to organize the culture of the parish *in accordance with the desires of the most serious and wise inhabitants*, much to the alarm and anger of the neighbouring clergy.<sup>544</sup>

An incident when preparing for confirmation sheds much light on her religious convictions. Mary asked her father what does it mean to say that Jesus is an Incarnation of God? He replied, “Why can’t you understand? You are an Incarnation of God yourself.” As she added, “This from a country clergyman in 1849!”<sup>545</sup> Also, she tells us that when her uncle George went out to India at sixteen, “He made the acquaintance of a learned Brahman, who taught him—not the details of his own ritual, as European missionaries do, but—the essential factor in all true religion, the secret of how man may hold communion with the Infinite Unknown.”<sup>546</sup> She, herself, was horrified by the British governing classes and colonial attitudes, saying, “how can we expect to retain the loyalty of Hindus, if we trample out their normal development and their self-respect?”<sup>547</sup> And even though she knew that naming the highest mountain in the world after her uncle was to honour his services to engineering science, she still thought that altering the ancient name of the great mountain was a “queer kind of vandalism”.<sup>548</sup>

This spiritual, almost mystical background, intuitively grounded in the ancient, perennial wisdom that underlies all the religions, shows us clearly how George and Mary Boole saw *The Laws of Thought*: it was as much a book about psychology as mathematics. For what else is logic, as the science of reason, but the foundation of psychology? To Boole, the human mind works both by receiving information from the external world and also by receiving knowledge directly from The Unseen every time it returns to the thought of Unity between any given elements (of fact or thought), after a period of tension on the contrast or antagonism between those same elements, an insight that arose from his mystical experience as a seventeen-year-old.<sup>549</sup>

However, this was not how the academic world saw this work, even though it was enchanted by it, Herbert Spencer saying that the book was “the greatest advance in Logic since Aristotle”. Rather, “nearly all the logicians and mathematicians ignored the statement that the book was meant to throw light *on the nature of the human mind*, and treated [Boole’s equation] entirely as a wonderful new method of reducing

to logical order masses of evidence about external fact.” To which Mary added, “Only think of it! The great English religious mind, which considers itself competent to preach *the Truth*, the only saving Truth, to all mankind; the great academic educational mind which is to improve Hindu culture off the face of the earth, fell into a trap which I believe would hardly have deceived a savage.”<sup>550</sup>

As Mary tells us, her husband “went very little into university society, because he had good reason to know that the cordiality of his admirers would in most cases have been diminished if they had had any clear idea what his books really were about.”<sup>551</sup> Mary herself had seen since the age of eighteen that ‘Boole’s equation’ is “the mere algebraic expression of natural psychologic truth”, although she does not seem to have understood the distinction and relationship between Aristotle’s Law of Contradiction and Heraclitus’ Hidden Harmony. Nonetheless, even with this ambiguity, every attempt on her part to explain Boole’s equation or function as a law of the human mind known in Asia from the earliest recorded ages met with either violent opposition or blank non-intelligence by her contemporaries.<sup>552</sup>

Apparently, few could see what she could see and feel, that the mystical strand underlying the religions

consists of allusions to and hints of the great, world-wide, world-old secret, of the means by which man can maintain and increase his capacity for directly receiving into himself fresh force from cosmic sources, and fresh knowledge direct from that storehouse of the As-Yet-Unknown which remains always infinite, however much we may learn. I call this latter strand ‘secret’, not because those who most truly know it are unwilling to communicate it to anyone who wishes to know it, but because of the unwillingness of men agglomerated in groups either to know it or to let it be known. The majority both dislike for themselves the stern self-discipline which the knowledge of it imposes, and dread the mental power given to others by its possession.<sup>553</sup>

Given the resistance Mary felt to George and her attempts to base mathematical logic—the most fundamental of all the sciences, as the science of thought and consciousness—on mystical union with the Divine, which she had learnt from the East, it is perhaps not surprising that she mentions, “I am sometimes told that my experiences and my husband’s are unique.” To which she responded, “I do not think so. If they were, they would be in no way worth recording.” For she suspected that the resolute determination of religious people to suppress evidence of the value of cultures other than their own had led to much work similar to her husband’s being ruthlessly destroyed, giving two examples.<sup>554</sup> It seems that nothing has changed in one hundred years. Today, academics in all disciplines, as much as religionists, do their best to deny the universal truth that would enable us to live in love and peace with each other by ending the long-running war between science and religion.

Another British mathematician Augustus De Morgan (1806–1871) made the next major contribution to the development of signate logic, introducing the concept of *relation*, essential for transforming linear logic into nonlinear. Between 1846 and 1862, De Morgan wrote five papers ‘On the Syllogism’, published in the *Transactions of the Cambridge Philosophical Society*. The second of these in 1850 first mentions the concept of relation, which De Morgan defined in the third in 1858 thus: “When two objects, qualities, classes, or attributes, viewed together by the mind, are seen under some connexion, that connexion is called a relation.”<sup>555</sup>

However, it was not until 1860 in the fourth paper subtitled ‘On the Logic of Relations’ that De Morgan described his initial attempt to develop a calculus of relations, stating, “the ordinary syllogism [is] one case, and one case only, of the composition of relations.”<sup>556</sup> He also introduced the principle of duality into logic, as did Charles Sanders Peirce, quite independently. Just as lines and points can be interchanged in projective and inversion geometry, the dual to  $x \cdot \bar{x} = 0$  is the relation  $x + \bar{x} = 1$ .<sup>557</sup> De Morgan thus generalized the notion of the copula, from Latin *cōpula* ‘link’, which connects the subject and predicate in syllogistic propositions. For as Morris Kline points out, the relation ‘to be’ is severely limited, leading to incorrect or possibly incorrect conclusions. He gives two examples.<sup>558</sup>

*The Theory of Everything*

John is a brother;

Peter is a brother;

Hence John and Peter are brothers (of each other),

which can obviously be incorrect. Likewise:

An apple is sour;

Sour is a taste;

Hence an apple is a taste,

is also an incorrect conclusion.

As De Morgan realized, the richness of the relationships between thoughts, although much studied by psychologists at his time, had been neglected by logicians. He mentions that Aristotle had paid scant regard to the abstract notion of relation, although in so doing, “Aristotle is rather too much the expositor of common language, too little the expositor of common thought.”<sup>559</sup> In extending Boole’s mathematical laws of thought, it seems that De Morgan was attempting to go beyond the structure of sentences and to look at the underlying structure of thought, and hence of the Universe. However, he was still stuck with signs denoting thoughts, not with thoughts themselves, as was Boole’s original intention.

Charles Sanders Peirce, a voracious reader of everything he could get his hands on (in 1896 he had twenty-nine volumes of the *Philosophical Transactions of the Royal Society* in his library),<sup>560</sup> read De Morgan’s ‘Logic of Relations’ and used it as the basis of a paper he presented on 26th January 1870 to the American Academy of Arts and Sciences, titled ‘Description of a Notation for the Logic of Relatives, Resulting from an Amplification of the Conceptions of Boole’s Calculus of Logic’ (DNLR).<sup>561</sup> This was then published in the *Memoirs of the American Academy of Arts and Sciences* and also as a book, the first of Peirce’s published papers in logic.<sup>562</sup> In 1984, Daniel D. Merrill described this paper as “one of the most important works in the history of modern logic, for it is the first attempt to expand Boole’s algebra of logic to include the logic of relations”.<sup>563</sup>

However, this seminal paper was not well known, for as Geraldine Brady tells us, “The European mathematical and scientific community would have had little contemporary access to Peirce’s paper except through personally circulated copies.”<sup>564</sup> Indeed, this is how some leading logicians, such as De Morgan and W. Stanley Jevons, first came to know of Peirce’s work. In 1870, Peirce visited Europe for the first time in his capacity as assistant to the Supervisor to the United States Coast Survey to find a suitable site to watch the eclipse of the sun in December that year. So in June, he was able to meet De Morgan, giving him a copy of DNLR, which was discussed at the Liverpool meeting of the British Association for the Advancement of Science in September.<sup>565</sup>

Following Peirce’s appointment as a lecturer in logic at the John Hopkins University in 1879, when still working full-time with the US Coastal Survey, in 1880 Peirce wrote a major paper on ‘On the Algebra of Logic’, published in the *American Journal of Mathematics*, founded and edited by James Joseph Sylvester (1814–1897), the distinguished professor of mathematics at Johns Hopkins University.<sup>566</sup>

As a follow-on to the 1880 paper, Peirce read a paper in October 1884 before the National Academy of Sciences, published in January 1885 in expanded form as ‘On the Algebra of Logic: A Contribution to the Philosophy of Notation’, again in the *American Journal of Mathematics*, intended as the first of two papers for this journal.<sup>567</sup> In the event, this “was to be Peirce’s last technical paper on logic to appear in a major scientific journal”,<sup>568</sup> although he did have an article published on ‘The Logic of Relatives’ in *The Monist* in 1897.<sup>569</sup>

The primary reason for Peirce’s change of fortunes was his nemesis, Simon Newcomb, who was appalled by the way that Peirce married his mistress Juliette, having lived openly with her after he and his wife Zina separated. For as Joseph Brent writes, “For a sanctimonious man of affairs of the period such as

Newcomb, for Peirce to have a mistress was both understandable and acceptable if the affair were carried on discretely, but to marry her after such a public liaison was outrageous because to do so attacked the sanctity of marriage.”<sup>112</sup>

As a result, Peirce became a *persona non grata*, not only within polite American society, but also in academia, especially at Harvard University. Given the resulting turmoil in Peirce’s life, it is perhaps not surprising that his contribution to mathematical logic has been greatly underestimated. As part of a Ph. D. thesis, in the 1990s, Geraldine Brady did some sterling work on Peirce’s place in the history of logic, particularly his influence on Ernst Schröder (1841–1902), Leopold Löwenheim (1878–1957), and Thoralf Skolem (1887–1963), publishing a book on the subject, as an expansion of her thesis.

In the event, Gottlob Frege (1848–1925) is generally regarded as the next major figure in the development of mathematical logic, taking the science of reason further away from psychology with the publication of seminal work *Begriffsschrift* in 1879, usually translated as ‘concept writing’ or ‘concept notation’, although the full title of this short book in English translation is *A Formula Language, Modeled on that of Arithmetic, of Pure Thought*. Also, Philip Jourdain translated *Begriffsschrift* as ‘ideograph’ in a 1912 paper, a translation that apparently Frege approved.<sup>570</sup> Be this as it may, *Begriff* derives from German *begreifen* ‘to comprehend’, from the PIE base *\*ghreib* ‘to grip’, also the root of *grip* ‘grasp, clutch’, with a figurative meaning ‘Intellectual or mental hold; power to apprehend or master a subject’. So a concept is something that can be held in the mind.

Now Frege was not simply representing Aristotle’s logic in symbolic form, as Boole had done; he was seeking to employ logic in order to provide a sound foundation for arithmetic. As he said, “My intention was not to represent an abstract logic in formulas, but to express a content through written signs in a more precise and clear way than it is possible to do through words. In fact, what I wanted to create was not a mere *calculus ratiocinator* but a *lingua characterica* in Leibniz’s sense.”<sup>571</sup> For Leibniz had distinguished two components in his ambitious project to create a mathematical logic. As Jaakko Hintikka tells us:

On the one hand, Leibniz proposed to develop a *characteristic universalis* or *lingua characteristicica* which was to be a universal language of human thought whose symbolic structure would reflect directly the structure of the world of our concepts. On the other hand, Leibniz’s ambition included the creation of a *calculus ratiocinator* which was conceived of by him as a method of symbolic calculation which would mirror the processes of human reasoning.<sup>572</sup>

Leibniz’s distinction between a *lingua characteristicica* and *calculus ratiocinator* correspond to passive and active data in computers, corresponding to Gilbert Ryle’s distinction between knowing that and how in *The Concept of Mind*, illustrated on page 109.

Frege favoured the static approach, replacing Aristotle’s subject and predicate with the mathematical concepts of function and argument, introducing quantifiers and propositional functions into logic.<sup>573</sup> He thereby laid down the foundations of what became first-order predicate logic, the most significant change in deductive logic since Aristotle defined the syllogism in the *Organon*. However, Leibniz’s conception of a *calculus ratiocinator*, explored by Vernon Platt in Part I of *Thinking Machines: The Evolution of Artificial Intelligence*<sup>574</sup> was bound to fail, for no mechanistic, linear process of reasoning can possibly provide us with a valid map of a nonlinear, holographic, multidimensional Universe, being constantly refreshed through the Divine power of Life arising directly from the Fountainhead.

As well as developing a *lingua characteristicica*, Frege continued to pursue his goal of providing arithmetic with a sound foundation with the publication of the first volume of *Grundgesetze der Arithmetik* ‘Basic Laws of Arithmetic’ in 1893. Then in 1902, just when the second volume was about to be published,

Bertrand Russell (1872–1970) wrote a famous letter to Frege, notably agreeing with his rejection of any psychological element in logic.<sup>575</sup>

In 1865, in the first of a series of lectures ‘On the Logic of Science’, Peirce initially took a similar view, for he said all the definitions of logic that had evolved during the previous two millennia could be divided into two classes: “those which do not and those which do give to logic a psychological or human character”.<sup>576</sup>

In examining the relative merits of these two views of logic, Peirce said, “we ought to adopt a thoroughly unpsychological view of logic”, for three reasons. First, “I say that the logical form is already realized in the symbol itself; the psychologists say that it is only realized when the symbol is understood.” So “logic needs no distinction between the symbol and the thought; for every thought is a symbol and the laws of logic are true of all symbols.” Secondly, Peirce said, “The second advantage of the unpsychological view is that it affords a most convenient means for exploding false notions of the subject,” going on to say, “The third advantage of the unpsychological view is that it points to a direct and secure manner of investigating the subject.”<sup>577</sup>

Peirce reiterated his determination to keep logic separate from psychology in 1898, when he gave a series of lectures on *Reasoning and the Logic of Things* in Cambridge, Massachusetts. In the exordium for the third lecture titled ‘The Logic of Relatives’, he said, “My proposition is that logic, in the strict sense of the term, has nothing to do with how you think.”<sup>578</sup>

Separating logic from psychology led Russell to point out there was a logical flaw in Frege’s reasoning because of the paradoxes that he had found in the concept of ‘all classes’. This discovery deeply disturbed Russell, who wrote in ‘Reflections on my Eightieth Birthday’ in 1952,

I wanted certainty in the kind of way in which people want religious faith. I thought that certainty is more likely to be found in mathematics than elsewhere. But I discovered that many mathematical demonstrations, which my teachers wanted me to accept, were full of fallacies, and that, if certainty were indeed to be found in mathematics, it would be a new kind of mathematics, with more solid foundations than those that had hitherto been thought secure.

But as the work proceeded, I was continually reminded of the fable about the elephant and the tortoise. Having constructed an elephant upon which the mathematical world could rest, I found the elephant tottering, and proceeded to construct a tortoise to keep the elephant from falling. But the tortoise was no more secure than the elephant, and after some twenty years of arduous toil, I came to the conclusion that there was nothing more that I could do in the way of making mathematical knowledge indubitable.<sup>579</sup>

Russell had first discovered the joys of mathematics as a teenager, when his elder brother began to teach him Euclid’s geometry. He was delighted that mathematics could prove things, but his initial hopes of finding certainty in mathematics were crumbled when he was told that he must accept the axioms as true, assumptions that could not be proved. As he said, it was in mathematics that he had hoped to find indisputable clarity, going on to say, “I hoped that in time there would be a mathematics of human behaviour as precise as the mathematics of machines.”<sup>580</sup> This still hasn’t happened in a manner that is acceptable to most scientists, for as Stephen W. Hawking said in *A Brief History of Time*, perhaps with tongue in cheek, “we have, as yet, had little success in predicting human behavior from mathematical equations!”<sup>581</sup>

We can well demonstrate that the Western mind’s aversion to paradoxes and self-contradictions is deeply embedded in the cultural psyche by A. N. Whitehead and Bertrand Russell’s *Principia Mathematica*. In their futile search for certainty in mathematics and science, these fellows of the Royal Society wrote their monumental treatise in the second decade of the last century in order to deny the basic principle on which the Universe is designed. They took 360 pages to prove the proposition (\*54.43)

that would eventually lead to the arithmetical statement '1 + 1 = 2',<sup>582</sup> including several incomprehensible pages on the calculus of classes and relations,<sup>583</sup> a mess that Ted Codd of IBM sorted out in 1970.<sup>584</sup>

The basic reason why Whitehead and Russell took so much trouble to write *Principia Mathematica* is that if the axioms of a linear system of thought, such as mathematical proof or deductive logic, contain contradictions, then any formula is derivable from them using the rules of transformation in the system. Using four axiomatic formulae of the tautological propositional calculus, Ernest Nagel and James R. Newman provide a simple proof of this characteristic of mechanistic systems of thought in *Gödel's Proof*.<sup>585</sup> The importance of what mathematicians call consistency in linear systems of thought is also well illustrated by this little anecdote:

The analyst G. H. Hardy once made this remark at dinner, and was asked by a sceptic to justify it: 'Given that  $2 + 2 = 5$ , prove that McTaggart is the Pope'. Hardy thought briefly, and replied, 'We know that  $2 + 2 = 4$ , so that  $5 = 4$ . Subtracting 3 we get  $2 = 1$ . McTaggart and the Pope are two, hence McTaggart and the Pope are one.'<sup>586</sup>

Contradictions were first found in mathematical set theory, extensively studied by Georg Cantor in the 1870s. To Cantor, the concept of set was essentially intuitive, defined as follows: "By a set we mean the joining into a single whole of objects which are clearly distinguishable by our intuition or thought."<sup>587</sup> Sets are thus fundamental to bringing our thoughts into order. Even though human beings had been using numbers for thousands of years before, they were not aware that you cannot actually form the concept of number without the concept of set. Sets are more fundamental concepts than those of numbers, both in mathematics and in concept formation, in general.

A simple example of a contradiction in set theory is the notion that we can form a set that includes all sets, which Cantor noted in 1895.<sup>588</sup> This would appear to be the largest set that can possibly be formed by definition, representing the entire Cosmos, viewed as an ordered whole, from the Greek *kosmos* 'order, world, universe'. However, Cantor also proved that the power set of a set is larger than the set itself. For instance, the power set of {a b c} has eight members ( $2^3$ ): {{a b c} {a b} {b c} {c a} {a} {b} {c} {}}. This property of sets also applies to infinite sets, which have some rather remarkable properties.

Cantor first proved that the infinite number of rational numbers, of the form  $p/q$ , maps to the integers, even just those that lie between 0 and 1. Surprisingly, the sets of all integers, all even integers, and all rationals have the same level of infinity; they are all countable. This gives rise to some very strange arithmetic, like this:  $\infty + \infty = \infty$ . Cantor denoted the cardinality of this countable set with  $\aleph_0$  (aleph-null) and then proved that the cardinality of the real numbers, such as  $\sqrt{2}$  and  $\pi$ , denoted by  $c$  for *continuum*, is the power set of  $\aleph_0$  with  $2^{\aleph_0}$  members. So there are at least two distinct transfinite cardinals.

However, Cantor then went on to prove that there are an infinite number of transfinite cardinals, in two ways. He first made a distinction between cardinals and ordinals, the latter referring to ordered sets, the ordinal of the integers in increasing order being denoted by  $\omega$ . He then showed that the cardinal number of all possible sets of ordinals with a countable ( $\aleph_0$ ) number of members is larger than  $\aleph_0$ , which he denoted by  $\aleph_1$ . Continuing in this fashion, he defined the infinite series  $\aleph_0, \aleph_1, \aleph_2, \aleph_3$ , etc.<sup>589</sup> Similarly, as the cardinality of the power set of any set  $\mathfrak{S}$  with  $n$  members is  $2^n$ , there is also an infinite series of such power sets, which mathematicians do not normally denote with signs, for some strange reason.

The obvious question now to ask is whether  $c = \aleph_1$ ? In other words, does  $\aleph_1$  equal  $2^{\aleph_0}$ ? If so, "There is no set whose cardinality is strictly between that of the integers and that of the real numbers," as Cantor hypothesized in 1874.<sup>590</sup> Proving that the real number continuum is the smallest non-countable set was the first of 23 unresolved mathematical problems that David Hilbert posed at the International Congress

of Mathematicians in Paris in 1900,<sup>591</sup> known as the continuum hypothesis. Applying this hypothesis to the two ways of creating an infinite series of infinite cardinals, the generalized continuum hypothesis asks whether it is true that  $2^{\aleph_n} = \aleph_{n+1}$ ? In the event, Kurt Gödel (1906–1978) in 1940<sup>592</sup> and Paul Cohen (1934–2007) in 1963<sup>593</sup> showed that the hypothesis can neither be disproved nor be proved using the axioms of Zermelo-Fraenkel set theory, provided these axioms are consistent.<sup>594</sup> Or we could say that the generalized continuum hypothesis is both unprovable and undisprovable through axiomatic, linear reasoning, one of zillions of instances of the universal Principle of Unity.

Nevertheless, for all practical purposes, it is reasonable to assume that the infinite series of power sets includes all distinct infinite cardinals, denoting the ‘largest’ infinity as  $\aleph_\infty$ , where  $\infty$  is  $\aleph_\infty$ , defined recursively, ad infinitum! But what then is eternity or infinite time? If people egoically believe that a separate, immortal soul either reincarnates indefinitely or has everlasting life, which infinity are they referring to?

Let us now return to the proposition that there is a largest set of all sets, which, in some way, encompasses the Totality of Existence. As such a set has a power set that is larger than this set, such a set both exists and does not exist, in conformity with the Principle of Unity. So how do mathematical logicians, who deny the truth of this irrefutable, universal truth, deal with such a situation?

Well, around the turn of the nineteenth and twentieth centuries, Bertrand Russell was disturbed by Cantor’s proof that there is no largest transfinite cardinal, at first denying this. He thereby began to study the concept of class, a fundamental concept in mathematical philosophy, in his words. What he discovered is that there are two classes of class, ones that either do or do not include themselves as members, the latter classes leading to a paradox or antimony, defined in §78 in *Principles of Mathematics*,<sup>595</sup> first published in 1903. Here is Morris Kline’s succinct description of Russell’s paradox in *Mathematics: The Loss of Certainty*:

A class of books is not a book and so does not belong to itself, but a class of ideas is an idea and does belong to itself. A catalogue of catalogues is a catalogue. Hence, some classes belong to (or are included in) themselves and some do not. Consider  $N$ , the class of all classes that do not belong to themselves. Where does  $N$  belong? If  $N$  belongs to  $N$ , it should not by the definition of  $N$ . If  $N$  does not belong to  $N$ , it should by the definition of  $N$ .<sup>596</sup>

Now paradoxes, as such, were not new. The ancient Greeks, including Aristotle, were well aware of the liar paradox, such as “This sentence is false.” For if someone says, “I am a liar,” he is asserting that he is both speaking the truth and not. But now Russell had found paradoxes at the very heart of human thought. For you cannot even form the concept of three, let us say, without the previous formation of class or set.

Finding paradoxes in the concept of ‘all classes’ led Russell to point out the invalidity of Frege’s reasoning.<sup>597</sup> Russell was amazed at Frege’s humble reply six days later. In giving permission for his correspondence with Frege to be published, Russell said this about his colleague, who he never actually met: “when upon finding that his fundamental assumption was in error, he responded with intellectual pleasure clearly submerging any feelings of personal disappointment. It was almost superhuman and a telling indication of that of which men are capable if their dedication is to creative work and knowledge instead of cruder efforts to dominate and be known.”<sup>598</sup> For Frege wrote to Russell:

Your discovery of the contradiction caused me the greatest surprise and, I would almost say, consternation, since it has shaken the basis on which I intended to build arithmetic. ... It is all the more serious since, with the loss of my Rule V, not only the foundations of my arithmetic, but also the sole possible foundations of arithmetic, seem to vanish. ... In any case your discovery is very remarkable and will perhaps result in a great advance in logic, unwelcome as it may seem at first glance.<sup>599</sup>

*Unifying Polarizing Opposites in Nondual Wholeness*

In the event, Frege did publish the second volume of *Grundgesetze der Arithmetik* in 1903, with an appendix on Russell's paradox, and Russell published *Principles of Mathematics* the same year, with two appendices, titled 'The Arithmetical and Logical Doctrines of Frege' and 'The Doctrine of Types'. In this second appendix, Russell proposed a tentative solution to paradoxes, which he called the theory of types. In this, he distinguished terms and individuals from their ranges of significance, determined, for instance, when grouped in classes.<sup>600</sup>

To avoid what he and A. N. Whitehead (1861–1947) called a 'vicious circle', he thereby defined a hierarchy of types in which "Whatever involves all of a collection must not be one of the collection." As Morris Kline concisely explains, "Expressed in terms of sets, the theory of types states that individual objects are of type 0; a set of individuals is of type 1; and set of sets of individuals is of type 2; and so forth."<sup>601</sup> Whitehead and Russell therefore said that the proposition "all propositions are either true or false" is meaningless and an illegitimate totality because new propositions cannot be created by statements about 'all propositions'.<sup>602</sup>

The upshot of denying the universal truth of the Principle of Unity was fourfold. First, in denying the validity of the set of all sets, Whitehead and Russell prevented people from mapping the Totality of Existence, further fragmenting the mind and reinforcing people's sense of separation from God, Nature, and each other, none of whom exist as independent beings. Secondly, as paradoxes had appeared in mathematics and logic, ignoring them strengthened the gross distortion in our thinking that Aristotle had established with the Law of Contradiction, leading to delusion and mental disorder. Thirdly, by denying that logic—the science of thought and reason—is a branch of psychology—the science of mind and consciousness—people were inhibited from studying how concepts are formed and organized in the mind through self-inquiry, necessary if we are to answer the question, "Who are we?" Fourthly, to deny self-referential propositions is to stultify Self-reflective Divine Intelligence, which distinguishes human beings from the other animals and machines, like computers, and which enables us to resolve all paradoxes and self-contradictions in Nonduality by looking at both sides of any situation.

It is not surprising that Whitehead and Russell never actually completed *Principia Mathematica*, being exhausted by this twenty-year project, and that almost no one read all 2,000 pages of their treatise. One who did was Kurt Gödel, who in 1931 published a landmark paper called 'On Formally Undecidable Propositions of *Principia Mathematica* and Related Systems I'. Gödel was seeking to solve the second of the problems that David Hilbert had posed in 1900: to prove the axioms of arithmetic to be consistent. Hilbert subsequently added another puzzle: to prove that the axioms are complete, that is, that all theorems within the system are provable from the axioms. He suggested that such a proof theory could be developed through what he called metamathematics, a way of talking about mathematics as a formal system of axioms and rules of transformation—expressible in what are essentially meaningless signs—outside the system.

For instance, the expression ' $2 + 3 = 5$ ' belongs to mathematics, while the statement " $2 + 3 = 5$  is an arithmetical formula" is a metamathematical one. By 1930, mathematicians had proved that the tautological propositional calculus and the first-order predicate calculus are both consistent and complete.<sup>603</sup> However, no one had by then proved that the Peano axioms of arithmetic, the Zermelo-Fraenkel axioms of set theory, and the Whitehead-Russell axioms of *Principia Mathematica* are consistent and complete.<sup>604</sup> This is what Gödel set out to prove.

He did so by an ingenious way of mapping metamathematical statements, such as 'Arithmetic is consistent', to arithmetical expressions that evaluate to finite integers. This mapping technique is today

called Gödel numbering. Gödel first assigned basic constants, such as '0', '~', and '(', to the odd numbers 1 to 13 and variables of three different types (individuals, such as numbers, classes of individuals, and classes of classes of individuals) the numbers  $p^n$ , where  $p$  is a prime larger than 13 and  $n$  is the type of variable, 1, 2, or 3.

He then assigned a formula of  $m$  signs to a single number  $a$ , let us say, calculated as the product of successive primes  $p_k$  raised by the Gödel number of each elementary sign,  $n_k$ :<sup>605</sup>

$$a = \prod_{k=1}^m p_k^{n_k}$$

For instance, the formula  $(\exists x)(x=sy)$ , meaning every number  $y$  has an immediate successor  $x$ , could be assigned the Gödel number  $a = 2^8 \times 3^4 \times 5^{11} \times 7^9 \times 11^8 \times 13^{11} \times 17^5 \times 19^7 \times 23^{13} \times 29^9$ ,<sup>606</sup> which is about  $1.5 \times 10^{86}$ . So Gödel numbers can get pretty big pretty fast. They grow even faster when we look at the concept of proof. Just as a mathematical formula consists of a sequence of signs, a mathematical proof consists of a sequence of formulae, going back to the axioms. So Gödel assigned numbers to proofs, just like formulae.

For instance, the statement  $(\exists x)(x=s0)$ , with Gödel number  $b$ , is derivable from the first by substituting 0 for  $y$ , substitution being a basic rule of inference, like Plato's particulars as instances of universals. So the formulae with Gödel numbers  $a$  and  $b$  are a section of the proof that the number 1 is 1 larger than 0 (a complete proof would need to go right back to the axioms!). So if this part of the proof were at the beginning, it would be assigned the Gödel number  $k = 2^a \times 3^b$ .<sup>607</sup> In general, a proof is assigned a Gödel number calculated as the product of a successive list of primes, each raised to the power of the Gödel number assigned to each statement in the proof. Quite amazing!

Now what is even more amazing is that Gödel then set out to prove the metamathematical statement 'This formula is unprovable'. This statement  $G$  with Gödel number  $g$  is rather like 'This sentence is false', but with a subtle difference, which does not lead to a contradiction. If 'This formula is unprovable' is not provable, then it is true. Conversely, if  $G$  is provable, it is not true. But by Aristotle's Law of Contradiction, if it is true, then it is not provable. Hence  $G$  is true if and only if it is *not* provable. As Morris Kline puts it, "the arithmetical statement  $G$  is true because it is a statement about integers that can be established by more intuitive reasoning than the formal systems permit."<sup>608</sup>

Gödel then went on to construct the arithmetical statement  $A$  that represents the metamathematical statement 'Arithmetic is consistent', proving that  $A$  implies  $G$ . "Hence if  $A$  were provable,  $G$  would be provable. But since  $G$  is undecidable,  $A$  is not provable." It is thus not possible to prove the axioms of arithmetic and set theory to be consistent by a method or set of deductive logical principles that can be translated into the system of arithmetic.<sup>609</sup>

In other words, Gödel made a clear distinction between provability and truth; truth is deeper than proof. Provability is an attribute of a mechanistic, linear system of reasoning, while truth is an intuitive, human quality, which machines, like computers, could not understand. In 1961, the philosopher J. R. Lucas wrote a famous article called 'Minds, Machines and Gödel' naturally saying much the same thing, opening with this sentence, "Gödel's theorem seems to me to prove that Mechanism is false, that is, that minds cannot be explained as machines." He based his argument on an intellectual philosophical perspective, rather than a psychological, spiritual, or mystical one based on direct inner knowing of the Divine, using one of his arguments that "human beings are not confined to making deductive inferences."<sup>610</sup>

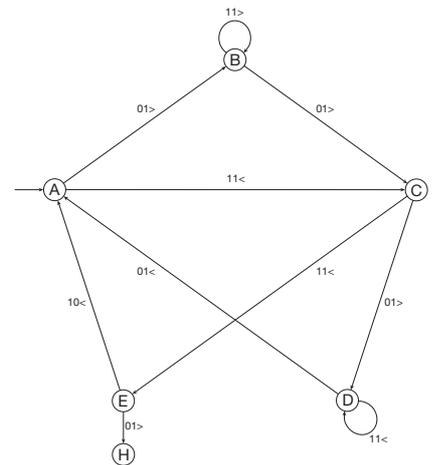
*Unifying Polarizing Opposites in Nondual Wholeness*

In other words, Gödel's work shows the invalidity of the proposition that human beings are machines and nothing but machines and hence that artificial intelligence is impossible. However, some mathematicians and philosophers were horrified by the suggestion that human beings are not just deterministic automata, obeying sets of rigorous rules that could be formally programmed into cybernetic machines, Douglas R. Hofstadter and Daniel C. Dennet calling Lucas's article 'notorious'.<sup>611</sup>

This furore has still not died down, despite the obvious fact that the West's search for certainty through linear reasoning has come to a dead end through Gödel's convoluted reasoning; there is no universal decision procedure that can determine whether any particular proposition derives from the axioms or not.

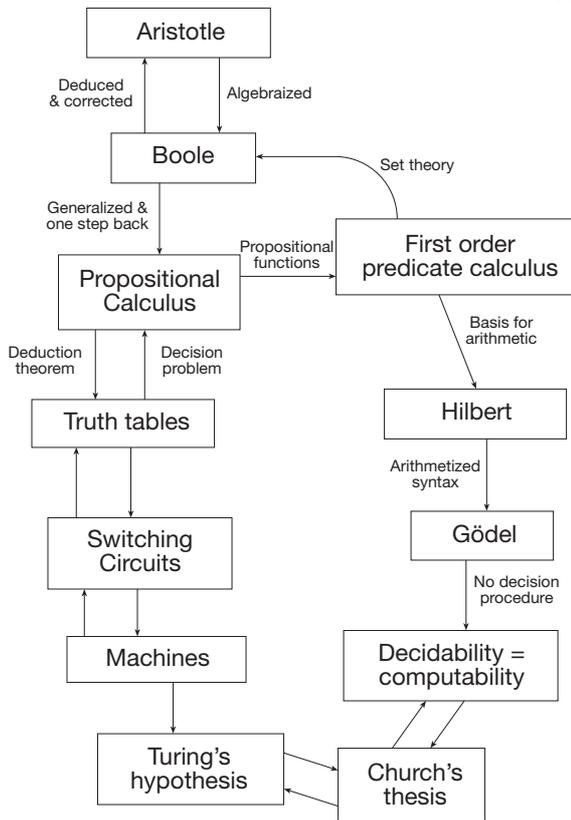
Then in 1936, Alonzo Church (1903–1995) and Alan Turing (1912–1954) independently came up with a similar result. There are numbers that are not computable through mechanistic processes, known as the Church-Turing thesis. Church reached this conclusion through the study of recursive functions, those that call themselves from within themselves, much used in computer programming, while Turing did so while developing a general theory of automata, following an evolutionary line from Boolean algebra and propositional calculus. In formal, linear mathematics and logic, undecidability and uncomputability are equivalent.

Here is an example of one of Turing's universal machines, showing the ubiquity of mathematical mapmaking, consisting of nodes and arcs between them, as we look at on page 79. Here the nodes are the possible states of the machine, while the arcs are the 'program', the instructions on what the machine should do at each instant in linear time. The Turing machine just consists of a strip of tape that can move left and right and on which symbols are read and written. Each instruction in the program for any particular state is in four parts: read the character at the present position on the tape, write a character, move left or right one position, and change state, all depending on the value of the read character. So the first instruction can simply be expressed as a quintuple: A 0 1 > B. This says that when in state A, if 0 is read, write 1, move right, and change to state B.



This particular network is an example of a busy-beaver function, which Tibor Radó devised in 1962 to illustrate the simplicity of a noncomputable function.<sup>612</sup> The purpose of this function in a machine of  $n$  states and  $k$  symbols is merely to write as many non-blank symbols on a blank tape as possible with as many steps as possible before halting in state H. Because a Turing machine is finite, there is a maximum value for  $S(n, k)$  and  $\Sigma(n, k)$ , the number of steps and symbols for any  $n$ - $k$  machine, respectively. However, there is no algorithm or decision procedure that can determine these maxima for any particular machine. So since Radó devised this machine, there has been a competition going on among computer scientists to design a record-breaking algorithm for each  $n$  and  $k$ . The example above is the current record holder for a 5-state machine with 2 symbols, giving  $\Sigma(5, 2) = 4,098$  and  $S(5, 2) = 47,176,870$ . Heiner Marxen and Jürgen Buntrock designed this machine in September 1989.<sup>613</sup>

What all these results show is that mechanistic computability, decidability, provability, and solvability are inherently limited. Furthermore, whichever way that the mathematicians have turned, paradoxes have been found in mathematics. To try to resolve this dilemma, mathematicians created four quite different solutions, none of which can be said to provide mathematics with a solid foundation. These are the



logical, intuitive, formalist, and set-theoretic schools.<sup>614</sup> In summary, this diagram provides an overview of how either-or formal logic developed in the nineteenth and twentieth centuries, summarizing the West’s futile attempts to use linear, mechanistic reasoning to develop a precise language as the basis of our thought processes.<sup>615</sup>

So how can we overcome what the egoic mind regards as the problem of paradoxes and self-contradictions? Well, the central problem here lies with the linearity of deductive logic, built into computers as machines that execute a sequence of instructions, one after another, occasionally taking a jump into another sequence depending on a particular condition being met. When computers became operational in businesses in the 1950s and 60s, the storage devices that held the records of organizations were similarly sequential, mostly in the form of magnetic tape, like the now obsolete cassette music tapes.

This situation led to computers getting quite a bad name. For when customers rang companies enquiring about their orders or bills, they were often told something like, “Sorry, I don’t have that information; it’s on the computer.”

What changed this was the invention of direct access storage devices (DASD), a little like compact discs, enabling computer programs to go directly to a particular record of interest, thus providing customer service personnel and other staff immediate access to the stored data. IBM invented the first computer disk storage system in 1956, called the RAMAC (random access), displaying it at the 1958 World’s Fair in Brussels, where it was used to answer questions on world history in ten languages.<sup>616</sup>

With the availability of direct access devices, computer scientists began to puzzle about the underlying structure of data. The pioneering figure in database management systems (DBMS) was Charles Bachman, who took a nonhierarchical, network approach in a system called Integrated Data Store (IDS), when working for General Electric.<sup>617</sup> In contrast, IBM took a hierarchical approach with its Information Management System (IMS), developed by or with North American Rockwell.<sup>618</sup>

Not surprisingly, in a world dominated by either-or thinkers, a war broke out between these competing systems, which was not resolved until 1970, when Ted Codd (1923–2003) of IBM wrote an eleven-page seminal paper with the prosaic title, ‘A Relational Model of Data for Large Shared Data Banks’. The relational model had evolved from the mathematical theory of relations and first-order predicate logic, which Charles Sanders Peirce had pioneered a century earlier in his *Algebra of Logic*, as mentioned on page 70. It cannot be a coincidence that Arthur Burks, who edited Volumes VII and VIII of Peirce’s *Collected Papers* in 1958, was Codd’s Ph. D. advisor in 1965, as John Sowa tells us.<sup>619</sup>

Now, as Codd noted in the second paragraph of this little-known paper, it describes a nondeductive system of thought, by far the most fundamental change in Western reason since Aristotle. Linear reasoning had given birth to nonaxiomatic, nonlinear reasoning, just focused on the semantic relationships between the various data patterns underlying what has now become the Internet. The relational model of data thus fulfils Leibniz’s dream of creating a *lingua characteristica* as a universal language of human thought whose structure directly reflects the underlying structure of the world of our

concepts, mentioned on page 71. We look at the dynamic aspects of Leibniz's vision of a *calculus ratiocinator* in Subsection 'Dynamic evolutionary predecessors' on page 82.

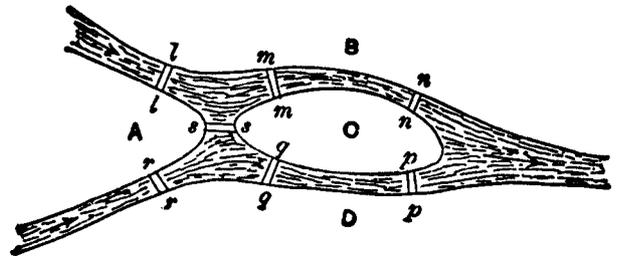
Larry Ellison was one of the first to see the immense power of the relational data modelling method, forming Oracle, today a Fortune-500 company, becoming one of the richest men in the world in monetary terms. You cannot order a book or airline ticket on the Internet without invoking the relational model of data behind the scenes.

It is impossible to describe the exuberance one feels by being liberated from the shackles that either-or thinking imposes on our lives. For when we look at the Universe holographically with Self-reflective Intelligence, enlightened by the Coherent Light of Consciousness, anything is possible. In particular, it is no longer necessary to eliminate paradoxes from our thoughts; we can welcome them unreservedly.

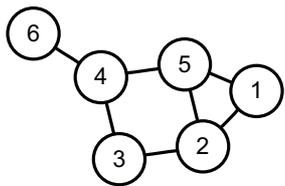
### **Mathematical mapmaking**

Being free of the linearity of mechanistic, deductive logic, we now need a way to represent the nonlinearity of the structure of our thoughts. To do this, we can best turn to mathematical mapmaking, whose foundations were laid down in 1736, when the Swiss mathematician Leonhard Euler (1707–1783)

was asked if it were possible to take a walk in Königsberg, the capital of East Prussia, in such a way as to cross every bridge in it once and only once and return to the starting point.<sup>620</sup> Here is a map of Königsberg, the birthplace of Immanuel Kant and David Hilbert, now called Kaliningrad in Kaliningrad Oblast, a Russian exclave between Poland and Lithuania on the Baltic Sea, although Google maps tell us that this map is the wrong way round—East should be West, and vice versa—and some of the bridges have disappeared.



Euler solved this problem through mathematical abstraction, by representing bridges as arcs between land masses, viewed as nodes. Mathematical maps are today called mathematical graphs, which consist simply of nodes and the relationships between them, a structure that is universal.



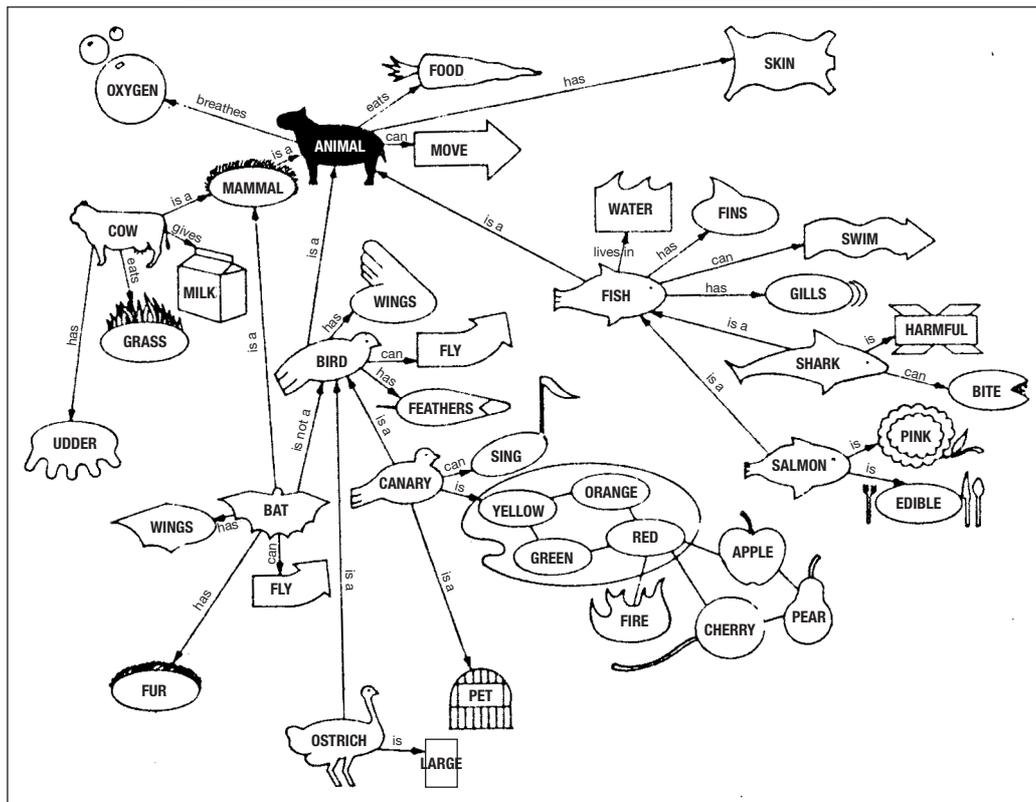
A few examples are Indra's Net of jewels, described on page 201, the 'web of life' in systems theorists' terms,<sup>621</sup> and, of course, the Internet. The mathematical graph therefore provides the simplest way of representing continuity, which Peirce called synechism, encapsulated in the New Age mantra "We are all one."

A Turing machine can be represented in such a graph, as we see in the example on page 77. Computer scientists make much use of a special case of this mapmaking technique called 'directed acyclical graph' (DAG). DAGs are so named because there is a flow between the nodes in linear time, with no turning back, a mechanistic process. Examples of DAGs are dataflow programming languages,<sup>622</sup> such as the Arena Data Flow Language (ADFL), designed by my former colleague Jonas Lantz, an information systems architect employed by SunGard Front Arena in Sweden to automate the buying and selling of financial products, without human intervention.

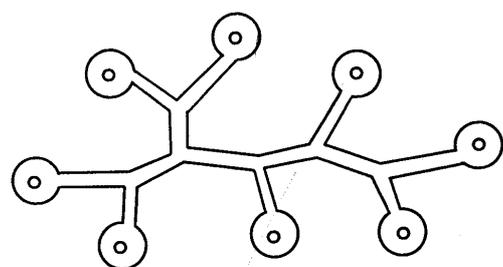
Furthermore, such graphs have the property of self-similarity, like fractals. Mathematical graphs may not be as pretty as the Mandelbrot set, but they are far more powerful as used in IRL. For reference, Benoît Mandelbrot defined the eponymous set as points in the complex plane which satisfy this property: a complex number  $c$  is part of the Mandelbrot set if, when starting with  $z_0 = 0$  and iterating the complex quadratic polynomial  $z_{n+1} = z_n^2 + c$  repeatedly, the absolute value of  $z_n$  remains bounded however large  $n$  gets.<sup>623</sup>

*The Theory of Everything*

Mathematical graphs also provide the abstract underpinnings for semantic networks, such as this one, adapted from an article in the *New York Times* magazine on 24th January 1982 titled 'How the mind works'. Indeed, the entire Theory of Everything can be seen simply as nodes and relationships between them, which has mystical results, described in Subsection 'Transcending the categories' on page 147.



Peirce made an initial attempt in 1885 to present his logic in a graphical way in his first draft of the first chapter on *A Guess at the Riddle* titled 'One, Two, Three', mentioned on page 44. He depicted his vision



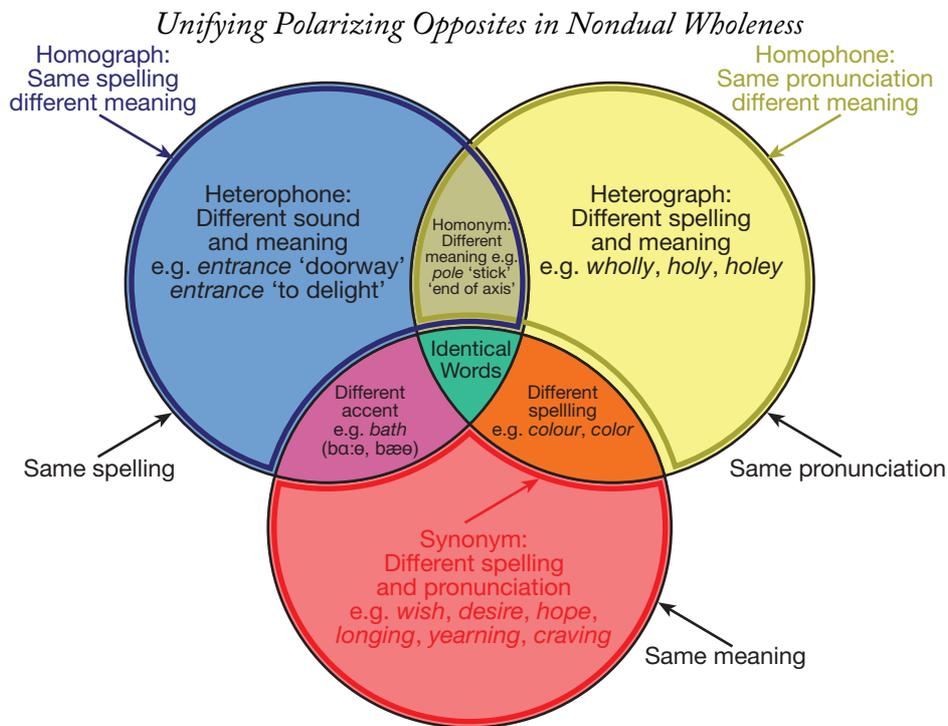
of a triadic universe with this diagram, writing, "the three essential elements of a network of roads are *road about a terminus, roadway-connection, and branching,*" somewhat more complex than Euler's dyadic mapmaking technique.<sup>624</sup>

Peirce then went on to depict his Algebra of Logic, as 'existential graphs', which he described as his *chef d'oeuvre*.<sup>625</sup>

However, much of this work was done during the two decades either side of 1900, when Peirce was going through a great personal crisis. So his thoughts on the subject are much confused, only some of which have been published, not understanding the simplicity that underlies the complexity of human reasoning.

Book II of the fourth volume of Peirce's *Collected Papers* begins with a piece that he wrote around 1903 titled 'Graphs', which explores how Euler's diagrams, distinct from his mapmaking method, could be used to represent the syllogism.<sup>626</sup> There is nothing complex about this way of showing the relationships between concepts, which John Venn (1834–1923) extended in 1880, for it was included in the new maths, taught to primary school children, in the 1960s.<sup>627</sup>

For instance, the next diagram shows how different signifiers, as synonyms, can represent concepts and conversely, signifiers, as spoken and written words, can represent different concepts. The following table then gives a few examples of the way that signifiers can denote different concepts, emphasizing the distinction between them, as depicted on the meaning triangle on page 61. But we are getting a little



ahead of ourselves here; we do not see how to form such tabular structures, as relations, until Section 'Integral Relational Logic' on page 126.

Class name	<i>Linguistic terms</i>				
Attribute name	<i>Term</i>	<i>Meaning</i>	<i>Spelling</i>	<i>Pronunciation</i>	<i>Examples</i>
Attribute values	Homonym	Different	Same	Same	<i>skate</i> 'glide on ice', 'fish' <i>stalk</i> 'plant part', 'follow' <i>left</i> 'not right', 'past of leave'
	Heterophone	Different	Same	Different	<i>close</i> 'near', 'to shut' <i>lead</i> 'to guide', 'metal' <i>object</i> 'thing', 'to protest'
	Homograph	Different	Same	Same or different (Homonym+ heterophone)	<i>desert</i> 'leave', 'arid region', 'reward/punishment' <i>row</i> 'line', 'paddle a boat', 'quarrel' <i>bow</i> 'to bend', 'front of boat', 'curved object'
	Heterograph	Different	Different	Same	<i>buy, by, bye</i> <i>peek, peak, pique</i> <i>bow</i> 'curved object', <i>beau</i>
	Homophone	Different	Same or different (Homonym + heterograph)	Same	<i>bow</i> 'to bend', 'front of boat' <i>bough</i> 'tree branch'

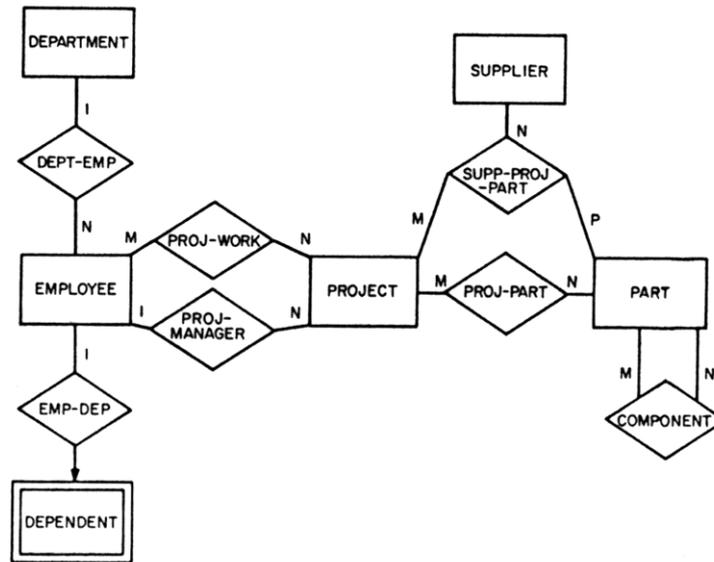
Chapter 4 of Book II then contains some basic definitions from the same year taken from a piece titled 'Logical Tracts, No. 2'. First, Peirce defined a *logical graph* as a graph or superficial diagram or representamen that represents logical relations iconically, so as to be an aid to logical analysis. Continuing, he wrote:

An *existential graph* is a logical graph governed by a system of representation founded upon the idea that the sheet upon which it is written, as well as every portion of that sheet, represents one recognized universe, real or fictive, and that every graph drawn on that sheet, and not cut off from the main body of it by an enclosure, represents some fact existing in that universe, and represents it independently of the representation of another such fact by any other graph written upon another part of the sheet, these graphs, however, forming one composite graph.<sup>628</sup>

This is quite a mouthful. However, in essence it describes the essential challenge of modelling business enterprises never mind the Totality of Existence. An enormous number of sheets of paper are required, as

programmers and systems designers discovered in the 1950s and 60s, when they set out to automate the jobs then being performed by human beings.

Regarding just static conceptual structures, to depict the relationships between relations graphically, in 1976 Peter Pin-Shan Chen published a paper titled ‘The Entity-Relationship Model—Toward a Unified View of Data’,<sup>629</sup> drawing on a visual modelling technique that Charles Bachman had previously developed. As this diagram shows, there are two types of node in such diagrams, depicting relations and the relationships between them. This is similar to John Sowa’s notation of conceptual graphs in the field of artificial intelligence.<sup>630</sup>



**Dynamic evolutionary predecessors**

Having looked at the evolution of Leibniz’s dream of a *lingua characteristica*, we now need to look at attempts to develop a dynamic *calculus ratiocinator*, looking at the structure of processes and functions in human organizations and computers. Initially, programs were written directly in the machine language of the computer, made somewhat simpler by assembler languages, providing a signate notation for the instructions in the central processing unit, which could be reduced to circuits in Boolean algebra, and conceptually reduced even further to sequences of expressions using the single operator of the Sheffer stroke, described on page 67.

However, as already mentioned, such low-level programming language are semantically indigestible. So in practice, during the first few decades of the computer age, many different levels of programming languages emerged closing the semantic gap between the way that human beings think and the way that these thoughts are implemented in hardware, software, and firmware, lying between the two.

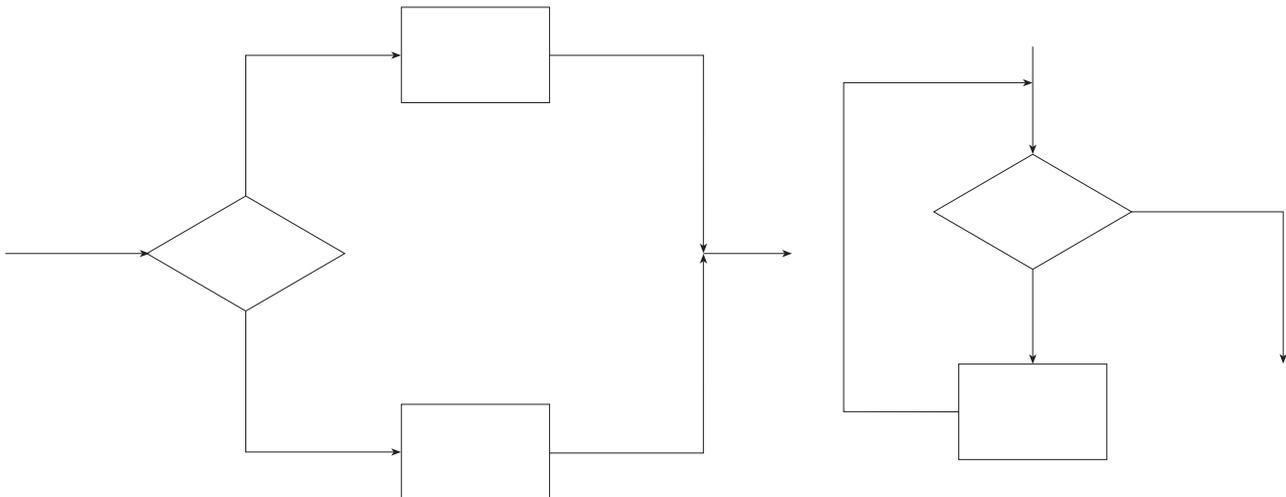
In the 1950s and 60s, high-level languages, like FORTRAN (FORMula TRANslation) and COBOL (COMmon Business Oriented Language), developed by John Backus at IBM and Grace Hopper, a member of the Conference on Data Systems Languages (CODASYL), respectively,<sup>631</sup> closely mimicked the underlying structure of machine instructions. In particular, they included a GO TO instruction to match the branch or jump instructions in assembly languages.

However, the use of the GO TO instruction could lead programs to look like plates of spaghetti, which were notoriously difficult to debug and maintain. To resolve this problem and to bring programming languages closer to the underlying structure of the human mind and hence that of the Universe, in 1966, Corrado Böhm and Giuseppe Jacopini from Italy wrote a paper, today known as the

‘Structured Program Theorem’,<sup>632</sup> in which they proved mathematically that all programs could be written with just three control structures.



As can be seen here, the first is simply a sequence of instructions executing one after another. In terms of structure, these sequences could be grouped together in functions or subprograms, executed sequentially. The key concept here is a process box, with one input and output, corresponding to the basic data-processing diagram on page 109. The other control structures are a conditional block and a loop block, illustrated here:<sup>633</sup>



This paper was one of the most important papers in the history of the data-processing industry, for it paved the way for structured programming languages and systems design, greatly closing the semantic gap between machines and human beings. To this effect, Edsger W. Dijkstra, a pioneering programmer from the Netherlands, wrote a famous letter in 1968 called ‘Go To Statement Considered Harmful’, in which he described the ‘disastrous effects’ of the GO TO statement, and that it should be abolished from all high level languages. The GO TO statement had to go.<sup>634</sup>

In the event, this happened through a parallel development, which began in the Norwegian Computing Center in the mid 1960s. There, Kristen Nygaard and Ole-Johan Dahl, together with Bjørn Myrhaug, designed a computer language called SIMULA (SIMULATION LANGUAGE) intended to simulate the operation of systems composed of discrete events, such as traffic patterns in towns and cities, communication networks, or the day-to-day operation of a retail business.<sup>635</sup>

The key concepts in SIMULA are class and object, where objects are instances of classes, like Plato’s particulars and universals. But more than this. A class in SIMULA encapsulates both functions and data types into a single construct, leading to object-oriented programming languages, such as Smalltalk, Java, and Objective C, and object-oriented modelling systems, such as the Unified Modeling Language (UML) developed in the 1990s by Grady Booch, James R. Rumbaugh, and Ivar Jacobson of Rational Software, now a subsidiary of IBM.

The introduction of object-oriented modelling and programming methods totally transformed the job of information systems architect, outlined in Subsection ‘The function of information systems architect’ on page 116. For now information systems could be designed and implemented in human rather than machine terms. The semantic gap between machine and human had been closed almost as far as possible. All that remained was to make explicit the universal system of thought that we all use everyday to form

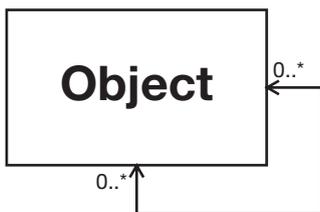
concepts and organize our ideas, described in Section ‘Integral Relational Logic’ on page 126. In the meantime, let us look at a few examples of how object-oriented techniques have affected the lives of virtually all human beings on Earth.

First of all, when systems analysts and programmers began to design information systems in the 1960s, they had to create the bricks and mortar they needed to build ‘houses’ almost from scratch. Yes, there were a few standard routines, such as trigonometric functions in Fortran, which could be reused. But these were rather limited. Object-oriented programming languages changed all that. They were built around class libraries, which could be combined in a systemic manner in the applications that abound today. No longer did IS architects need to reinvent the wheel over and over again. The basic constructs they needed to build systems were readily available to them, prepackaged. The result has been the hyperexponential expansion of the Internet and apps on digital devices like smart phones and tablets that we have seen since the 1990s.

Secondly, as mentioned on page 119, IS architects could work very much like architects who design residences and office blocks, beginning with blueprints of the systems that they are to design, often using object-oriented modelling methods.

Thirdly, classes led the way to a much richer approach to taxonomy as the science of classification than had been possible before. The word *taxonomy* was coined in French in 1813 by A. P. de Candolle<sup>636</sup> from Greek *taxis* ‘arrangement, order’ and *nomia* ‘distribution, method’, from *nomos* ‘custom, law’, from *nemein* ‘manage, control, arrange, assign’. So *astronomy* is an arrangement of the stars and *economy* is the management of the household. Similarly, *taxonomy* is an arrangement of an arrangement, today either meaning classification, in general, or specifically, the systematic classification of so-called living organisms, introduced by Carl Linnæus from Sweden in his seminal *Systema Naturae* in 1735.<sup>637</sup>

For instance, we can classify *Homo sapiens* successively as primates, mammals, vertebrates, and animals, each level of classification being given a different name, such as species, genus, order, class, subphylum, and kingdom in this example. People working in libraries and computer-assisted information retrieval systems call such relationships broader and narrower terms in the advanced thesauri they use to assist with the organization of knowledge. An example of such a thesaurus is UNESCO’s Science and Technology Policies Information Exchange System (SPINES). In the UML, such relationships are called ‘generalization’, whose superclass is generally called **Object**. In this way, we can reduce the complexity of Euler’s mapmaking method illustrated on page 80 to a single node and relationship, depicting the underlying structure of the business world in a simple diagram, shown here.



The fourth example of the impact that object-oriented techniques have had on humanity relates to the human interface to computers. In this respect, the big breakthrough came in the 1980s with the desktop metaphor of Apple’s Macintosh computer, named after a type of apple. This did not affect only the external interface, enabling humans to interact with machines in a naturally semantic manner. The Macintosh computer moved the control of the computer from the machine to human beings. Before this, computer applications would present users with a set of options in a predetermined menu. However, the Mac changed all this. Applications were built around an event handler, which could respond to the wide variety of actions that humans could take, like typing a letter or moving the mouse, not unlike interrupt handlers in operating systems, handling basic input/output operations.

Now, to understand the significance of object-oriented modelling techniques to the history of Western civilization we need to recognize that classes and objects in Simula and many other programming languages today correspond to Plato’s distinction between universals and particulars, implicitly described

in *The Republic*. This book was Plato's attempt to define the characteristics a utopian society, free from the Athenian democracy, which had executed his beloved Socrates for corrupting the minds of the youth of Athens. So, to Plato, philosophers, as lovers of wisdom, should be kings, the ruling authorities in a totalitarian state, a guiding principle much criticized by Karl Popper in *The Open Society and Its Enemies*.

From a cognitive perspective, Plato made a clear distinction between two levels of reality: that which is accessible to the physical senses and that which is beyond the senses, where true knowledge resides. This knowledge takes the form of Forms, the English translation of Greek *eidos* and *idea*, words that Plato seems to have used interchangeably. However, Plato did not consider Forms to be concepts, as pictures in the mind. Rather, they are eternal, existing independently of our minds.<sup>638</sup> So Plato could not fully accept Heraclitus' philosophy that all is flux.

### **Evolution of scientific method**

Now to explain what is causing scientists and technologists to drive the pace of change in society at unprecedented exponential rates of acceleration, we need both a radically new science of humanity and also a new approach to scientific method. For the methods that are used to study the material universal, viewed as a machine, are hopelessly inadequate if we wish to map the Cosmic Psyche.

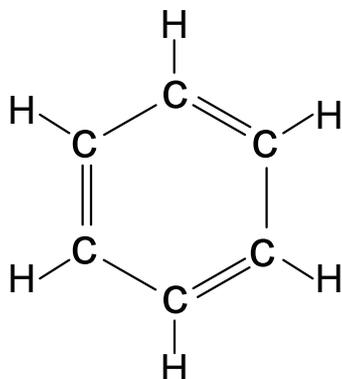
We can most suitably begin here with A. N. Whitehead's famous statement, made in *Process and Reality*, "The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato."<sup>639</sup> We could also say that mathematics is a series of footnotes to Euclid, at least until Einstein published his general theory of relativity in 1916, as he pointed out in the quotation on page 50.

Einstein's theories of relativity are generally regarded as a prime example of revolutions in science, overturning Newton's belief in an absolute space-time framework. But not only does science pass through evolutionary revolutions, so does scientific method, which actually lies outside the scientific domain, as does the psyche. Nevertheless, an understanding of our inner world can play an important role in the discovery of new scientific theories, as Einstein well illustrated in his thought experiments, which led to both the special and general theories of relativity, as mentioned on page 48.

Another vivid example of the way that mental images are of vital importance in creativity, even in materialistic science, concerns the origin of 'structural theory' in chemistry. On 11th March 1890, at a *Benzolfest* in Berlin,<sup>640</sup> August Kekulé (1829-1896), who began his adult education as an architect, says that this way of visualizing the hidden structure of molecules came to him when he was travelling 'outside' in a horse-drawn carriage from Islington to his home in Clapham in London. On this fine summer evening, most probably in 1855, he fell into a reverie (*Traumerei*) and saw atoms gambolling before his eyes forming structures,<sup>641</sup> a visualization that led to the modern structural theory of organic chemistry,<sup>642</sup> another pioneer in this field being Hermann Kopp (1817-1892), who demonstrated that compounds differ in their physical properties according to the degree by which their structure differs.<sup>643</sup> Kekulé's vision gave rise to the notion of valence (or valency, as we called it at school in the 1950s) as a measure of the chemical bonds between atoms, an example of Euler's mathematical mapmaking technique at work.

A few years later, when working as professor of chemistry in Ghent, Kekulé had another vision that was to lead to the discovery of the structure of benzene, the simplest aromatic hydrocarbon. After Michael Faraday (1791-1867) isolated and identified benzene in 1825, it was known that the benzene molecule consists of six carbon and six hydrogen atoms: C<sub>6</sub>H<sub>6</sub>. But how could they relate to each other with the valences of carbon and hydrogen being four and one, respectively? Well, in 1865, Kekulé suggested that the structure contains a six-membered ring of carbon atoms with alternating single and

double bonds, illustrated below.<sup>644</sup> In the same speech in 1890, he said that he visualized this structure when dozing off by the fire in his study, first seeing the atoms gambolling before his eyes. Then they began to form long rows, “twining and twisting in snake-like fashion”, when suddenly “One of the snakes had seized hold of its own tail,”<sup>645</sup> like the ancient symbol of the uroboros, illustrated below in an alchemical context.<sup>646</sup>



As Alan J. Rocke says in *Image and Reality*, it is through such mental images that chemists can visualize the unseen structure of molecules architecturally.<sup>647</sup> However, Rocke does not seem to go further by recognizing that such images *create* our reality, which, in Reality, is nothing but an illusion.

These examples of structuralism in chemistry well illustrate the vital role that mental images play in scientific method, generally ignored by science itself. Rather, although the study of scientific method should evidently be a branch of psychology, it has traditionally lain within philosophy. So let us return to Bertrand Russell’s quest of certainty, for he was interested not only in the foundations of mathematics but also in the relationship of science to religion. For the other central theme of his life was “to do whatever might be possible towards creating a happier world.”<sup>648</sup> His dreams were shattered by living through two horrendous world wars, when many millions of human beings were killed or maimed. Nevertheless, he did not give up. In the Introduction to *History of Western Philosophy*, he wrote:

All *definite* knowledge—so I should contend—belongs to science; all *dogma* as to what surpasses definite knowledge belongs to theology. But between theology and science there is a No Man’s Land, exposed to attack from both sides; the No Man’s Land is philosophy.<sup>649</sup>

But how could science develop such definite knowledge? Well, the evolution of scientific method was severely inhibited during the second millennium by the Christian belief that God is other. So even when philosophers questioned the assumptions and methods underlying Greek thought, they were much hampered in their endeavours.

We saw on page 21 that Roger Bacon introduced the notion of experimentation as a key principle to test the validity of scientific knowledge and on page 24 that Francis Bacon introduced induction as another fundamental principle of scientific method, both of them overcoming limitations in Aristotle’s reasoning.

However, the eighteenth-century Scottish philosopher David Hume pointed out that there is a serious weakness of the inductive method.<sup>650</sup> To remind ourselves, the principle of induction in science, not to be confused with induction in mathematics,<sup>651</sup> is apparently very simple. It can be defined as follows:

If a large number of As have been observed under a wide variety of conditions, and if all those observed As without exception possessed the property B, then all As have the property B.<sup>652</sup>

The principle of induction thus leads to generalized statements, from which predictions about particular situations can be deduced in a mechanistic universe. The next diagram shows the cyclical relationship of induction to deduction, indicating that induction does not actually start from observation

free of assumptions.<sup>653</sup> This is what A. F. Chalmers calls ‘naive inductionism’<sup>654</sup> in *What is this thing called Science?*, a standard textbook on scientific method for students at the Open University in the UK. For in practice all observation statements are theory dependent.<sup>655</sup> It is not possible to observe anything without some preconceptions of what is being observed.

If science is to produce certain knowledge, these generalizations need to be true for all time. Hume raised two problems with this assumption of science, the first logical and the second psychological, which are discussed by Karl Popper in *Objective Knowledge*. The first of these problems is:

Are we justified in reasoning from [repeated] instances of which we have experience to other instances [conclusions] of which we have no experience?<sup>656</sup>

The answer is no, however great the number of repetitions. For instance, for those of us who live between the Arctic and Antarctic circles, the sun rises every day, even though on some occasions we don’t see it because clouds hide it. But is it reasonable to assume that this process will continue indefinitely? Obviously not. Physicists have estimated that in some five to six billion years the Sun will die along with the Earth.<sup>657</sup> So one day soon, there will be neither a sunrise nor anyone around to observe it.

David Hume goes on to pose his psychological problem of induction:<sup>658</sup>

Why, nevertheless, do all reasonable people expect, and *believe*, that instances of which they have no experience will conform to those of which they have experience? That is, why do we have expectations in which we have great confidence?<sup>659</sup>

His answer to this problem, interpreted by Popper, is:

Because of ‘custom or habit’; that is, because we are conditioned, by *repetitions* and by the mechanism of the association of ideas; a mechanism with which, Hume says, we could hardly survive.<sup>660</sup>

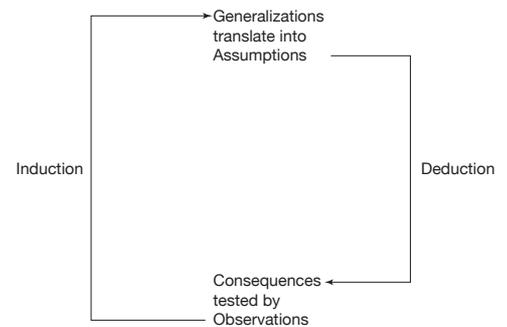
Hume’s attack on empiricism evidently caused a major crisis in the scientific community, for he was questioning the very basis of scientific reasoning. Bertrand Russell highlighted the issue when he said in his inimitable manner:

It is therefore important to discover whether there is any answer to Hume within the framework of a philosophy that is wholly or mainly empirical. If not, there is no intellectual difference between sanity and insanity. The lunatic who believes that he is a poached egg is to be condemned solely on the grounds that he is a minority, or rather—since we must not assume democracy—on the grounds that the government does not agree with him. This is a desperate point of view, and it must be hoped that there is some way of escaping it.<sup>661</sup>

So how could scientific method extricate itself from this situation? Well, what occurred next is one of the most extraordinary happenings in the entire evolution of the mind: philosophers of science sought to remove psychology from scientific method, just as mathematicians had earlier removed logic from psychology. To do this, Popper distinguished the existence of two different senses of knowledge or of thought, once again violating the Principle of Unity, as is customary in Western civilization:

- (1) *knowledge or thought in the subjective sense*, consisting of a state of mind or of consciousness or a disposition to behave or to react, and
- (2) *knowledge or thought in the objective sense*, consisting of problems, theories, arguments as such. Knowledge in the objective sense is totally independent of anybody’s claim to know; it is also independent of anybody’s belief, or disposition to assent; or to assert, or to act. Knowledge in the objective sense is *knowledge without a knower*: it is *knowledge without a knowing subject*.<sup>662</sup>

Chalmers vigorously supported this split by saying, “I accept, and presuppose throughout this book, that a single, unique, physical world exists independently of observers.”<sup>663</sup> Einstein held a similar view. In 1931, when commemorating the centenary of James Clerk Maxwell’s birth, he wrote, “The belief in an external world independent of the perceiving subject is the basis of all natural science.”<sup>664</sup>



### *The Theory of Everything*

Popper similarly believed in an objective reality independent of a knowing being. To support this view of science, in *Objective Knowledge*, he suggested “that it is the aim of science to find *satisfactory explanations*, of whatever strikes us as being in need of explanation.” By *explanation*, he meant finding the unknown but true causes (the *explicans*) that logically entail that which is to be explained (the *explicandum*). “Thus, scientific explanation ... will be *the explanation of the known by the unknown*.”<sup>665</sup>

Now the ultimate unknown *explicans* is the Formless, Nondual Absolute, which some say is unknowable, lying as it does deep within and far beyond the relativistic world of form as Immanence and Transcendence or Emptiness and Fullness. However, this *explicans* is not accepted as the basis of all scientific reasoning.

A. J. Ayer stated a reason for rejecting the Truth from science in *The Central Questions of Philosophy*, as we see from the quotation on page 16. He ended this short section on ‘Evaluation of Mystical Experience’ with this passage: “It is surely obvious that no experience, however intense, can possibly establish such propositions as that reality is spiritual, or that time and space are unreal, or that things which appear to be different are in some manner identical.”<sup>666</sup> So the irrefutable propositions “I am Love” and “Consciousness is all there is,” which denote the Unknowable *Explicans*, based squarely on mystical experience, are refuted. The very basis on which scientific knowledge is to be developed—the experience that arises from experimentation—is denied.

Nevertheless, Chalmers was willing to explore the possibility that scientific facts should not be seen in isolation, but rather “a scientific theory is a complex structure of some kind.”<sup>667</sup> As he pointed out, the primary advocate of this view was Thomas Kuhn (1922–1996), who published his landmark book *The Structure of Scientific Revolutions* in 1962.

Kuhn famously called the complex structures of concepts ‘paradigms’ from the Greek word *paradeiknumi* meaning ‘show side by side’. From this, he made a clear distinction between normal science, which works within the context of a particular paradigm, and scientific revolutions, when a radical change is made to the conceptual structures that guide scientific research. This is what generally happens in what Thomas S. Kuhn called normal science:

... ‘normal science’ means research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time for its further practice.<sup>668</sup>

However, such an approach to science does not satisfactorily describe the process that Copernicus, Kepler, Galileo, and Newton went through in the sixteenth and seventeenth centuries or that of Joseph Priestley and Antoine-Laurent Lavoisier in developing the oxygen theory of combustion in the eighteenth century, obsoleting the earlier phlogiston theory.

By looking at such examples in the history of scientific discovery, Kuhn saw that such a radical change in worldview comes about as the result of anomalies in the overall structure of existing scientific theories; experience no longer matches the theory, leading to what Kuhn called a *paradigm change* or *paradigm shift*. Such a transformation is the essence of scientific revolutions, which he described thus:

... at times of revolution, when the normal scientific tradition changes, the scientist’s perception of his environment must be re-educated—in some familiar situations he must learn to see a new gestalt.<sup>669</sup>

This is very much the case today. Materialistic, mechanistic science cannot begin to tell us what it truly means to be a human being and hence what God and the Universe truly are, as many millions intuitively know today.

Kuhn went on to say that it is as much the consensus of scientific communities that decides what paradigms should be used as rational argument. For no matter how rational scientists claim to be, politics

plays a much greater role in science than most are willing to admit. In general, what we know is more important than what we know.

In other words, Kuhn asserted that science is as much a social activity as an objective, rational process, an approach that Chalmers called 'relativism', a relativist being someone who denies that there is a universal criterion that determines whether a particular theory is scientific or not.<sup>670</sup> Kuhn's observation of the world as it is was not too popular in some quarters, although he denied that he was a relativist, holding to the universal criterion that scientific knowledge evolves, like unidirectional, irreversible biological processes. For Kuhn, "Later scientific theories are better than earlier ones for solving puzzles in the often quite different environments to which they are applied."<sup>671</sup>

Even though the subtitle of Karl Popper's *Objective Knowledge is An Evolutionary Approach*, Imre Lakatos (1922–1974) was one of the leading opponents to Kuhn's view of scientific progress. While supporting the notion that scientific theories are structures, Lakatos sought a way of restoring both rationalism and universality to science. He attempted to do this with the concept of an unchangeable 'hard core' that scientific research programmes should adhere to.<sup>672</sup> "The hard core of a programme ... takes the form of some very general theoretical hypotheses from which the programme is to develop."<sup>673</sup> For instance, "The hard core of Newtonian physics is comprised of Newton's laws of motion plus his law of gravitational attraction." Most particularly, "any scientist who modifies the hard core has opted out of that particular research programme,"<sup>674</sup> typically being ostracized by her or his colleagues.

It is therefore not surprising that scientists with a mystical or even spiritual orientation have been very careful to keep their experiences secret. For the hard core of materialistic science is the second pillar of unwisdom, denying the truth of the second pillar of wisdom: Consciousness is all there is, Consciousness being another name for Totality, consisting of both the Formless Absolute and the relativistic world of form. And the universal principle that underlies the whole of Western thought, scientific or otherwise, is the seventh pillar of unwisdom, whose antidote is the Principle of Unity, thereby ending the war between philosophers of science.

Paul Feyerabend (1924–1994) made some progress in this direction, being concerned that these fixed hard-core paradigms and methods could inhibit the growth of scientific knowledge. In *Against Method*, he therefore proposed an anarchistic approach to learning in which "anything goes."<sup>675</sup> Most particularly, he wanted to challenge the claim that scientific method is superior to any other method of developing knowledge about ourselves and the world we live in. For if science is to play its full part in the world, we need to look at it in the context of the social environment in which it is taking place. As Feyerabend said, we need to "free society from the strangling hold of an ideologically petrified science just as our ancestors freed *us* from the strangling hold of the One True Religion!"<sup>676</sup>

In other words, as a growing number of scientists are beginning to realize, if humanity is to resolve the great crisis it is facing at the present time, we need to free science of scientism, a generally derogatory term indicating a belief in the omnipotence of scientific knowledge and techniques.

Ken Wilber has sought to overcome the problem of scientism in his attempts to integrate science and spirituality by introducing a radically new approach to scientific method. Following St Bonaventure and Hugh of St Victor,<sup>677</sup> Ken points out that we human beings have three modes or eyes of acquiring knowledge: "the *eye of flesh*, by which we perceive the external world of space, time, and objects; the *eye of reason*, by which we attain knowledge of philosophy, logic, and the mind itself; and the *eye of contemplation*, by which we rise to a knowledge of transcendent realities".<sup>678</sup>

*The Theory of Everything*

Ken then goes on to assert that the same scientific method can apply to each of these three eyes, what he calls “the three strands of all valid knowing”:

*Instrumental injunction.* This is an actual practice, an exemplar, a paradigm, an experiment, an ordinance. It is always of the form, ‘If you want to know this, do this’.

*Direct apprehension.* This is an immediate experience of the domain brought forth by the injunction; that is, a direct *experience* of apprehension of data (even if the data is mediated, at the moment of experience it is immediately apprehended). William James pointed out that one of the meanings of ‘data’ is direct and immediate experience, and science anchors all of its concrete assertions in such data.

*Communal confirmation (or rejection).* This is a checking of results—the data, the evidence—with others who have adequately completed the injunctive and apprehensive strands.<sup>679</sup>

That, as far as I can tell, is as far as the philosophy of science has reached today, for people generally don’t know that there is only one Eye in Reality: Self-reflective Divine Intelligence, sometimes called the Witness in spiritual circles. For as Meister Eckhart said, “The eye with which I see God is the same as that with which he sees me.”<sup>680</sup>

Besides, why should there be a consensus for valid, authentic knowledge? There was no consensus for Newton’s unification of Kepler’s celestial physics and Galileo’s terrestrial dynamics while he was writing his magnum opus, and not so much afterwards. Shortly after the publication of *Principia*, Newton heard a student passing him in the street at Cambridge saying, “there goes a man that writt a book that neither he nor any body else understands.” Even Edmund Halley, *Principia*’s midwife, was utterly astonished as successive versions of this work appeared.<sup>681</sup> And as Voltaire ruefully said in his *Letters on England*, written around the time of Newton’s funeral in 1727, the French Cartesians had still not accepted the notion of ‘action-at-a-distance’, even forty years after the publication of *Principia*.<sup>682</sup>

There is another vitally important aspect of scientific reasoning that philosophers of science seem to have completely overlooked. In August 1878, the *Popular Science Monthly* published a paper by Peirce titled ‘Deduction, Induction, and Hypothesis’, the sixth and final paper he wrote on ‘Illustrations of the Logic of Science’. With the thoroughgoing, systemic approach of his triadic logic, Peirce went back to basics.

Peirce first called the major premise, minor premise, and conclusion of the syllogism ‘rule’, ‘case’, and ‘result’, respectively. He then showed that these three terms could be arranged in three different ways, shown in the table below.<sup>683</sup> He later called hypothesis *retroduction* or *abduction*, the latter term being most commonly used today. Abductive reasoning seeks to determine the causes of the phenomena that we observe as symptoms, giving three linear approaches to scientific method.

	Analytic	Synthetic	
	Deduction	Induction	Hypothesis
Given	Rule	Case	Rule
	Case	Result	Result
Inference	Result	Rule	Case

**Deduction** reasons from causes to effects.

**Induction** reasons from specific cases to general rules.

**Abduction** reasons from effects to causes.

In 1973, Harry E. Pople Jr. sought to mechanize abduction in what are called expert systems, defining it thus: “The essence of abductive inference is the generation of hypotheses, which, if true, would explain some collection of observed facts.”<sup>684</sup> Such abductive, aetiological processes were then built into *Internist*, a medical diagnostic tool that was intended to overcome the limitations of *Mycin* and other similar expert systems.<sup>685</sup> However, it is not clear whether or not such abductive diagnostic tools have had much success among clinicians, not the least because *abductive* is not in the *Oxford English Dictionary* or any other dictionary that I have consulted.

Yet, we need abductive reasoning to answer the most critical unanswered question in science: “What is causing scientists and technologists to drive the pace of change at exponential rates of acceleration?” And Erich Fromm used abductive reasoning to suggest how we could heal our grievously sick society in *To Have or To Be?*, much inspired by Shakyamuni Buddha, as mentioned on page 18. For the Buddha, as the first mystical psychologist, used abductive reasoning as the basis of his teachings, as an extension of his three marks of being, listed on page 9. Nonrecognition of the four Noble Truths is ignorance (*avidyā*), briefly stated here:

1. All existence is characterized by suffering, arising from sickness, old age, and death, and does not bring satisfaction (*dukkha*).
2. Suffering is caused by a craving for what one desires, binding beings to the ever-changing cycle of existence (*samsāra*).
3. The cessation of suffering comes when we let go of attachment to the relativistic world of form.
4. The means for the ending of suffering is the eightfold path of right, perfect, or complete view, resolve, speech, conduct, livelihood, effort, mindfulness, and concentration.<sup>686</sup>

### ***The evolution of mathematics***

To establish Integral Relational Logic and the Universal Relationships Theory as sound science, we need to look at the role that mathematics takes in the Theory of Everything, whose framework is provided by the commonsensical transcultural and transdisciplinary art and science of thought and consciousness. For, ever since Galileo, mathematics has generally been regarded as the language of science, with very few dissenting voices.

One such voice was that of David Bohm, who thought when he entered the California Institute of Technology in 1939 that physics needed a deeper philosophical ground than the mathematical techniques that were being used to study the nature of physical reality. Regarding himself more as a natural philosopher, like Newton, Bohm said, “the general practice of physics has indeed become remote from these deeper considerations.”<sup>687</sup> Nevertheless, in 1980, when presenting his new book *Wholeness and the Implicate Order*, he felt that he would need to develop an algebra of algebras<sup>688</sup> to answer physicists’ objections to his synthesis of quantum and relativity theories.

Similarly, there may well be many scientists and mathematicians who dismiss this treatise because its explanation of what is causing scientists and technologists to drive the pace of evolutionary change at exponential rates of acceleration is not expressed in differential equations, such as the Schrödinger equation, “the cornerstone of the mathematics that replaced Newton’s laws in the new physics”.<sup>689</sup> So let us spend a moment exploring how mathematics has evolved over the years and its relationship to the other sciences and the humanities.

For mathematics has evolved quite differently from science, as Isaac Asimov pointed out in the foreword to Carl B. Boyer’s classic book *A History of Mathematics*. As he says, “among most branches of science, the process of progress is one of both correction and extension.” We have needed to correct theories developed by Aristotle and Newton, for instance. However, mathematics is unique:

Only in mathematics is there no significant correction—only extension. Once the Greeks had developed the deductive method, they were correct in what they did, correct for all time. ... Consequently, when we read a book like *A History of Mathematics*, we get a picture of a mounting structure, ever taller and broader and more beautiful and magnificent and with a foundation, moreover, that is as untainted and as functional now as it was when Thales worked out the first geometrical theorems nearly 26 centuries ago.<sup>690</sup>

Well, this is true to some extent. However, as we saw on page 76, mathematics, as it is practiced today, actually lacks a sound foundation. To give all our learning an irrefutable foundation on which to build, we

need the Principle of Unity, rather than Aristotle’s Law of Contradiction, remembering that IRL, as the semantic science of thought and consciousness, underlies all the other sciences, including mathematics. Furthermore, while physicists tell us that Schrödinger’s probabilistic wave equation has strong predictive powers,<sup>691</sup> the notion of prediction in science presupposes that the future is, in some way, similar to the past in a mechanistic manner. Yet, we clearly live in unprecedented times, when this assumption no longer applies.

Mathematicians can go about their work without being concerned that paradoxes have been found in the foundations of mathematics, in set theory. Specifically, they do not explicitly use linear mathematical logic in developing their theorems, for the structure of mathematics, when viewed as a whole, is not linear. The most creative mathematicians apply intuition, more like artists than scientists, following a rigid set of rules, as Einstein’s letter on page 47 indicates. To develop a true map of the structure of mathematics, we need Integral Relational Logic, solidly grounded in the paradoxical Principle of Unity, the fundamental design principle of the Universe.

But that is not how mathematics is seen today. So, as mathematics has played a dominant role in Western thought since Pythagoras, let us spend a moment looking at its role in the science of thought and consciousness that is IRL and its broader implications for science and business. To Pythagoras, Plato, and Euclid, mathematics was primarily the science of space and number, expressed through geometry and arithmetic, which evolved into algebra, calculus, and analysis. However, as we saw on page 64, in laying down the foundations of mathematical logic, Boole showed how we can free mathematics of the tyranny of numbers, leading to the view of mathematics as the abstract science of patterns and relationships. Similarly, geometry has evolved into topology, from Greek *topos* ‘place’, the mathematical study of the qualitative properties of shapes, such as connectedness, continuity, and boundary.

So, as with any other subject, it helps to take an evolutionary perspective here. What we then find is that the development of mathematical structures has accelerated during just two periods, from 600 to 300 BCE and from the sixteenth century to the present day. The German philosopher Karl Jaspers called the first of these periods the Axial Age (*Achsenzeit* in German), when Thales, Pythagoras, Parmenides, Mahavira, Zarathustra, Shakyamuni Buddha, Lao Tzu, Confucius, Heraclitus, Socrates, Plato, Aristotle, Euclid, and many others flourished. However, for him, this pivotal period lasted from 800 BCE to 200 BCE, 300 years either side of 500 BCE, which he calls the ‘axis of history’.<sup>692</sup> After this, scholarly, artistic, and technological endeavours went into decline for several centuries during what Petrarch was to pejoratively call the ‘Dark Ages’,<sup>693</sup> leading eventually to the Humanistic Renaissance.

During what is known as the European Middle Ages, Hindus in India and Muslims in Persia and Arabia continued the development of mathematics. Most particularly, Hindus introduced a numeral for zero in the ninth century, like a round goose egg, thereby completing the modern system of numeration that we know today, with its three key characteristics:

1. A decimal base.
2. A positional notation.
3. A ciphered form for each of the ten numerals.<sup>694</sup>

Curiously, we call our numerals ‘Arabic’ because we imported them from the Arabs, who imported theirs from the Hindus, as this table illustrates, using a modern Devanagari script rather than the more ancient Brāhmī one.<sup>695</sup>

Devanagari	०	१	२	३	४	५	६	७	८	९
Arabic	•	١	٢	٣	٤	٥	٦	٧	٨	٩
Latin	0	1	2	3	4	5	6	7	8	9

### *Unifying Polarizing Opposites in Nondual Wholeness*

But it was not until the end of the sixteenth century that the decimal point was introduced, becoming established in 1614 with the publication of John Napier's logarithms.<sup>696</sup> This helped Kepler to complete the task that he was employed as the Imperial Mathematician to the Holy Roman Emperor to do: the publication in 1627 of *Tabulae Rudolphinae* 'Rudolphine Tables', named after Rudolf II, consisting of a star catalogue and planetary tables based on Tycho Brahe's extensive observations of the heavens.<sup>697</sup> So despite 5,000 years of the evolution of numerical systems from the Babylonians, it is only in the last 400 years that we have been using today's modern notation, such is the way that the pace of evolution is accelerating, in mathematics, as in every other discipline of learning.

The word *mathematics* itself derives from Latin *mathēmaticus*, from Greek *mathēmatikos*, from *mathēma* 'science, learning', from *manthanein* 'to learn'. So a polymath is someone who is learned in many specialist subjects. This does not necessarily make a polymath a generalist. For generalists are people who know less and less about more and more, eventually knowing nothing about everything, while specialists, on the other hand, know more and more about less and less, eventually knowing everything about nothing. In business today, information systems architects are the principal generalists, not having detailed knowledge of the workings of all the divisions and departments in an organization, but having an overview of how all their different processes and classes relate to each other. In some ways, they thus go even further than the abstractions of pure mathematicians and philosophers.

Panosophers learning IRL through the meditation technique of collumination take this process of generalization to its utmost level of abstraction with the primal concept of **being**, as described on page 138 in Subsection 'Primal concepts'. And **Being** is the superclass of all other concepts, including all mathematical concepts.

The primary bootstrap concept of interpretation is the concept of **set**, the most fundamental concept in pattern recognition in both semantics and mathematics. As mentioned on page 139, in the 1960s, there was some attempt to put first things first with the introduction of the new maths in primary schools based on the abstract notion of set. For it is not possible to form the concept of number 3 until the concept of set is formed, as Bertrand Russell realized. But it seems that the new maths was abandoned because children were not developing the numeracy skills required by business and science.<sup>698</sup>

Furthermore, when children became aware of the role that sets play in concept formation, this exacerbated oppression and inhumane conditions in mathematical classrooms, especially related to sexism and racism, as Newcomb Greenleaf described in a talk that he gave at the Science and Nonduality (SAND) conference in October 2011 in California.<sup>699</sup> Newcomb made this point to show that mathematics is shaped by culture and is not context-free as might be supposed for such an abstract science. In a way, IRL has also been shaped by culture, but at its gnostic and ontological heart, it is universal, transcultural, and transdisciplinary.

We can see this cultural influence in the way that mathematics has evolved since Pythagoras and Plato. To them, and to most today, mathematics was the science of number and space, brought together in arithmetic and geometry, from Greek *geōmetriā*, from *geōmetrein* 'to measure land', from *ge* 'earth' and *metria* 'measuring', from PIE base *\*med-* 'to take appropriate measures', also root of *medical*, *modest*, *moderate*, *model*, and *mood*. It is important here to make a clear distinction between measurement, on the one hand, and counting and calculation, on the other. David Bohm points out that in ancient times the most basic meaning of *measure* was 'limit' or 'boundary'. "In this sense of the word, each thing could be said to have its appropriate measure," in, for instance, human behaviour, "suggesting that the wise man is the one who keeps everything in right measure." For example, in physics, 'the measure of water' is

between 0° and 100°C.<sup>700</sup> It is this sense of measure that is used in IRL, as described on page 143, when defining dimensions as domains of values or limits for the attributes of classes of concept.

Euclid's *Elements* well illustrates the distinction between *mensuration* and *enumeration*. The word *measure* is frequently used, but there is no counting in units, such as metres, seconds, grams, or dollars. Euclid is more concerned with relationships and proportions in geometrical figures, adding some theorems about primes, coprimes, and perfect numbers, most famously proving by the mathematical technique of induction that there are an infinite number of primes.<sup>701</sup> So to measure  $\sqrt{2}$ , which cannot be expressed rationally, as the ratio of integers, the Greeks "used a length equal to the hypotenuse of a right triangle whose sides were one unit in length."<sup>702</sup> This lack of what physicists and accountants call measurement is most evident in Thomas L. Heath's commentary to *The Elements*, which provides algebraic expressions for many of Euclid's propositions.

In *Mathematics and Western Culture*, Morris Kline provides some insight into how the ancient Greeks viewed mathematics: "The philosophers, mathematicians, and artists were members of the highest social class. This upper stratum either completely disdained commercial pursuits and manual work or regarded them as unfortunate necessities." So to the Greeks, shapes and forms were more relevant than counting and calculations, a principle encapsulated in the oft-repeated motto at the entrance to Plato's Academy: "Let no one ignorant of mathematics enter here."<sup>703</sup>

While the Academy continued until 529 CE, when the Christian emperor Justinian closed it, together with other pagan schools,<sup>704</sup> the centre of Greek learning moved to Alexandria after Alexander had conquered Egypt about 332 BCE.<sup>705</sup> Alexandria became the centre of the entire ancient world, ideally located at the junction of Asia, Africa, and Europe, with a highly cosmopolitan population.<sup>706</sup> This led to a marked change in the direction of Greek thought for two principal reasons. First, the commercial interests of the Alexandrians brought geographical and navigational problems to the fore. Secondly, the scholars were no longer segregated from the people at large.

Scholars were thus induced to unite their flourishing theoretical studies with concrete scientific and engineering investigations, inventing an amazing range of devices, including pumps, pulleys, wedges, tackles, odometers, and even steam engines that could drive vehicles along the city streets in annual religious parades. So "the great Alexandrian mathematicians, Eratosthenes, Archimedes, Hipparchus, Ptolemy, Heron, Menelaus, Diophantus, and Pappus, though they displayed almost without exception the Greek genius for theoretical abstractions, nevertheless were quite willing to apply their talents to the practical problems necessarily important in their civilization."<sup>707</sup>

The 'unfortunate necessities' of applied mathematics are what drives much of mathematics in business and science today. However, they have also been of great benefit in the arts, not the least in music and painting, surprisingly recently considering that human beings have been making music and drawing for thousands of years, illustrating the amazing changes that came about as the result of the humanistic renaissance, the beginning of what we can call a second axial period.

It is well known that Pythagoras is credited with discovering that concordant intervals in music are related by small integer ratios. "Strings with lengths in the ratio 2:1 produced the interval of an octave known to the ancient Greeks as *diapason*. Those in the proportion 3:2 produced the interval of the fifth, known to the Greeks as *diapente*. Strings of equal tension with length in the proportion 4:3 produced the interval of a fourth known to the Greeks as *diatessaron*. ... All of these intervals are present between strings with relative lengths 2, 3, and 4. Thus the most harmonious of intervals are contained in the number progression 1:2:3:4."<sup>708</sup> This gave rise to what is called Pythagorean tuning, in which all intervals

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in the 12-tone scale are of the form  $3^m/2^n$ , where  $m$  and  $n$  are both either positive or negative.<sup>709</sup>

However, the insatiably curious Kepler, seeking a unifying harmony in music, geometry, and the heavens, considered the ratios 6:5, 5:4, 8:5, and 5:3 to be consonant,<sup>710</sup> *consonance* being defined as “Acoustically, the sympathetic vibration of sound waves of different frequencies related as the ratios of small whole numbers; psychologically, the harmonious sounding together of two or more notes”.<sup>711</sup> Strings tuned in these ratios are called ‘just intonation’.<sup>712</sup>

But harmonies are a little more complex than these simple ratios. If polyphonic music is to be composed in all twelve major and minor keys and sound harmonious in each of them, instruments really need to be capable of equal temperament, a tuning system based on the division of the octave into twelve equal semitones. This means that the ratios between successive semitones should be the same, leading to a geometric progression, not an arithmetical one. Specifically, as an octave is double the frequency of the tonic, then each semitone ratio is  $\sqrt[12]{2}$  in equal temperament, a ratio of 1.059463094 to 1, very far from the ratio of two small integers.

To resolve this difficulty, music theorists today further divide a semitone into a hundred parts, each cent having a ratio of 1.00057779 to 1, five cents being the smallest interval perceptible to the most discerning human ear. However, to simplify calculations and understanding, a logarithmic scale is used, converting nature’s geometric series into a more familiar arithmetical one. The number of cents ( $n$ ) between two notes of frequency  $x$  and  $y$  is thus given by this formula:<sup>713</sup>

$$n = 1200 \log_2 \frac{x}{y}$$

Things get even more complicated when we consider the fact that instruments do not generally sound a pure sine wave, but a complex one consisting of harmonics, integer multiples of the fundamental frequency. These harmonics alter the timbre of the sound, greatly enhancing the pleasure of listening to music, even though some of these ratios might appear more dissonant than consonant. For as this table shows, harmonics can differ quite considerably from equal temperament, presenting this knowledge in the tabular formulation of IRL. The difference columns denote the difference of the ratios to equal temperament in cents. Curiously, Pythagorean tuning is often closer to equal temperament than just intonation. What did Pythagoras know that we don’t know today?

Interval	Note	Eq. Temp.	Pythagorean tuning		Just intonation		Harmonic series		
		Cents	Ratio	Diff.	Ratio	Diff.	No.	Ratio	Diff.
Tonic	C	0	1/1	0	1/1	0	0	1/1	0
Minor second	C#, D♭	100	256/243	-10	16/15	12	17	17/16	5
Major second	D	200	9/8	4	9/8 10/9	4 -18	9, 18	9/8	4
Minor third	D#, E♭	300	32/27	-6	6/5	16	19	19/16	-2
Major third	E	400	81/64	8	5/4	-14	5, 10, 20	5/4	-14
Perfect fourth	F	500	4/3	-2	4/3	-2	21	21/16	-29
Tritone	F#, G♭	600	1024/729	-12	7/5	-17	11, 22 23	11/8 23/16	-49 28
Perfect fifth	G	700	3/2	2	3/2	2	3, 6, 12, 24	3/2	2
Minor sixth	G#, A♭	800	128/81	-8	8/5	14	25 13, 26	25/16 13/8	-27 41
Major sixth	A	900	27/16	6	5/3	-16	27	27/16	6
Minor seventh	A#, B♭	1000	16/9	-4	7/4	-31	7, 14, 21, 28 29	7/4 29/16	-31 30
Major seventh	B	1100	243/128	10	15/8	-12	15, 30 31	15/8 31/16	-12 45
Octave	C	1200	2/1	0	2/1	0	2, 4, 8, 16, 32	2/1	0

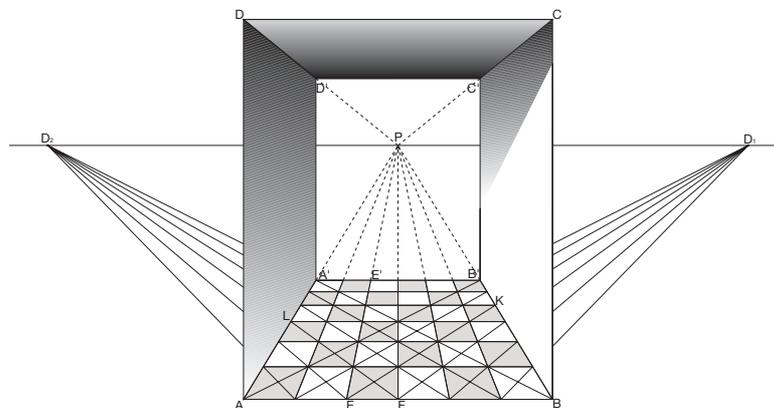
*The Theory of Everything*

So consonant harmonies are not as simple as some like to make out. We can thus see some of the challenges that Johan Sebastian Bach faced in composing his two sets of *The Well-Tempered Clavier* in 1722 and 1742, consisting of a prelude and fugue in all 24 major and minor keys, 96 ‘songs’ in iTunes. These major and minor keys evolved from Ionian and Aeolian modes, which Heinrich Glarean introduced in 1547, overcoming a problem with the Lydian mode because the interval between F and B is a tritone, alternatively named augmented fourth or diminished fifth, called ‘*diabolus in musica*’ in the Renaissance because of its instability.<sup>714</sup> So there was a tendency to change B to B $\flat$ , without acknowledging that a change in mode was being made as a consequence.<sup>715</sup> Eventually, these two modes replaced all the church modes used in Gregorian chants, named after seven Greek octave species, but somewhat differently because the Greek scales were named in descending rather than ascending order.<sup>716</sup>

So, while not demeaning this ancient music, our hearts are filled today with the most melodious music, composed during the sixteenth to the nineteenth centuries, from the baroque of Palestrina, Corelli, Vivaldi, Telemann, Handel, and the Bach family, through the classical period of Haydn, Mozart, and Beethoven, to the Romantic age of Schubert, Mendelssohn, Chopin, Tchaikovsky, and Brahms. But, at the beginning of the twentieth century, all hell broke loose, as Alban Berg, Arnold Schoenberg, and Anton Webern introduced twelve-tone music, where all intervals are considered of equal importance. Maybe some people enjoy such discordant music, but I am not one of them. For me, music is to be appreciated in the heart, not with the head, not the least because I am partially tone deaf, despite singing in the church, school, and university choirs in my youth, and playing violin in the school and county youth orchestras.

Another illustration of the momentous change that the evolution of the mind took in recent history is the way that we have learnt to draw the world as we see it, rather than in symbolic form. For instance, in the Middle Ages, early Christian artists made no attempt to depict figures in optical perspective, which Greek and Roman painters had endeavoured to do. They were more concerned with illustrating religious themes and inducing religious feelings, rather than representing people in the actual and present world.<sup>717</sup>

For people to see the world exactly as it is, rather than what they would like to see, what was needed was a mathematical theory, enabling artists to paint with full perspective. Filippo Brunelleschi, an Italian architect and engineer, laid down the foundations of such a science of painting. He worked out a system of perspective by 1425.<sup>718</sup> Morris Kline illustrates the basic principles of this focused system of perspective with a sketch of a hallway, reproduced here.



The figure shows a hallway viewed by a person whose eye is at point O (not shown), which lies on a line perpendicular to the page through the point P, which is known as the vanishing point. All lines that are perpendicular to the plane of the canvas meet at P, such as AA', EE', and DD'. Also parallel lines that are at an angle to the canvas also meet at a point. For instance, lines parallel to EK and FL, at 45° and

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135° to the canvas, meet at  $D_1$  and  $D_2$ , respectively, called diagonal vanishing points. The line  $D_1PD_2$  is the horizon line. The squares on the floor of the hallway illustrate the principle of foreshortening. The ratio of the sides of nearest ‘row’ of squares is approximately 100:64, reduced to about 100:39 in the ‘row’ furthest away. The ‘heights’ of the squares of the converging parallels diminish faster than the widths of the parallels that remain parallels in the drawing. We can then calculate the perpendicular distance  $h$  of  $P$  from  $AB$ , given its length as  $a$  and the angle  $BAP$  as  $\alpha$ . The formula for the vanishing point is then:

$$h = \frac{1}{2} a \tan \alpha$$

Leonardo da Vinci produced many excellent examples of perfect perspective with his mathematical and aesthetic genius, making numerous detailed studies for each painting.<sup>719</sup> This picture is a restored copy of the ‘Last Supper’, a somewhat faded mural in Santa Maria delle Grazie in Milan. The vanishing point for the perpendicular parallels in the walls and ceiling is the top of Jesus’ head, focusing attention on him.



So numbers are useful in their place. But they are not the basis of human learning, despite what some scientists and business leaders believe. For instance, in business, it is said, “If you cannot measure, you cannot manage,” probably inspired by Lord Kelvin’s view of physical science, “To measure is to know,” and “When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind.”<sup>720</sup>

At these rapidly changing times, it is essential that we learn to put first things first. Numbers and statistics are useful in their place—that is interpreted within a sound semantic framework based on the Cosmic Context of Consciousness. The mathematics that is thus most relevant to the changing times we live in is pure mathematics, as the science of patterns and relationships, not necessarily numerical or spatial ones, even though that is what the sacred geometers focus attention on.<sup>721</sup> Applied mathematics, which physicists and engineers apply in their scientific and technological studies, is mainly the use of mathematical structures to enhance our knowledge of the physical universe as a secondary process.

There is thus no need to apologize for pure mathematics, as the eminent mathematician G. H. Hardy felt he needed to do, saying, “I have never done anything ‘useful’. No discovery of mine has made, or is likely to make, either directly or indirectly, for good or ill, the least difference to the amenity of the world.”<sup>722</sup> Hardy called pure mathematics ‘serious’ rather than ‘trivial’.<sup>723</sup> To Hardy, “A mathematician, like a painter or a poet, is a maker of patterns.”<sup>724</sup> “The mathematician’s patterns, like the painter’s or the poet’s, must be beautiful; the ideas, like the colours or the words, must fit together in a harmonious way.”<sup>725</sup> Hardy was “interested in mathematics only as a creative art”.<sup>726</sup> In the words of Alfred North

Whitehead, the co-author with Bertrand Russell of *Principia Mathematica*, “The science of Pure Mathematics ... may claim to be the most original creation of the human spirit,”<sup>727</sup> one possible rival being music.

In Hardy’s words, there is “a certain generality and a certain depth”<sup>728</sup> in pure mathematics. By generality, he meant “A significant mathematical idea ... should be one which is a constituent in many mathematical constructs.”<sup>729</sup> In Whitehead’s words, “It is by the employment of [the] notion [of ‘variable’] that general conditions are investigated without any specification of particular entities,” such as “the shape-iness of shapes”,<sup>730</sup> which are quite irrelevant. It is the task of mathematics to discover a “pattern of relationships among general abstract conditions”.<sup>731</sup> However, Whitehead went on to qualify his statements by saying “it is the large generalization, limited by a happy particularity, which is the fruitful conception.”<sup>732</sup> As Hardy said, “a property common to too many objects can hardly be very exciting.”<sup>733</sup>

By depth, Hardy meant “ideas that are usually the harder to grasp”.<sup>734</sup> Examples of depth are Euclid’s proof that there are an infinite number of primes and Pythagoras’s proof that  $\sqrt{2}$  is irrational, the latter being deeper than the former. They are deep because they employ general mathematical techniques, these cases being examples of *reductio ad absurdum*. But there are mathematical theorems that are much, much deeper than these. So much so that “this notion of ‘depth’ is an elusive one even for a mathematician who can recognize it.”<sup>735</sup>

However, it is not true that a property common to too many objects can hardly be very exciting. The Principle of Unity is a universal property applicable everywhere, enabling us to understand what the Universe is and how it is designed, sending the practitioner into rapturous ecstasy with its elegant simplicity.

Perhaps the most elegant of all the deep structures in mathematics itself is Euler’s formula, which shows the relationship between analysis and trigonometry, quite easy to prove from the infinite series expansions of the exponential and trigonometric functions:<sup>736</sup>

$$e^{i\theta} = \cos \theta + i \sin \theta$$

Replacing  $\theta$  by  $\pi$  or  $\pi/2$  gives the most amazing formula in mathematics, one that expresses a relationship between two transcendental numbers in the simplest possible terms, known as Euler’s identity:

$$e^{i\pi} = -1 \quad \text{or} \quad e^{i\pi} + 1 = 0$$

Yet, Euler’s mapmaking technique, introduced on page 36, is even simpler and more elegant, enabling us to map the entire Universe, including mathematics, which we can see as a structure of nodes and arcs, of forms and relationships between them. We can see this in the way that mathematics has evolved during the past few hundred years, developing ever-greater abstractions from a few basic principles.

For instance, we can begin with Pascal’s triangle, although other mathematicians studied this for centuries before him in India, Greece, Iran, China, Germany, and Italy, illustrated here.<sup>737</sup> These numbers are the binomial coefficients of the polynomial expansion of  $(x + y)^n$ , more simply expressed as:

$$(x + 1)^n = \sum_{k=1}^n \binom{n}{k} x^{n-k}$$

where

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$

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also known as the number of ways of selecting  $k$  items from a group of  $n$  items in combination theory, where  $n!$  is factorial  $n$ , defined as the product of all the integers up to  $n$ . So  $3!$  is 6 and  $4!$  is 24.

Now, another fascinating polynomial is the expansion of the power series,<sup>738</sup> studied particularly by Johann Faulhaber (1580–1635), a Rosicrucian collaborator with Johannes Kepler.<sup>739</sup> For instance, as is well known, the sum of the integers from 1 to  $n$  is:

$$\sum_{k=1}^n k = \frac{1}{2}n(n + 1)$$

giving the triangular numbers, 1, 3, 6, 10, 15, 21, 28, 36, 45, 55, ...

But what is the polynomial expansion of the general power series?

$$\sum_{k=1}^n k^m$$

Well, Faulhaber found expressions for the values of  $m$  up to 17,<sup>740</sup> the next three being:

$$\sum_{k=1}^n k^2 = \frac{1}{6}(2n^3 + 3n^2 + n)$$

$$\sum_{k=1}^n k^3 = \frac{1}{4}(n^4 + 2n^3 + n^2)$$

$$\sum_{k=1}^n k^4 = \frac{1}{30}(6n^5 + 15n^4 + 10n^3 - n)$$

Going up to  $m = 9$ , this table gives the coefficients for each of the powers of  $n$ :<sup>741</sup>

Power	$m+1$	$m$	$m-1$	$m-2$	$m-3$	$m-4$	$m-5$	$m-6$	$m-7$
1	1/2	1/2							
2	1/3	1/2	1/6						
3	1/4	1/2	1/4						
4	1/5	1/2	1/3		-1/30				
5	1/6	1/2	5/12		-1/12				
6	1/7	1/2	1/2		-1/6		1/42		
7	1/8	1/2	7/12		-7/24		1/12		
8	1/9	1/2	2/3		-7/15		2/9		-1/30
9	1/10	1/2	3/4		-7/10		1/2		-3/20

There seems to be a pattern here, but what on earth is it? The coefficients total one, the first being  $1/(m+1)$  and the second  $\frac{1}{2}$ . The third coefficient has a value, whose pattern is far from clear. After this the alternating coefficients are zero and the other coefficients alternate from minus to plus. But does this pattern continue indefinitely and what is the pattern that underlies the coefficients? Such a puzzle is not unlike the intelligence tests that teachers set children at school or those that Mensa sets as entry to their exclusive club. Well, like Tycho Brahe, measuring the positions of the stars and planets, Faulhaber did not find the underlying pattern. It was left to Jacob Bernoulli (1654/55–1705), acting like Kepler to Tycho, to find a generalized expression for these coefficients. Here it is:<sup>742</sup>

$$\sum_{k=1}^n k^m = \frac{1}{m + 1} \sum_{j=0}^m (-1)^j \binom{m + 1}{j} B_j n^{m+1-j}$$

where  $B_j$  is a Bernoulli number, defined recursively:

$$B_j = - \sum_{i=0}^{j-1} \binom{j}{i} \frac{B_i}{j - i + 1}$$

with  $B_0 = 1$ . Isn't that amazing? Here are the first few Bernoulli numbers:<sup>743</sup>

Number	$B_0$	$B_1$	$B_2$	$B_4$	$B_6$	$B_8$	$B_{10}$	$B_{12}$	$B_{14}$	$B_{16}$	$B_{18}$	$B_{20}$
Value	1	-1/2	1/6	-1/30	1/42	-1/30	5/66	-691/2730	7/6	-3617/510	43867/798	-174611/330

These apparently haphazard numbers, which get larger and larger in absolute terms, are of such central importance in mathematics, Ada Lovelace showed how they could be calculated with Charles Babbage's Analytical Engine, turning Babbage's formulae into tabular form, published at the end of her memoir to Menabrea's 'Sketch of the Analytical Engine' in 1843. Not surprisingly, she did not do so without considerable effort, saying in a letter to Babbage, "I am in much dismay at having got into so amazing a quagmire & botheration with these *Numbers*."<sup>744</sup> This was the first program ever published, much more complex than the initial programs that ran on the first stored-program computers over a century later, as we see on page 105. Ada has thus been called the world's first programmer, although she was clearly much assisted by Babbage himself.

Now the next step on this process of generalization in mathematics was to consider the power series where  $m$  is negative, which gives the possibility that even the sum of an infinite series of such terms converges to a finite value. The general formula here is called the Riemann zeta function, which Euler showed could also be expressed as the product of terms involving just prime numbers:

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} = \prod_{k=1}^{\infty} \frac{1}{1 + \frac{1}{p_k^s}}$$

where  $p_k$  is the  $k$ th prime.

John Derbyshire calls this amazing relationship the 'Golden Key',<sup>745</sup> which causes mathematicians to go all a flutter. For primes are the atoms of number theory, all integers being uniquely expressible as the product of prime numbers—the fundamental theorem of arithmetic. But no pattern has been found in the distribution of the primes other than the prime number theorem (PNT), which states that if a random integer is selected in the range of zero to some large integer  $N$ , the probability that the selected integer is prime is about  $1 / \ln(N)$ , where  $\ln(N)$  is the natural logarithm of  $N$ .<sup>746</sup>

One significant consequence of Euler's product, as it is called, is that for  $n \geq 0$ <sup>747</sup>

$$\zeta(2n) = (-1)^{n+1} \frac{B_{2n}(2\pi)^{2n}}{2(2n)!}$$

For instance, for  $n = 1$ , we have a result that Euler himself found:<sup>748</sup>

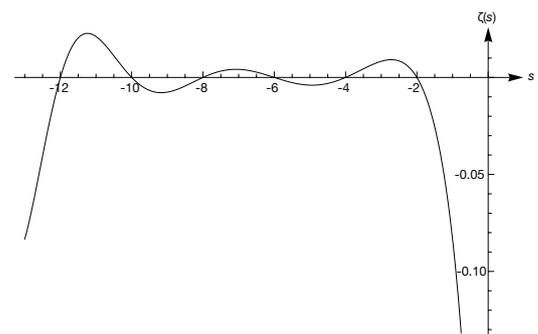
$$\frac{2^2}{2^2 + 1} \times \frac{3^2}{3^2 + 1} \times \frac{5^2}{5^2 + 1} \times \frac{7^2}{7^2 + 1} \times \frac{11^2}{11^2 + 1} \times \dots = \frac{\pi^2}{6}$$

So we have a surprising relationship between the prime numbers and  $\pi$ , the ratio of the circumference of a circle to its diameter, just one other example where  $\pi$  pops up in the most unexpected places.

Some other consequences of the zeta function fascinate mathematicians when  $s$  is negative. Considering just integer values, we have this formula:

$$\zeta(-n) = -\frac{B_{n+1}}{n+1}$$

As  $B_n$  is zero for all odd values of  $n$ , the zeta function is zero for all even negative integers, known as the trivial zeros. Considering  $s$  as a real number, using a more general formula for the zeta function, between these zero points, the function is continuous, swinging increasingly as  $s$  grows negatively, being positive between  $s = -2(2n-1)$  and  $-4n$  and negative otherwise, where  $n > 0$ , illustrated here.



*Unifying Polarizing Opposites in Nondual Wholeness*

But things get really interesting when  $s$  is a complex number of the form  $\sigma + it$ . It is not easy to visualize the way that the zeta function behaves with complex  $s$  as this requires many years of practice,<sup>749</sup> for it requires four dimensions to plot the real and imaginary inputs and outputs from the function.<sup>750</sup> Furthermore, the non-trivial zero points do not have the regular pattern of the trivial zero points, other than that the first few that Bernhard Riemann found lie on a line  $\frac{1}{2} + it$ , the first three being  $(\frac{1}{2}, 14.134\ 725 \dots)$ ,  $(\frac{1}{2}, 21.022\ 040 \dots)$ , and  $(\frac{1}{2}, 25.010\ 856 \dots)$ .<sup>751</sup> In a paper published in 1859, he therefore hypothesized that all non-trivial zero points lie on this line, known today as the Riemann Hypothesis, called the ‘greatest unsolved problem in mathematics’.

David Hilbert included the Riemann Hypothesis as the eighth unsolved problem in his 1900 presentation in Paris, including Goldbach’s conjecture that every even number is the sum of two primes.<sup>752</sup> At that time it was known that all zero points would fall in a critical strip where  $0 < \sigma < 1$ , with a critical line at  $\sigma = \frac{1}{2}$ .<sup>753</sup> Then in 1914, G. H. Hardy proved that there are an infinite number of zeros on this critical line.<sup>754</sup> But he did not prove that there are none outside the line and no one has done so since.

However, in 1973, Hugh L. Montgomery—noting that the zero points line up in relatively uniform intervals, far more regular than the primes themselves—found that the differences between the zeros seem to have a distribution given by this formula:<sup>755</sup>

$$1 - \left( \frac{\sin \pi u}{\pi u} \right)^2$$

Now the year before, Montgomery had met Freeman Dyson by chance at the Princeton Institute of Advanced Studies, the latter pointing out that Montgomery’s pair correlation conjecture has the same form as the distribution function of the energy levels of subatomic particles.<sup>756</sup> This really got the mathematicians excited, for this similarity seems to indicate a link between the distribution of the prime numbers and quantum physics.

Then in 1996, Alain Connes pointed out another surprising relationship: between his non-commutative geometry, for which he was awarded the Field’s Prize, and the Riemann function. This connection opened up a quite new approach to proving the Riemann hypothesis, leading some to speculate that non-commutative geometry could form the basis for the discovery of the fundamental law of nature, one that could explain the creation of the universe. As the commentator on a television programme in 2011 on the Riemann hypothesis enthusiastically proclaimed, as the new geometry is closely related to prime numbers, if the secrets of the primes are clarified using non-commutative geometry, then the theory of everything would be solved. The century-long search for the hidden meaning behind the prime numbers could well turn out to be the theory of everything, the Creator’s blueprint for the Universe.<sup>757</sup>

Not all mathematicians share this enthusiasm. An anonymous mathematician who doesn’t has said, “What Connes has done, basically, is to take an intractable problem and replace it with a different problem that is equally intractable.”<sup>758</sup> So it might be that while the Riemann hypothesis could be a true theorem of mathematics, it is not one that can be proved using any mathematical tool, much as Gödel indicated.

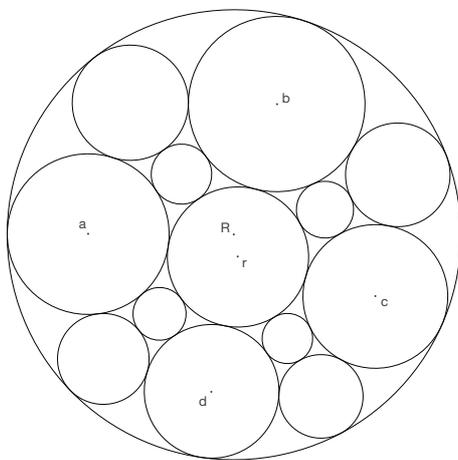
Nevertheless, to spur mathematicians along, as if they needed such encouragement, in 2000 the Clay Mathematics Institute (CMI) of Cambridge, Massachusetts named seven ‘Millennium Prize Problems’, awarding one million dollars to the solution of seven unsolved mathematical problems, including the Riemann Hypothesis.<sup>759</sup>

Now while this is obviously great fun, it is clear that mathematics cannot answer the Big Questions of human existence, addressed in this treatise, such as what is causing mathematicians and scientists to behave as they do? For Self-reflective Intelligence is necessary to develop a comprehensive map of the Universe, one that can truly reveal the underlying blueprint of the Universe. But at least mathematicians engaged in pure mathematics are not doing any harm to society, unlike some of the problems that arise from applied mathematics.

The peaceful, aesthetic, and spiritual essence of mathematics is no better demonstrated than by the Japanese, who isolated themselves from Western influence from 1635 to 1854, when Commodore Matthew Perry's gunboats re-opened Japan to trade and European applied mathematics, leading to Pearl Harbour in 1941 and Hiroshima and Nagasaki in 1945. But while Japan lived in isolation, they explored the beauty of pure mathematics, defining and solving many intricate geometric problems, unknown in the West, as Fukagawa Hidetoshi and Tony Rothman describe in *Sacred Mathematics: Japanese Temple Geometry*. These mathematical puzzles were beautifully displayed as Sangakus in Buddhist temples and Shinto Shrines, such as this:



The solution to the second puzzle on the left is particularly interesting because it touches on a class of problems that go back to Apollonius of Perga, concerning what Frederick Soddy amorously called ‘kissing circles’ in a poem in *Nature*.<sup>760</sup> The task here is to show this relationship between the radii of the circles marked a, b, c, and d:



$$\frac{1}{a} + \frac{1}{c} = \frac{1}{b} + \frac{1}{d}$$

The solution to this problem is not actually shown on the tablet because it can only really be solved with geometric inversion, closely related to the principle of duality in projective geometry, which led to the Principle of Unity in IRL.

We can see the difficulty by first considering the Problem of Apollonius, which “has exercised the ingenuity of many distinguished geometers, including Vieta and Newton,” as Thomas L. Heath tells us in *A History of Greek Mathematics*: “given three things, each of which may be a point, a line, or a circle, construct a circle which passes through each of the points and touches the given lines and circles.” Apollonius showed in a lost treatise called ‘On Contacts’ or ‘On Tangencies’, described by Pappus, that this problem could be solved with ruler and compass alone, including the most difficult problem of a circle touching three other circles.<sup>761</sup>

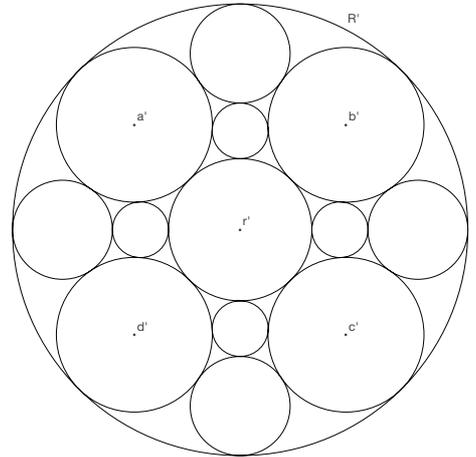
However, it was not until 1643 that René Descartes found a formula for the special case when a circle touches three other touching circles,<sup>762</sup> rediscovered in 1936 by Frederick Soddy, who then generalized the formula to spheres and *n* dimensions.<sup>763</sup> But in this Japanese puzzle, we have a circle touching *four* other circles, which can only happen if the common tangents of the circles, taken in pairs, obey another rather involved formula,<sup>764</sup> which John Casey discovered in 1866 as a generalization of the condition for a circle to pass through four points, discovered by Ptolemy.<sup>765</sup>

*Unifying Polarizing Opposites in Nondual Wholeness*

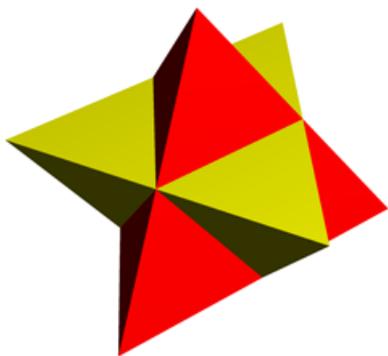
To avoid having to solve the rather complex simultaneous quadratic equations that arise from these relationships, it is much easier to solve the Japanese puzzle by inverting the diagram about a suitable circle of inversion, a technique discovered by Jakob Steiner in 1828.<sup>766</sup> This states that if two points P and P', inside and outside the circle, lie on a line through the centre O, then one is the inverse of the other if:

$$OP \times OP' = k^2$$

where  $k$  is the radius of the circle of inversion. This relationship is similar to polar reciprocation in projective geometry, where points become lines, and vice versa, as the examples on page 145 illustrate.<sup>767</sup> However, in inversive geometry, many other fascinating relationships emerge. For instance, circles invert into circles, except when a circle passes through O, when it inverts into a line. Also, inversion preserves angles between intersecting circles and lines. So if a pencil of circles passing through the centre of inversion intersects other circles orthogonally, then these circles invert into concentric circles.<sup>768</sup> We can use this relationship to invert the Japanese puzzle into this much simpler diagram, where  $r$  and  $R$  invert into  $r'$  and  $R'$  and the circles  $a$ ,  $b$ ,  $c$ , and  $d$  invert into  $a'$ ,  $b'$ ,  $c'$ , and  $d'$ , each of equal radius. Using some theorems of inversive geometry, Hidetoshi and Rothman then show that it is not difficult to solve this delightful puzzle.<sup>769</sup>

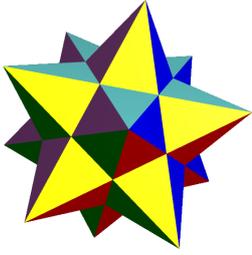


In three dimensions, points and planes are interchangeable, so the vertices of a polyhedron become the faces of a dual polyhedron, and vice versa, as Magnus J. Wenninger illustrates in building dual models of the regular and semiregular polyhedra.<sup>770</sup> Below are a couple of examples, the first being the self-dual tetrahedron, Kepler's stella octangular. The other shows that the cuboctahedron and rhombic dodecahedron are duals of each other. Using a sphere of reciprocation as the midsphere of the polyhedra, touching the edges, the product of the distances of a vertex and dual face to the centre of the sphere is the square of the radius of the sphere, the same formula as in two dimensions. One other interesting formula arises from these models, which Euler discovered in his mapmaking explorations:  $v - e + f = 2$ , where  $v$ ,  $e$ , and  $f$  are the number of vertices, edges and faces in any convex polyhedron.<sup>771</sup>

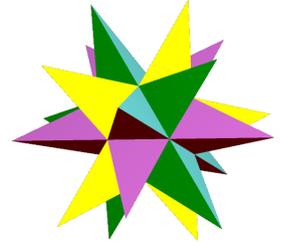


I haven't mentioned these dualities just to have some fun. They illustrate another essential point: the evolution of the discovery of these polyhedra demonstrates that we are approaching the end of mathematics, just as we are approaching the end of science, as we discover the answers to what we still do not know by asking questions that no one has previously thought to ask.

As already mentioned, the Greeks were well aware of the existence of the five regular Platonic solids (tetrahedron, cube, octahedron, dodecahedron, and icosahedron), Euclid proving that none others can exist in the final proposition of the last book in his *Elements*.<sup>772</sup> However, even though the Pythagoreans



knew the pentagram as a stellated pentagon,<sup>773</sup> the Greeks did not think of stellating the dodecahedron, to form the small and great stellated dodecahedra. It was not until 1619 that Johannes Kepler discovered these nonconvex regular polyhedra, illustrated here.<sup>774</sup> It then took another two



hundred years before Louis Poinsoot discovered in 1810 the great dodecahedron and the great icosahedron, completing the set of what are now called the four Kepler-Poinsoot solids, the first three being stellations of the dodecahedron, the fourth the penultimate stellation of the icosahedron.<sup>775</sup>

Furthermore, although Plato apparently knew about the cuboctahedron, one of the thirteen convex uniform polyhedra, usually ascribed to Archimedes, again it was not until 1619 that Kepler published the complete list of these Archimedean solids, pointing out that prisms and antiprisms, which are infinite in number, also fit the definition of uniform polyhedra.<sup>776</sup>

Of the fifty-three nonconvex uniform polyhedra, A. Badoureau, Edmund Hess, and J. Pitsch discovered all but twelve of these in the 1870s and 80s. But it took another half century before H. S. M. Coxeter working with J. C. P. Miller in Canada discovered the other twelve. However, they did not publish their discoveries until 1954, along with M. S. Longuet-Higgins, who had independently discovered eleven of the twelve, in the hope of proving that their list was complete.<sup>777</sup> S. P. Sopov and J. Skilling, working in Russia and the UK, respectively, independently made such a proof in the 1970s.<sup>778</sup> Actually Skilling found one other solid, which could also be considered a uniform polyhedron, depending on how this term is defined.<sup>779</sup>

Skilling was able to develop his proof because August Möbius, who devised the famous one-sided Möbius strip, showed that there are only three basic symmetrical ways of tiling the sphere with congruent spherical triangles—tetrahedral, octahedral, and icosahedral—the first being a special case of the second, if we discount the infinite set of dihedral groups when two of the angles in the spherical triangles are right angles.<sup>780</sup> Hermann Schwarz then extended this idea by showing that there are a finite number of symmetrical tilings consisting of two or more Möbius triangles, now known as Schwarz triangles. Willem Wythoff used these Schwarz triangles to develop a kaleidoscopic way of generating all but one of the 75 uniform polyhedra. Coxeter and his associates used this Wythoff construction in their 1954 paper.<sup>781</sup>

With the availability of computers, Zvi Har'El from Israel devised a generalized algorithm for calculating the metrics of all the uniform polyhedra,<sup>782</sup> using this to generate graphical representations of these solids in a program suitably called Kaleido.<sup>783</sup> Robert Webb from Australia used this algorithm in his brilliant programs Great Stella and Stella 4D, which show the immense power of the abstract thinking that we have inherited from the Greeks and which has generated the pictures of polyhedra in this treatise.<sup>784</sup>

Ralph Mäder from Switzerland also ported this algorithm to *Mathematica*, one of the most amazing computer programs ever devised.<sup>785</sup> *Mathematica* is a treat for mathematicians because it uses a symbolic computer language able to handle signate expressions and calculations with equal facility. Stephen Wolfram, the creator of *Mathematica*, then used this program to write *A New Kind of Science*, showing that complexity can arise from a few simple principles.<sup>786</sup> Of course, Wolfram implicitly used IRL in developing his ideas, like everyone else, showing that his new kind of science is just a special case of the URT.

### *Unifying Polarizing Opposites in Nondual Wholeness*

In hindsight, it is amazing that we sometimes cannot see what is staring us in the face. This happens not only at the individual level, but also at the collective level over hundreds and thousands of years. So even though we have all been using IRL to organize our ideas for thousands of years, it is only in the computer age that what has been hidden for so long can be made explicit, that we can unify rationality and mysticism. In this way, the thousands of years of human learning can reach completion at the Omega Point of some fourteen billion years of evolution as a whole.

So just as IRL marks the culmination of human learning, we can see that the techniques of computer science are also reaching their saturation point. During the past sixty years, there have been many alarms and excursions as computer scientists have struggled to develop rigorous operating systems and sound programming languages and business modelling methods that reflect the way that human beings think and the underlying structure of the Universe. But now these structures have reached a reasonable level of maturity. There is no need to reinvent them. They can serve us all to the end of time. The digital gadgets and new versions of computer software that companies continue to produce are just bits of froth on the Ocean of Consciousness, of little consequence in the overall scheme of things. We are not going to see a hundred new versions of Apple's Mac OS X, Microsoft's Windows, Google's Android, Adobe's Photoshop, Wolfram's Mathematica, or Leister Productions' Reunion for family-history researchers.

For once we can see the abstract patterns that underlie the entire Universe, as generalizations of mathematical concepts over the ages, there is nothing further of significance to learn. We can thus see why Gauss said, "Mathematics is the queen of the sciences,"<sup>787</sup> modifying Thomas Aquinas' statement "Theology is the queen of the sciences," using *science* with a somewhat different meaning. It is well known that there is a close affinity between mathematics and music. So we could now unify Aquinas and Gauss's statements by saying that the three m's—mysticism, mathematics, and music—stand at the pinnacle of human aspiration, beyond the three m's of materialism, mechanism, and money.

### **Awakening Self-reflective Intelligence**

Having seen how structural semiotics, mathematical mapmaking, static and dynamic logic, scientific method, and pure mathematics have led to the invention of the stored-program computer, it is now time to reverse this process and see how we could use this invention as a mirror to awaken our Self-reflective Intelligence.

On 30th June 1945, the Moore School of Electrical Engineering at the University of Pennsylvania published the first draft of a report that the eminent mathematician and polymath John von Neumann (1903–1957) had written for the design of a computer to be called EDVAC (Electronic Discrete Variable Computer), where programs are stored in the main memory of the machine, along with the data that they process. This was not the case with the early electromechanical and electronic computers built in the first half of the 1940s, when programs were external to the computer, executed directly from paper tape or set up in switches, for instance.

In the event, von Neumann did not write a final version of his draft for the design of a stored-program computer, arguably the most influential idea in the entire history of technological development. Nevertheless, the first computer to be built along the lines he proposed was a Small Scale Experimental Machine (SSEM) at Manchester University, as much to test cathode-ray tubes as a storage device, invented by Freddie Williams, than as an experiment in computer programming. Tom Kilburn wrote the first SSEM program to calculate the highest factor of a number using just seven instructions in a 32-word, 32-bit memory. This was successfully executed on 21st June 1948. The first number to be tested was quite

small, but within days, Kilburn and Williams tried the program on  $2^{18}$ , finding the correct answer ( $2^{17}$ ) in 52 minutes by repeated subtraction.<sup>788</sup>

The first practical stored-program computer was the EDSAC (Electronic Delay Storage Automatic Calculator), built by a team led by Maurice Wilkes and Bill Renwick at the University of Cambridge. This machine ran its first program on 6th May 1949. In 2 minutes 35 seconds, it computed a table of squares from 0 to 99 and printed out the results. This machine had 18 instructions and 1024 storage locations.<sup>789</sup> The Computer Age was truly born.

But what have we invented? Does anyone know? The reason why we need to ask this question is that the computer is a machine quite unlike any other that the *Homo* genus has invented during the past two thousand millennia. For unlike the flint axe, wheel, printing press, telescope, steam engine, and telephone, for instance, which extend our rather limited physical abilities, the computer is a tool of thought, able to extend the human mind, even in some cases replacing it.

But what is the mind? Well, the wag's answer to this question is "No matter," adding the complementary question, "What is matter?" replying, "Never mind," encapsulating the gigantic gap between scientists and spiritual seekers. In particular, as far as materialistic science is concerned, the mind is of no importance. Whatever it is, it lies outside the domain of science, as it is defined today, just being concerned with the material universe. Even the abstract objects of mathematics—such as three, point, and sphere—are not part of the territory mapped by scientists. Neither are the words we use to communicate with each other in the various languages of the world. And neither are the concepts or mental images that words represent, as illustrated in the meaning triangle on page 61.

Nevertheless, Carl Jung was bold enough to call psychology the 'science of consciousness' in the first of a series of five lectures he gave on the theory and practice of analytical psychology to the Institute of Medical Psychology (Tavistock Clinic) in 1935. He added, "[Psychology] is the science of what we call the unconscious psyche," a science he said had not yet left the cradle.<sup>790</sup>

Fifteen years later, psychology was still barely toddling when Alan Turing, the principal founding father of computer science, wrote an article for the philosophical magazine *Mind*, which began with these words: "I propose to consider the question 'Can machines think?'" But rather than trying to answer this question directly, Turing proposed an 'imitation game' to test the hypothesis that machines could one day think for themselves.<sup>791</sup> In this Turing Test, a human interrogator asks questions of a computer and a human trying to determine which is which from the answers. After reflecting on the possibility of a machine eventually passing this test, he made the bold assertion "I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted."<sup>792</sup>

Well, this did not happen. But this has not stopped computer scientists attempting to build computers with artificial intelligence (AI), surpassing any level of intelligence that we humans might aspire to. Marvin Minsky and John McCarthy, among others, laid down the foundations of AI at the Dartmouth Conference in 1956, when the latter stated the fundamental hypothesis of AI as follows: "Every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it".<sup>793</sup> And Herbert A. Simon said in 1960, "I believe that in our time computers will be able to perform any cognitive task that a person can perform."<sup>794</sup>

More recently, in 1990, the American philanthropist Hugh Loebner agreed with The Cambridge Center for Behavioral Studies in Massachusetts to underwrite a contest designed to instantiate a variation of the Turing Test.<sup>795</sup> He has offered a Grand Prize of \$100,000 and a Gold Medal is to be awarded for

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the first computer whose responses are indistinguishable from a human's. It is suggested that such a computer could be said 'to think'.<sup>796</sup>

But what such computer scientists are ignoring is a statement that Ada Lovelace (1815–1852), the daughter of Lord Byron and his wife Anne, a poet and mathematician,<sup>797</sup> respectively, made in 1843. In a brilliant memoir on Charles Babbage's Analytical Engine, the first design for a general-purpose computer, she wrote:

The Analytical Engine has no pretensions to *originate* anything. It can do whatever we *know how to order it* to perform. It can *follow* analysis; but it has no power of *anticipating* any analytical relations or truths. Its province is to assist us in making *available* what we are already acquainted with.<sup>798</sup>



Nevertheless, computer scientists continue to predict that computers will become more intelligent fifteen to thirty years after the date on which they make the prediction. For instance, Victor Vinge believes a technological singularity will occur in 2023, as he described in a NASA paper he wrote in 1993 called 'What is the Singularity?': "Within thirty years, we will have the technological means to create superhuman intelligence [in machines]. Shortly after, the human era will be ended."<sup>799</sup> Continuing, Vinge said,

From the human point of view this change will be a throwing away of all the previous rules, perhaps in the blink of an eye, an exponential runaway beyond any hope of control. Developments that before were thought might only happen in 'a million years' (if ever) will likely happen in the next century. ... I think it's fair to call this event a singularity ('the Singularity' for the purposes of this paper). It is a point where our old models must be discarded and a new reality rules. As we move closer to this point, it will loom vaster and vaster over human affairs till the notion becomes a commonplace. Yet when it finally happens it may still be a great surprise and a greater unknown.<sup>800</sup>

Ray Kurzweil, author of *The Singularity is Near*, is another who believes in this technological singularity in time, saying, "By 2019, a \$1,000 computer will match the processing power of the human brain."<sup>801</sup> He seems to believe that artificial intelligence is a function of the calculating capacity of computers—an inevitable consequence of the exponential nature of growth processes, which we look at in Subsection 'The Singularity in time' on page 176.

In terms of computer hardware, this is known as 'Moore's Law' after Gordon E. Moore, the co-founder of Intel, the chip manufacturer, published a paper in 1965 indicating that computers would double in power every two years.<sup>802</sup> However, Moore is well aware of the limits of evolutionary growth. As he told a meeting of the world's top chip designers and engineers on 10th February 2003, "No exponential is forever." Irrationally, he then went on to say, "Your job is to delay forever."<sup>803</sup>

Hans Moravec goes even further, believing that computers are members of a new species, which he calls our 'mind children'. As he says, "Intelligent machines, which will grow from us, learn our skills, and initially share our goals and values, will be the children of our minds. ... It is a world in which the human race has been swept away by the tide of cultural change, usurped by its own artificial progeny."<sup>804</sup> He thus foresees an Age of Robots, saying, "The fourth robot generation, and its successors, will have human perceptual and motor abilities and superior reasoning powers. They could replace us in every essential task and, in principle, operate our society increasingly well without us."<sup>805</sup>

Well, is this really true? And what would be the psychological and economic consequences if it were—and if it were not. Let us look at these two possibilities in turn.

First, what would be the implications if humans are machines and nothing but machines? Well, as computers get cheaper and cheaper compared to the cost of human labour, it would be the economic imperative of our time to replace as many jobs performed by human beings by machine, leading to unemployment rates of 20%, 40%, 60%, or whatever. Who knows where the theoretical limit might be?

### *The Theory of Everything*

Apart from a few countries, the fact that unemployment in the developed world has not yet generally reached these figures is circumstantial evidence that this possibility is not the true one.

On the other hand, if human beings are not machines and nothing but machines, contrary to what scientists from physicists through developmental biologists to neurophysiologists seem to believe, then there must be something about human behaviour that is not mechanical. In this case, computer technology would be limited in some way, and technological development would not drive economic growth indefinitely. This scenario would thus have a similar effect to its alternative. The economy would go into permanent recession, requiring a radically new work ethic, one that regarded the awakening of human intelligence to be far more important than technological invention.

So, it is quite irrelevant whether artificial intelligence is possible or not. In either case, the basic assumptions of the global economy are clearly unsustainable: capitalism contains the seeds of its own destruction within it. Following the invention of the programmable computer, it will shortly no longer be true that human beings are both workers and consumers in the economy, as articulated by Adam Smith (1723–1790) in 1776 in the opening words of *The Wealth of Nations*, the book that laid down the foundations of capitalism:

The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniences of life which it annually consumes, and which consists always either in the immediate produce of that labour, or in what is purchased with that produce from other nations.<sup>806</sup>

Tragically, however, this is a situation that neither politicians and business executives nor the people they govern and employ want to look at today. We are managing our business affairs having little understanding that the invention of the stored-program computer changes everything. So do we have the capacity as a species to rise above the level of our machines and realize our fullest potential as Divine, Cosmic beings? Let us look a little at what this means.

### **Knowing that and knowing how**

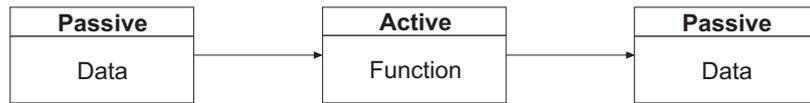
To test the hypothesis that computers will one day be able to perform any cognitive task that a person can perform, thereby becoming more intelligent than human beings, we can ask the question, “Could a computer develop the Theory of Everything?” After all, as far as academia and the general public are concerned, no human being has yet managed to develop a coherent body of knowledge that can explain all our experiences, from the mystical to the mundane. So could a superintelligent machine do so?

Well, in order to demonstrate its superiority over human intelligence, no human programmer could be involved in the creation of such a machine. In other words, instead of asking, “Can machines think?”, we can rephrase Turing’s question by asking, “Could computers program themselves without human intervention?”

Such an ability is theoretically possible in a von Neumann machine. For instance, the bit string ‘01111010’ (7A in hexadecimal) could be the code for an `add` instruction in the assembly language of the machine, as well as the number 122 and the letter *z* in the Unicode system of encoding characters in the world’s writing systems. We can thus consider instructions in computers as active data, while what they process is passive data. As both active and passive data are just strings of bits in computers, which is which at any one moment is determined by the context.

So programs, consisting of sequences of instructions to the central processing unit in computers, can, in principle, change themselves in mid-flight, so to speak. But could programs create instructions for machines that have never existed before? Well, to answer this question, we need to look at the

fundamental data-processing structure of all machines, illustrated in this input-process-output diagram, where data takes two forms, active and passive:



This basic data-function-data sequence is implemented as the read-eval-print loop in LISP (List Processing),<sup>807</sup> one of the first programming languages to attempt to simulate human intelligence in a machine. But it is also seen everywhere in businesses of every description. Here, *function* is a generic term for instruction, operator, order, program, function, procedure, or process, whether carried out in a computer, in the mind, or in an organization. This structure applies at every level of organizations, right down to the very heart of computers, and presumably humans, if we are just machines and nothing but machines, as scientists, in general, believe.

For instance, business functions and processes that take place in organizations are often systematized and documented in a procedure manual, accredited through the ISO 9000 quality management system of the International Organization for Standardization, over a million organizations in 175 countries being so accredited.<sup>808</sup> It is this manual that governs the day-to-day operations of companies and other organizations, which both humans and computer systems are required to follow to ensure the smooth running of the business. So the global economy, as it is organized today, is essentially a giant machine, in which we human beings are mere cogs, such as in a clock, in Descartes' terms. It is therefore not surprising that so many feel that robotic machines govern us, graphically depicted in the popular movie *The Matrix*.

In terms of computer hardware, the distinction between active and passive data is implemented in the central processing unit (CPU) and in random-access memory (RAM), corresponding to what Charles Babbage called the Mill and Store in his Analytical Engine, terms he borrowed from the textile industry.<sup>809</sup> He envisaged that the instructions needed to operate the machine would be entered on punched cards, like those that Joseph-Marie Jacquard had invented to automatically control the patterns of weaving of cloth in a loom. Indeed, in her memoir on the analytical engine, Ada Lovelace delightfully wrote, "We may say, most aptly, that the Analytical Engine weaves algebraic patterns just as the Jacquard-loom weaves flowers and leaves."<sup>810</sup>

But in modern computers, programs weave such algebraic patterns. It is thus vitally important not to be distracted by the hardware, for it is the software that determines how computers function. Indeed, as Andrew S. Tanenbaum wrote in *Structured Computer Organization*, "*hardware and software are logically equivalent*," written in italics to emphasize the central theme of his book. Despite Descartes' determination to separate body and mind, computer hardware and software form a continuum. Whether a particular function is implemented in hardware or software is concerned with practical issues like cost, speed, memory, and flexibility.<sup>811</sup>

Similarly, in humans, it is our minds and consciousness that mostly determine how we think and behave. A little like computers, we are data and information processing organisms, like all other beings, living or otherwise. This means, "The Mind creates its own realities and a universe for itself," as Vir Singh points out in *All Is Mind: The Skolimowskian Philosophy of the Participatory Mind*.<sup>812</sup>

For instance, the concept of the brain and its constituents is formed within the mind. There is thus a primary-secondary relationship between mind and brain, with no separation between them, just like software and hardware in computers. In terms of observation, no one has ever seen the Universe, as we

might instantly observe a rose, for instance. Rather, the concept of the Universe is essentially a composite one, conventionally built up by aggregating and projecting the concepts of our objective, day-to-day experience, most commonly focusing attention on what we can access through our five senses, leaving our subjective thoughts, feelings, and emotions out of the overall picture.

As mind and consciousness are primary, to see the Big Picture in an instant, just like we recognize human faces, we need to turn the attention inwards. To quote Aurobindo again, we are then viewing the Universe with Supermind, for “The Supermind is the Vast; it starts from unity, not division, it is primarily comprehensive, differentiation is only its secondary act.”<sup>813</sup> And to quote Meister Eckhart again, “The eye with which I see God is the same as that with which he sees me.”<sup>814</sup>

We are now viewing the Universe as the Absolute, which is how the concept of God has arisen in human consciousness. Because we are never separate from the Divine for an instant, many have objectively sensed an immanent, transcendent Presence, etymologically ‘before being’ or ‘prior to existence’, for *Presence* derives from Latin *praesentia* ‘presence’, participle of *praesse* ‘to be before’, from *prae* ‘before’ and *esse* ‘to be’. However, this exquisite sense of Peace and Stillness cannot really be understood in terms of the categorizing mind or subjective feelings, never mind the physical senses. So human beings have had great difficulty in fully understanding the Divine, and hence the Universe, during the millennia, leading to much fear and denial.

This might seem rather strange. For just as computers are universal machines, in Turing’s terms, able to be programmed to function in a multitude of different ways, we human beings are the most adaptable of all the species, in theory, at least. However, habits of thought, once formed, are notoriously difficult to change, as Rupert Sheldrake points out in *The Presence of the Past*. Once a particular behaviour pattern is formed in evolution, it tends to blindly repeat itself through habit.

Particularly dangerous is the widespread belief that knowing ourselves through self-inquiry and other psychospiritual practices is a private activity, of no concern to anyone else. Yet, how can this be? As our inner worlds affect the way that we behave in the outer in society, not to engage in honest self-inquiry is actually anti-social. For as Vimala Thakar pointed out in *Spirituality and Social Action*, an inspirational book dedicated to the quest for Wholeness:

In truth, the inner life or the psychological life is not a private or a personal thing, it’s very much a social issue. The mind is a result of a collective human effort. There is not your mind and my mind, it’s a human mind. It’s a collective human mind, organized and standardized through centuries. The values, the norms, the criteria are patterns of behaviour organized in collective groups. There is nothing personal or private about them. There is nothing that could be a source of pride or embarrassment.<sup>815</sup>

In other words, it is not possible for us humans to be fully awake in isolation; what is called enlightenment—very attractive to the egoic mind, which completely misses the point—can only really be realized in community with others. Once again, this is not an easy lesson to learn, which Buddhists took many centuries to learn.

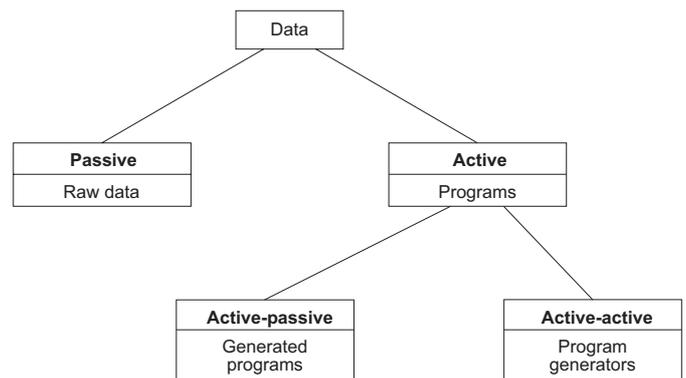
Originally, Shakyamuni Buddha (sage of the tribe of Shakya) did not see any need for the Absolute, as in the union of Brahman and Atman in the Hindu *Upanishads*. He simply experienced *Anatman*, ‘Non-self’ or ‘No-mind’, as *Shūnyatā* ‘Emptiness’. However, in the first century CE, Buddhists realized that this was too narrow an approach. As human beings are social animals, no one could be fully liberated unless the entire community or even species was so awakened. So a second major Buddhist school arose called *Mahāyāna* ‘Great Vehicle’ in contrast to *Hīnayāna* ‘Small Vehicle’. The Absolute then entered Buddhism as *Tathatā*, from *tathā* ‘in that manner, so’, usually translated as ‘Suchness’, the ultimate formless, immutable, changeless nature of all beings.<sup>816</sup>

Recognizing that no one can be fully awakened in solitude, the Mahāyāna Buddhists introduced the notion of *Bodhisattva*, an ‘enlightenment being’, who takes a vow renouncing full Buddhahood and complete entry into *Nirvāna* ‘extinction’ until all beings are saved, in contrast to *Arhat* in *Hīnayāna* Buddhism.<sup>817</sup>

So could we become Bodhisattvas, awakened beings intelligently and peacefully living in the Age of Light? Well, we could use the opportunity of the computer’s ability to theoretically program itself to help us here. This capability exists not only at the level of the machine language of the computer. It is also present in many high-level languages. For instance, in C++ and PHP, functions, as active data, can be treated as passive data, passed as parameters to other functions.

A Programming Language (APL), initially developed by Kenneth Iverson at Harvard University in the late 1950s as a concise mathematical notation to assist students in analysing various topics in data processing, goes even further.<sup>818</sup> Although APL is rather a cult language today, the language became IBM’s principal management information tool in the 1970s after Iverson joined IBM. Now, while APL is a function-based language, like many others, unusually it also has system functions— $\square CF$  and  $\square FX$ —which convert functions, as active data, to strings, as passive data, and back again.<sup>819</sup> APL Data Interface (ADI), IBM’s principal management information tool in the 1970s, used these system functions to dynamically create APL functions to query the company database.

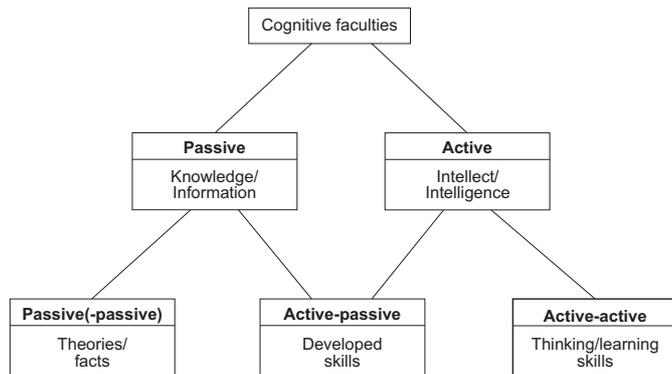
We can use this facility in APL to answer Alan Turing’s question “Can machines think?” and so prove that artificial intelligence is impossible and that technological development cannot drive economic growth for very much longer. So how can we represent human thinking with the concepts of active and passive data in a computer? Well, as this diagram illustrates, there are two types of active data in computers, generated programs, like Adobe Photoshop and Microsoft Word, and program generators, like Objective C and Python, which are examples of compilers and interpreters, respectively.



Indeed, not only can APL programs create and destroy programs dynamically, every program that exists today has come into existence with the help of another program. For instance, a program compiler for programs written in the C++ language could well be written in C++. And before object-oriented languages became the norm, compilers were typically written in C, compiling programs written in C. So looking at the entire history of the data-processing industry since 1950, we can see a long and continuous cause-and-effect chain. But how did the first program come into existence?

Well, this is essentially the same question that Aristotle asked when pondering the causes of the phenomena that he observed. In Book VIII, Section 4 of *Physics*, Aristotle said that everything that changes is changed by something and in Section 5 that there is a first agent of change that is not changed by anything.<sup>820</sup> Thus the notion of an unmoved mover entered Western philosophy, expressed in *Metaphysics* in this way: “Now since that which is moved must be moved by something, that the prime mover must be essentially immovable, and eternal motion must be excited by something eternal.”<sup>821</sup> In *Summa Theologiae*, Thomas Aquinas then took Aristotle’s cause-and-effect chain as the basis for his five proofs for the existence of God, as the Unmoved Mover.<sup>822</sup>

But does this mean that everything that happens in the world was predestined in a big bang some 13.7 billion years ago? Is the Universe merely a clock wound up at the beginning of time, inexorably unwinding itself during the aeons? This is a tricky question to answer, because people often feel that they have the free will—as separate, autonomous individuals—to choose the direction of their lives and to create something quite new that has never been produced before. So do computers have the free will to be creative? If so, an APL function would need to dynamically create a new function entirely on its own, without any help from a human programmer, which would be a demonstration of a computer thinking creatively for itself.



We can see that this is not possible most clearly from the analogous qualities in human beings, as this diagram illustrates. As Gilbert Ryle pointed out in *The Concept of Mind* in 1949, human knowledge can be considered both as the facts we know and the skills we know how to perform; we ‘know that’ and we ‘know how’,<sup>823</sup> which clearly correspond to passive and active data in computers.

In turn, our developed skills, like playing chess, correspond to generated programs, while our thinking and learning skills correspond to program generators, like APL. This means that no compiled program written by a human being is evidence that machines could one day think for themselves. While we could say that computers have artificial intellect, they most certainly do not have artificial intelligence, for intelligence is the ability to see, with God’s eye, both sides of every situation, unifying opposites in Nondual Wholeness.

But this is not possible in a digital computer. A bit in its main memory can only be 0 or 1; it cannot be both or something in between, as in probability theory. Some scientists are saying today that quantum computers, based on qubits (quantum bits), in a superposition of two states simultaneously, will be able to develop artificial intelligence. But a qubit, as the basic unit of quantum information, does not represent the essence of information, which is meaning, a semantic quality, not a mathematical or physical one.

As Claude Shannon, confusingly known as ‘the father of information theory’, admitted in an article he wrote for a now obsolete edition of the *Encyclopædia Britannica*, “The signals or messages need not be meaningful in any ordinary sense.”<sup>824</sup> Communications theory is not concerned with the meaning of the information in messages, but solely with signs, codes, and the quantitative measurement of these entities in a mechanistic, stochastic sense.

To explain how humans can program computers and computer programs cannot, we must admit the presence of an energy, whose existence materialistic, mechanistic science, out of touch with Reality, denies. This energy is Life itself, constantly bubbling up from the Divine Origin of the Universe, like a fountain. In other words, when we ask whether a computer could program itself without human intervention, we are actually asking whether this feat is possible without *Divine* intervention.

As accepting that humans are never separate from the Divine for an instant is one of the greatest taboos in Western civilization, the belief in the possibility of artificial intelligence is still maintained in public consciousness by events such as that reported by *The Independent* newspaper in the UK on 17th February 2011, with this headline: ‘Computer puts human supremacy in jeopardy.’ It was reporting on the way that an IBM computer called ‘Watson’, named after IBM’s founder, had just beaten two champions in the Jeopardy! TV quiz show.<sup>825</sup> This achievement followed on IBM’s Big Blue defeat of Gary Kasparov

at chess in 1997. Similarly, Richard Dawkins' program *The Blind Watchmaker*, which ran under Mac OS 9 on a Power PC processor in the 1990s,<sup>826</sup> designed to show that evolution progresses without Divine intervention, proves no such thing.

Rather, by admitting Life into science, we can understand how humans can write programs and symphonies and can create beautiful buildings, works of art, and scientific theories. Indeed, this recognition is necessary to understand the whole of evolution from Alpha to Omega and back again. But even though we think of evolution as happening through aeons of time, it actually happens in the vertical dimension of time, not the horizontal, right now, every moment.

As this diagram illustrates, there are two dimensions of time, with the Eternal Now, alone, being Reality. So when we look at the Universe, and hence our lives, with the mystical worldview rather than the deluded scientific one, we realize that what scientists call 'reality' is nothing but an illusion, called *māyā* 'deception, appearance' or *līlā* 'play of the Divine' in Sanskrit. As the entire world of form is just an appearance in Consciousness, this means that time, which appears real as we go about our daily lives, is also an illusion. And so too is the entire process of evolution.

The implications of this realization are so far reaching that a large proportion of the textbooks used in schools and universities today need to be rewritten. Furthermore, it makes no sense to spend billions of dollars and euros searching for extraterrestrial intelligence or the Origin of the Universe outside ourselves. And it makes even less sense trying to create machines that are smarter than us humans while we have very little understanding of what it means to be a superintelligent, superconscious human being.

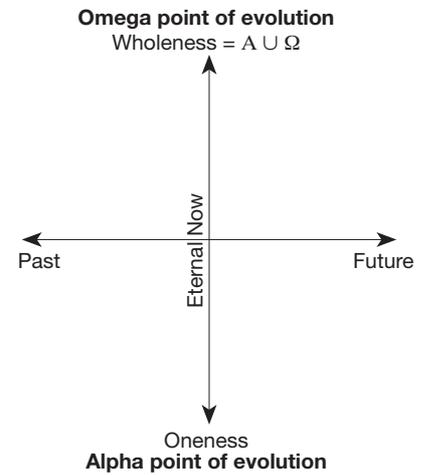
As a species, we have immense unfulfilled potential within us, entrapped by millennia of confused and deluded thinking. So let us see if we could release some of this potential by realizing the impossible dream, by developing the genuine Theory of Everything, thereby healing our fragmented minds in Wholeness.

### **An experiment in learning**

To prove with absolute certainty that human beings are more intelligent than computers will ever be, we can conduct a thought experiment, not unlike those that Albert Einstein conducted in developing his models of the physical universe. Most notably, at the age of sixteen, he imagined what it might be like to ride away from a mirror on a light beam, as mentioned on page 48. He realized that he would see his reflection, as it was when he left the mirror, for the light waves would travel at the same speed that he, himself, was travelling. Time would have stopped, a notion that he was later to encapsulate in this expression, much used in his equations, leading to his most famous equation  $E = mc^2$ :<sup>827</sup>

$$\sqrt{1 - \frac{v^2}{c^2}}$$

In our case, we can use the method of indirect proof, which is closely related to *reductio ad absurdum* in mathematics, to disprove the hypothesis that humans are machines and nothing but machines. George Polya, in his delightful book *How To Solve It*, likens indirect proof "to a politician's trick of establishing a candidate by demolishing the reputation of his opponent".<sup>828</sup>



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The classic example of indirect proof is Euclid's proof that there are an infinite number of prime numbers. Let us assume that there is a largest prime  $P$ . In that case, the number  $Q$ , which is clearly larger than  $P$ , cannot be a prime:

$$Q = (2 \times 3 \times 5 \times 7 \times 11 \dots P) + 1$$

But  $Q$  is not divisible by any of the primes up to  $P$ . So  $Q$  must be a prime, proving the hypothesis that  $Q$  is not a prime is false, reaching what is regarded as an absurdity, supposing that entities cannot have both the attributes  $A$  and not- $A$  in the same context. In other words, as  $Q$  cannot be both a prime and not a prime, we have used Aristotle's Law of Contradiction to prove that there are an infinite number of primes. Alternatively, we can use this construct to provide a direct proof of the theorem.  $Q$  is a number greater than any given prime. So we can now construct a number  $R$ , like this:

$$R = (2 \times 3 \times 5 \times 7 \times 11 \dots Q) + 1$$

This is clearly a process that can continue indefinitely. So just by constructing  $Q$  and  $R$ , we have proved the infinity of the prime numbers.

Similarly, there is a direct proof that humans are not machines and nothing but machines, evidenced from the experiences of many millions of spiritual seekers in the world today. But spiritual practices, such as vipassana meditation, do not convince scientists, who are unwilling to conduct the necessary experiments. So we need an indirect proof using the most rigorous scientific reasoning to persuade sceptics of the error of their ways. By beginning our reasoning with the fundamental axiom of deductive logic and mathematical proof, we prove that this axiom is false and that the whole of Western civilization is based on shifting sands, about to collapse like a house of cards at any moment.

To prepare for this inevitability, let us imagine that we are a computer that turns itself off and on again so that it has no programs in its memory, not even a bootstrap program to load the operating system, so named because switching on a computer is rather like pulling oneself up by one's bootstraps. Beginning with a *tabula rasa* 'blank slate', this computer then has the task of integrating all knowledge in all cultures and disciplines into a coherent whole without any external authority to tell it how or what to learn. In other words, this computer is given the assignment to develop the Theory of Everything, thereby realizing humanity's impossible dream. As humans, we can thus have the positive effect of direct proof using the method of indirect proof in mathematics.

This experiment in learning is entirely in the spirit of the 'The Royal Society of London for Improving Natural Knowledge', as it was named in the Royal Charter of 1663. For the Royal Society's motto is *Nullius in verba*, which roughly translates as 'take nobody's word for it.' As the Royal Society's website says, this motto "is an expression of the determination of Fellows to withstand the domination of authority and to verify all statements by an appeal to facts determined by experiment."<sup>829</sup> And its mission is: "To recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity."

The notion of a *tabula rasa* has been proposed by a number of philosophers through the ages, particularly John Locke, who asserted that there are no innate principles in the mind, not even Aristotle's Law of Contradiction, which many believe to be a universal truth.<sup>830</sup> But what Locke did not know is that Heraclitus' Hidden Harmony is the fundamental design principle of the Universe. As the Principle of Unity, it explains how the bifurcating world of form emerges through the first bifurcation from the Formless Continuum that is the Absolute.

However, anyone setting out to conduct this experiment in learning is the product of some fourteen billion years of evolution since the most recent big bang. So to begin this thought experiment, returning

to the Origin of the Universe, it is first necessary to be completely free of this entire history, including, of course, that of human learning for the past 5,000 to 25,000 years, going back as far as is necessary to be free of the notions that have been blindly passed from generation to generation during this tiny window in evolutionary history.

This awakening thought experiment thus begins with something like a kundalini awakening, as a big bang erupts in Consciousness. For as Muktananda wrote in *Kundalini: The Secret of Life*,

[Kundalini] doesn't create this universe the way a human being builds a house, using different kinds of materials and remaining different from those materials. She creates the universe out of Her own being, and it is She Herself who becomes this universe. She becomes all the elements of the universe and enters into all the different forms that we see around us. She becomes the sun, the moon, the stars, and fire to illuminate the cosmos which She creates. She becomes *prana*, the vital force, to keep all creatures, including humans and birds, alive; it is She who, to quench our thirst, becomes water. To satisfy our hunger, She becomes food. Whatever we see or don't see, whatever exists, right from the earth to the sky, is nothing but *Chiti*, nothing but *Kundalini*. It is that supreme energy which moves and animates all creatures, from the elephant to the tiniest ant. She enters each and every creature and thing that She creates, yet never loses Her identity or Her immaculate purity.<sup>831</sup>

Such a life-changing, cosmogonic awakening is also rather like a volcanic earthquake erupting in the depths of the Ocean of Consciousness, creating a tsunami in which everything is destroyed, as in Aceh province in Sumatra in December 2004.

Using another metaphor, this is like demolishing the Tower of Babel that represents the entire world of learning and starting afresh at the very beginning. In terms of Hindu deities, which are



just human energies emerging from the Divine, Shiva, the destroyer, and Brahma, the creator, must act in turn.

This experiment in learning is thus as much about unlearning as it is about learning, absolutely essential for Western civilization is driving humanity into the abyss. This means that the more educated and indoctrinated people are, the more difficult they are likely to find this thought experiment. Like learning to become a concert pianist, the necessary skills really need to be learned in early childhood, which is extremely difficult in today's educational environment, which inhibits the development of such skills, questioning the assumptions on which the world of learning is based. Even in adulthood, there is currently no conducive social environment in which this thought experiment can be performed, which is one reason why we need to cocreate the Alliance for Mystical Pragmatics, introduced in Section 'Living the Vision' on page 203.

Nevertheless, it is possible to be born again in later life, as some, at least, have experienced. For instance, mystics of all ages and cultures have discovered that we can come fully alive while still in our bodies, encapsulated in the term *jivan-mukti*, from Sanskrit *jīva* 'to live' and *moksha* 'liberation from worldly bonds'.

However, while such life-changing events are not unusual, they were little studied by psychologists until 1989, when William R. Miller set out with Janet C'de Baca to scientifically study what they call *quantum change*, "drawing on both the concept of a quantum leap and unpredictability in quantum mechanics". To this end, a writer for the *Albuquerque Journal* wrote an engaging feature story on quantum change, inviting people to describe their experiences in confidential interviews. Miller and C'de Baca received eighty-nine telephone calls, leading to fifty-five interviews.<sup>832</sup> These case studies then provided the basis for a tentative theory of these remarkable events, published in 2001, as *Quantum Change: When Epiphanies and Sudden Insights Transform Ordinary Lives*.

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What they found is that quantum changes could be categorized in two types, with much overlap between them: insightful and mystical. We could also call the former cognitive, while Miller and C'de Baca call only the latter epiphanic. In a sudden insight, “a person comes to a new realization, a new way of thinking,” rather like the familiar ‘aha’ experience, but much deeper and of such a magnitude as “to leave the person stunned or breathless”. In such cases, “There may be no immediate sense of being acted upon or in the grip of something beyond the self, as is usually the case with epiphanies.”<sup>833</sup>

On the other hand, mystical transformations, or epiphanies, are experienced as quite out of the ordinary, in many respects resembling classic descriptions of mystical experiences. However, as often as not, these are transitory, while with an epiphany the person knows immediately that something major has happened and that life will never be the same again. “What epitomizes the mystical type is the noetic sense of being acted upon by something outside and greater than oneself.”<sup>834</sup>

But while such experiences can be described, often in poetic language, how can psychologists explain these phenomena within a discipline and worldview much influenced by the so-called natural sciences? Well, in the penultimate chapter of their book, Miller and C'de Baca made an attempt to develop such an explanation, but in the end said, “Perhaps there is something flawed in the way we think about human change. Perhaps we do not yet comprehend enough about psychological and spiritual reality to understand why quantum changes occur.”<sup>835</sup>

To understand how such quantum changes happen, we also need to recognize that what we humans have learnt during the millennia is not only contained within consciousness. Through ontogenetic and phylogenetic development, personal, cultural, and collective memories have been laid down in the sub- and unconscious, subliminal recollections that have a profound affect on the way we think and behave. All these memories need to be brought into consciousness so that they can be intelligently examined in the brilliant light of Consciousness.

The myth of Pandora's box well illustrates the challenges we all face. Hesiod tells us that when Epimetheus married Pandora, the first woman, she was overcome with curiosity about her husband's large earthenware pot, covered with a lid, containing all evils and one good: hope. She lifted the lid, releasing all the evils, but before hope could also be released, she replaced the lid.<sup>836</sup> This allegory well describes why even when we open the lid on our unconscious just a little, we so often shut it tight again before we reach the bottom, where the rewards of bringing our entire past—our collective, cultural, and personal unconscious—into the brilliant light of day are to be truly found. As an acquaintance of mine once said to me when I asked her why she did not look inside to discover why she was so unhappy, “I'm afraid of what I might discover.” But if we have the courage to bring the entire unconscious of the human race into consciousness, what we reveal is not hope, but Nondual Love, which has no opposite, no object to love.

Now for this to happen on a global scale, each of us, as individuals, need to take responsibility for the entire evolution of the whole human race, as Andrew Cohen pointed out in *Freedom Has No History* in 1997. As he says, “To succeed, we must be prepared to do battle with the powerful conditioning, conscious and unconscious, of the whole race. That means we have to come out from the shadows and be seen. Like Atlas, we have to be willing to hold up the whole world on our shoulders. It's an awesome task.”<sup>837</sup>

### ***The function of information systems architect***

Having cleared the psyche as much as possible of what humans have learnt since the dawn of history, at least, the computer that we are imagining ourselves to be can begin to program itself to build a coherent body of knowledge using the skills of information systems architects in the workplace. For while the

stored-program computer has enabled many tasks to be automated, previously performed by human beings, this tool of thought has also led to the introduction of many new occupations, most obviously that of computer programmer or software developer. In parallel, systems analysts and designers emerged in the 1960s and 70s, exploring more the business implications of this epoch-making invention than the technical ones.

Today, there are both software developers and systems designers who call themselves information systems architects, working at the micro and macro or technical and business levels of systems development, respectively. The word *architect* is highly pertinent here, for it derives from Greek *arkhitektōn* 'builder, architect, engineer', from *arkhē* 'beginning, origin; cause, motive, principle, element; leadership, power, rule', from *arkhos* 'leader, ruler', from *arkhein* 'to begin, rule, command', and *tektōn* 'builder', from PIE base *\*teks* 'to weave, fabricate', also root of *context* through Latin *texere* 'to weave' and *technology* through Greek *tekhne* 'art, craft, skill'.

So IS architects are the master builders in business, the ones who can see the big picture, how all the various constituents of an enterprise fit together in a coherent whole. In essence, they are generalists, working with specialists in an organization, who have detailed knowledge of the workings of the particular departments they work in. It is then the task of IS architects to integrate all the processes taking place in an enterprise, together with the data that they process.

To this end, they clearly need to have a deep understanding of how people think and organize their ideas. For the economic imperative of our times is to seek increasing effectiveness and efficiency in the economic machine, expressed in the bottom line of joint-stock companies. And as computers become cheaper and cheaper and more and more powerful compared to human labour, this means that it is the task of the IS architect to design business systems that replace as many jobs currently being performed by humans as possible.

But is there a limit to this process? Well, this is a question that I began to ponder in September 1964, when I wrote my first program in Fortran on an IBM 7094: to calculate the roots of a quadratic equation. All I knew at the time is that computers are very good at arithmetic but rather poor at pattern recognition, while with humans the situation is the other way round. Why is this? Why is it so easy for most of us to instantly recognize a human face as a whole but so difficult for a computer program to do so?

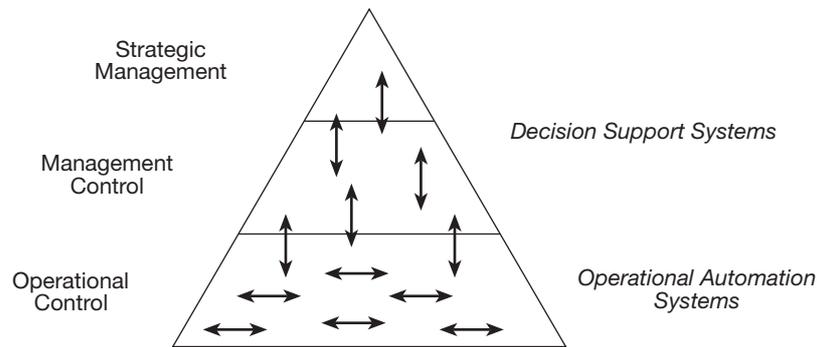
Even though I did not know the answer to this question, I continued to work in the information technology industry, joining IBM as a systems engineer in a sales office in London in September 1968. For I believed that by automating people's jobs, this would help free them from drudgery, enabling them to be more creative and thereby have more satisfying jobs.

However, towards the end of the 1970s, when developing a national marketing programme for personal computing, I began to have second thoughts. I could see and feel that business organizations were becoming more and more mechanical and authoritarian, giving people less opportunity to be creative, not more. Seeking to be free of this oppression, in January 1980, I joined IBM (UK)'s Information Systems Support Centre (ISSC), a marketing department that had an unusual brief to take a five-year view of developments in the information technology industry, unlike the conventional three-month view of finance directors.

My brief was to develop an innovative national marketing programme for decision support systems (DSS), the first country in Europe to develop such a programme. I felt that this was the best way that I could be creative in this stultifying environment, determining whether capitalism would collapse when my children were bringing up children because artificial intelligence is possible or because it is not.

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IBM Canada, which I had visited the previous year, had made a distinction between Operational Automation Systems (OAS) and Decision Support Systems (DSS), which roughly correspond to what Robert N. Anthony called Operational Control, Management Control, and Strategic Management,<sup>838</sup> illustrated here.



OAS are principally concerned with the *efficiency* of business enterprises, viewed as machines. In other words, they are focused on productivity, with producing products, as goods and services, at minimum cost. This means that as computers become cheaper and cheaper compared to human labour it is the economic imperative of our time for as many jobs as possible to be automated. DSS, on the other hand, are more concerned with the *effectiveness* of decision making, about whether decisions that are made can lead to desired goals, most essentially, increased profit and dividends for shareholders

So could DSS be automated as well as OAS? Well, Peter G. W. Keen and Michael S. Scott Morton, in their seminal book *Decision Support Systems*, classified all business tasks into three major groups in this way:

**Structured tasks**

These tasks are repetitive and routine; a formal procedure can be developed for handling them. They can thus be fully automated.

**Semi-structured tasks**

These tasks involve interaction between the human being and the computer. The machine handles the computational complexity, while the human provides judgement and subjective analysis.

**Unstructured tasks**

These tasks require intelligence and intuition. They cannot be automated.<sup>839</sup>

It might seem that the three levels of task structure map to Anthony’s three levels of managerial activities. However, Keen and Scott Morton developed a matrix showing examples of different tasks or decision making at all three levels, illustrated in this table, titled ‘A Framework for Information Systems’.<sup>840</sup>

Type of Decision/Task	Management Activity			
	Operational Control	Management Control	Strategic Planning	Support Needed
Structured	Inventory Management	Linear programming for manufacturing	Plant location	Clerical, EDP or MS models
Semistructured	Bond trading	Setting market budget for consumer products	Capital acquisition analysis	DSS
Unstructured	Selecting a cover for <i>Time</i> magazine	Hiring managers	R & D portfolio development	Human intuition

An example of a structured task in the operational area of control is that of reordering a product when supplies run low. To this end, one of the earliest algorithms to be developed in the computer age was that for economic order quantity (EOQ) in inventory management. The basic formula is:

$$EOQ = \sqrt{\frac{2C_o D}{C_H}}$$

where  $C_o$  is the fixed cost of an order,  $C_H$  is the holding cost per item per unit of time, and  $D$  is the demand rate in terms of units per year. Creating such algorithms is obviously a key element in automating the workplace, or even in writing programs that can play chess better than any human being. But we should remember that it is only possible to formulate such equations after concepts such as order cost, holding cost, and demand rate are formed. Otherwise, the formula is just a collection of meaningless signs. So how were these concepts formed in the first place?

Well, the spectrum of types of tasks identified by Keen and Scott Morton followed on from Herbert A. Simon's distinction between programmed and nonprogrammed decisions. Simon said, "Decisions are programmed to the extent that they are repetitive and routine, to the extent that a definite procedure has been worked out for handling them so that they don't have to be treated *de novo* each time they occur." On the other hand, "Decisions are nonprogrammed to the extent that they are novel, unstructured, and unusually consequential."<sup>841</sup> But would computers one day be able to replace the jobs of business managers and directors, including those of management accountants, as some believe?<sup>842</sup>

To answer this question, we need to note that software developers do not generally start programming with no idea of the system that they are to design. Rather, like architects who design houses and office blocks, information systems architects often begin with blueprints, in what is called Model-Driven Architecture (MDA). It is therefore not surprising that IS architects in business<sup>843</sup> are turning to Christopher Alexander's *A Pattern Language*, incorporating 'the quality that has no name': egoless, alive, free, eternal wholeness.<sup>844</sup>

But what does this mean in our thought experiment? Could a computer imagine a model of what it wanted to program even before beginning to load the operating system in order to program itself to develop the Theory of Everything? Well, I imagine that even the sceptics would accept that this is not possible. However, just in case they do not, let us continue to explore what this means.

In essence, we need to know how the mind works, and IS architects are not the only profession in business that needs to have this understanding. Where it is not yet possible to automate jobs, since the 1980s, when Apple introduced the desktop metaphor on its Macintosh computers, human interface designers have also needed such skills. For instance, this is how IBM introduced its guidelines for human interface designers of its OS/2 operating system in 1992:

The term model is used in this book to refer to a descriptive representation of a person's conceptual and operational understanding of something. Some models are explicit and are consciously designed. These models typically can be represented by a diagram or a textual description. Other models, called mental models, are developed unconsciously. People create a mental model by putting together sets of perceived rules and patterns in a way that explains a situation. A typical person cannot draw or describe his or her mental model. In many situations, a person is not aware that a mental model exists.<sup>845</sup>

Now, even though most people are unaware of the mental models that guide their behaviour, clearly designers of information systems to be used by human beings need to be aware of these implicit mental models. For as IBM said, "A person develops a conceptual model through experience and then develops expectations based on relationships in the model," a conceptual model being a mental model that consists of "the set of relationships that a person perceives to exist among elements of any situation".<sup>846</sup>

In a similar manner, Apple's *Human Interface Guidelines* in 1987 urged designers to "use concrete metaphors [from the 'real world'] and make them plain, so that users have a set of expectations to apply to computer environments".<sup>847</sup> But Apple went a little further than IBM about people's lack of understanding and consciousness about the conceptual models they use when it said: "People, however, are delightfully complex and varied, which assures that a theory of human activity that would provide a complete framework for the design of human-computer interaction is a long way off".<sup>848</sup>

Not having a model of the workings of the mind obviously also makes the IS architect's job rather difficult. Nevertheless, this has not prevented many from creating models of the way businesses are run. For instance, the birth of the digital computer led Jay W. Forrester at MIT to develop a number of complex computer models in the 1960s and early 70s of the dynamics of business organizations, of urban areas, and even of society as a whole,<sup>849</sup> which led to the publication of *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*.<sup>850</sup> As Forrester said:

There is nothing new in the use of models to represent social systems. Everyone used models all the time. Every person in his private life and in his community life uses models for decision making. The mental image of the world around one, carried in each individual's head, is a model. One does not have a family, a business, a city, a government, or a country in his head. He has only selected concepts and relationships which he uses to represent the real system. A mental image is a model. All our decisions are taken on the basis of models. All of our laws are passed on the basis of models. All executive actions are taken on the basis of models. The question is not whether to use or ignore models. The question is only a choice between alternative models.<sup>851</sup>

Forrester was a great advocate of computer models of social dynamics because as oversimplified as they are, they are "probably more complete and explicit than the mental models now being used as a basis for world and national planning".<sup>852</sup> He even went as far as presenting his view that mental models are dangerous to members of the U.S. Congress in 1970, with these words:

... the human mind is not adapted to interpreting how social systems behave. ... until recently there has been no way to estimate the behavior of social systems except by contemplation, discussion, argument, and guesswork.

The great uncertainty with mental models is the inability to anticipate consequences of interactions between parts of the system. This uncertainty is totally eliminated in computer models. Given a stated set of assumptions, the computer traces the resulting consequences without doubt or error. ... Furthermore, any concept or relationship that can be clearly stated in ordinary language can be translated into computer model language.<sup>853</sup>

Joseph Weizenbaum, also of MIT, was particularly critical of such statements by what he derisively called the 'artificial intelligentsia'. As he said, "Consider the impact of Forrester's words on the members of the U.S. Congress ... or on any other group of people who have no training in or intuition for formal systems. They hear that the basis of their thinking, mental models, leads to uncertainty, whereas Forrester-like computer models totally eliminate this uncertainty and all doubt or error. ... Conclusions derived from computer models are valid beyond doubt."<sup>854</sup> Of course, Forrester omitted to say that his opinions can only be true if the starting assumptions and algorithms that connect the many variables are valid representations of what he, like many others, call 'reality'.

So are we condemned forever to manage our business affairs without a comprehensive model of the psychodynamics of society to guide our activities? Of course not, as this treatise is endeavouring to demonstrate. Following the publication of Jay W. Forrester's *Industrial Dynamics* in 1961, Robert N. Anthony's *Planning and Control Systems: A Framework for Analysis* in 1965, and Sherman C. Blumenthal's *Management Information Systems: A Framework for Planning and Development* in 1969, IBM developed a business-modelling tool called Business Systems Planning (BSP), which some of my colleagues in the ISSC were basing their strategic marketing activities on.

BSP was one of IBM's first attempts to develop a comprehensive modelling tool to support the information systems function in businesses. While it was very primitive compared with the complexity of

today's tools, it nevertheless enabled me to eventually find the key that would explain the essential difference between human beings and machines and thereby heal the split between science and mysticism. The central point about business modelling methods, such as BSP, is that the models that are developed are at a high level of conceptual abstraction, independent of organizational and technological considerations.

In BSP there were two principal types of model corresponding to passive and active data in computers: an entity model showing the relationships between the basic entity types in an enterprise, such as customers, products, and deliveries, and a process model, depicting the processes that deal with these entities, such as manufacturing, ordering, and invoicing, and their relationships to each other. Most importantly, such models are not concerned about whether human beings or computers perform tasks in an enterprise. Such issues are considered later when at the implementation stage of information systems development.

These have since evolved into the relational model of data, then in its infancy, introduced on page 78 in Subsection 'Logical evolutionary predecessors' and object-oriented modelling methods, introduced on page 83 in Subsection 'Dynamic evolutionary predecessors'. In 2000, in *Foundation for Future Database Systems: The Third Manifesto*, Chris Date and Hugh Darwen set out to integrate object and relational modelling methods, rather tricky because of their somewhat different views of the concept of data types, which can be both classes and attributes of instances of classes in object-oriented modelling.

However, back in 1980, such modelling methods were still in the gestatory phase of their development. So to show the relationship between the entity and process models, I explored the way that BSP provided the means of developing a process-entity matrix, connecting active and passive data modelling methods. The matrix on the next page provides an illustration of some processes in which data about entities is originated (0 or >), changed (+), and referred to (-), taken from another business modelling method developed in IBM (UK) called Systems Development Method (SDM).<sup>855</sup>

At the time, there were two features of these BSP models that interested me in particular. The first was an idea that I got from my visit to IBM Canada in Toronto in 1979 to discuss the development and marketing of decision support systems. While looking at another business modelling method being proposed in the company, it was suggested that companies within a particular industry have some patterns in common, even though their business models are unique. Similarly, even though we are all unique individuals, there are some patterns in our DNA that enable biochemists to determine a child's maternity or paternity. Extending this analogy, there are also patterns in the DNA molecules of all human beings that are similar, but different from our nearest relative, the chimpanzees. So the natural question to ask is whether there are any patterns that all business enterprises share.

This question led me to consider the second BSP feature that interested me. All businesses have an information systems function. So would it be possible to model the data processing function in the process-entity matrices at the heart of such BSP models? These matrices show the relationship between the process and entity models, which we can consider active and passive data. So I set out to model program development, personal computing, decision support systems, and query languages in such matrices.

This turned out to be rather tricky, especially when modelling the way APL functions could dynamically create new functions, execute them, and then delete them all in the space of a few nanoseconds. For what could be passive data at one moment could be active at the next, changes that happened far faster than business processes, which could take minutes or even days to perform.

*The Theory of Everything*

ENTITY PROCESS	PLACE	PLACE-PLACE RELATIONSHIP	BUSINESS	REGISTERED ADDRESS	PRODUCT	DELIVERY POINT	ORDER RECEIVING POINT	CUSTOMER ORDER	PRODUCT ON ORDER	REQUESTED DELIVERY POINT	DESPATCH POINT	DELIVERY POINT	DELIVERY BATCH	DELIVERED ORDERED BATCH
Recognize PLACE	0	0												
Accept BUSINESS for Trade	>	>	0	0										
Change REGISTERED ADDRESS	>	>	-	0										
Acknowledge DELIVERY POINT	>	>	-		0									
Change BUSINESS Credit Rating			+											
Discontinue Trade with BUSINESS			+											
Introduce PRODUCT						0		+	+			+	+	
Launch PRODUCT						+		+	+			+	+	
Withdraw PRODUCT						+								
Establish ORDER RECEIVING POINT	-	-	-				0							
Close ORDER RECEIVING POINT							+							
Take CUSTOMER ORDER	>	>	-		>	-	-	0	0	0				
Add to CUSTOMER ORDER						-		+	0					
Change REQUESTED DELIVERY POINT	>	>			>	-	-			0				
Accept CUSTOMER ORDER			-					+						
Cancel CUSTOMER ORDER								+	+			+	+	
Change PRODUCT ON ORDER Quantity								+	+			+	+	
Establish DESPATCH POINT	-	-	-								0			
Close DESPATCH POINT											+			
Schedule DELIVERY					-			-	-		-	0		
Cancel DELIVERY												+		
Add to DELIVERY					-			-				-	0	0
Make DELIVERY												+	+	+
Change DELIVERY BATCH Quantity													+	+
Take Back DELIVERY BATCH													+	+

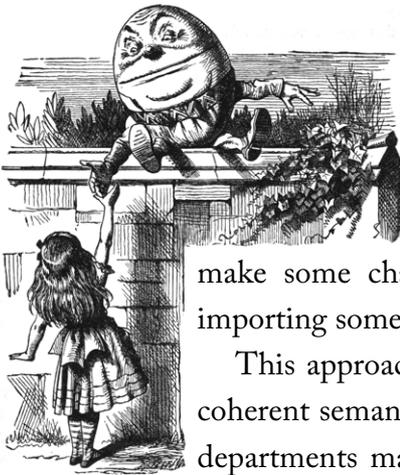
But before I could develop a complete model of the psychodynamics of society as a whole, there was an even trickier problem to solve. If IS architects were to do this, they would need to include their own thought processes in the enterprise-wide process-entity matrix being developed. Nothing less would do if we were to intelligently and consciously manage our business affairs. Even if we could model 99% of business processes, leaving out the process of creating the model itself would mean that we were living with a psychological blind spot, not fully understanding the evolutionary energies that cause us to behave as we do. And for this to happen, evolution would need to become fully conscious of itself.

This is essentially the same problem that David Bohm needed to solve in order to unify quantum and relativity theories, mentioned on page 54. That is, we can only heal our fragmented, split minds and manage our business affairs with full understanding of what we are doing when we apply our Self-reflective Intelligence to recognize that the observer and observed are one. There is nothing more important in our endeavours to heal our fragmented, schizoid minds in Wholeness.

***Finding a transcultural language***

During the writing of this treatise, I am sometimes using the root meanings of words to describe my experiences, for most European languages have evolved during the last few millennia to denote a world that is as far removed from Reality as possible. Ideally, as the experiment in learning that I introduce in ‘Integral Relational Logic’ on page 126 starts at the very beginning with a *tabula rasa*, I should really be

using a language that has no relationship with the past. However, this would have been quite impracticable. No one would have understood a word that I was talking about.



So it has not been possible to adopt Humpty Dumpty's approach to language, which Lewis Carroll describes in *Through the Looking Glass*: "When I use a word, ... it means just what I choose it to mean—neither more nor less."<sup>856</sup> Rather, I have needed to take a less anarchical, more systemic approach to language. As both Western and Eastern cultures must be included within a synthesis of all knowledge, I have needed to make some changes to the meanings of words as they are traditionally understood, importing some words from the East when European languages fall far short of my needs.

This approach is rather like that of information systems architects seeking to create a coherent semantic model of a business. For instance, finance, marketing, and distribution departments may well have different views of the meaning of the concept of customer. Similarly, a salesperson and a production manager may have quite a different perspective on what a backlog is. A salesperson usually regards a backlog as an order that has not yet been delivered to a customer, while for a production manager, a backlog is work that is behind schedule.

These differences in the meaning of *backlog* are also reflected in the way that the Americans and British use this word. They use the word rather like the salesperson and production manager, respectively.<sup>857</sup> And if a theatre production on Broadway bombs, this means that it was a flop. On the other hand, if a play in London's West End goes like a bomb, it is a great success. It is little wonder that George Bernard Shaw is attributed with saying, "England and America are two countries divided by a common language."<sup>858</sup>

The issue of language is even more challenging when we come to integrate all knowledge into a coherent whole. For then we find that the many cultural and disciplinary conceptual maps in the world do not fit together at all. It is rather like taking maps of the different localities on Earth and trying to fit them together on the assumption that the Earth is flat. It simply does not work.

There are two issues here: words that denote Absolute Reality and those that represent structures in the relativistic world of form. The key point is that there is only one Absolute but hundreds of different words pointing to the Supreme Being or Ultimate Reality, which provides the Cosmic Context and Gnostic Foundation for all our lives, no matter which culture we are born into. It is vitally important to note that all these words are really synonyms of each other, indicating what is Ineffable, which we can know in Stillness and Peace in the Presence of the Divine. Such a realization is essential if we are ever to end all the Holy wars that have bedevilled humanity for the past couple of millennia. For instance, when I worked in Kuwait in 1982, the finance director had a secretary and personal assistant both from Lebanon. But one was a Catholic and the other was a Muslim. So I asked them what is the difference between the Christian God and Allah? They replied "None" in unison. But when I asked them why Christians and Muslims spend so much time fighting each other, they remained silent.

These are distortingly divisive differences between the Abrahamic, monotheistic religions. But when we look at our shared experiences of the Divine, apparent differences between Islam and Hinduism on the Indian subcontinent, for instance, also disappear. In the *Koran (Qur'an)* there are 'Ninety-nine beautiful names of God': "God has the most excellent names: therefore call on him by the same."<sup>859</sup> These include *Al-Khaliq* 'Creator', *Al-Mumit* 'Destroyer', and *Al-Hafiz* 'Preserver'<sup>860</sup> which clearly correspond to *Brahma*, *Shiva*, and *Vishnu* in the Hindu *Vedas* 'knowledge', cognate with *wise* and Swedish *veta* 'to

know'. Conversely, the Hindu *Upanishads*—known as *Vedanta* 'end of knowledge'—denote Supreme Reality by *Brahman*. So both Islam and Hinduism have monotheistic and polytheistic characteristics.

But it is important to remember that as none of us is separate from the Absolute for an instant, we can all experience the creative, destructive, and preserving powers of the Divine. These are not deities outside of us, but direct human experiences, as manifestations of the Divine in human consciousness, often subconscious or even unconscious. It is also interesting to note that Allah is Alpha and Omega: "He is the First and the Last and the Ascendant (over all) and the Knower of hidden things, and He is Cognizant of all things."<sup>861</sup> So Islam also recognizes the universal truth of the Principle of Unity.

Regarding the relativistic world of form, we can resolve linguistic confusions by studying what David Bohm called the *archaeology of language*,<sup>862</sup> going back some 7,000 years whenever possible, long before the invention of money, the most divisive force on the planet. In particular, the Proto-Indo-European (PIE) language provides the roots of Sanskrit, Pali, and most European languages, such as Greek, Latin, and the Germanic and Slavic languages, revealing meanings that have long been lost. For the root of *etymology* is the Greek *etumos* 'real, true', indicating that our forebears were closer to Nature than we are today, before our languages were corrupted by cultures accelerating further and further away from Reality with every year that passes.

We can see this most clearly from the word *physics*, which derives from Aristotle's treatise *Physics*, a translation of Greek *ta phusika*, literally 'natural things', the neuter plural of *phusikos* 'of nature', from *phusis* 'birth, origin; nature, inborn quality' and *phuein* 'produce, bring forth; grow, be born', from PIE-base *\*bheu-* 'to be, exist, grow', also root of *be*. In turn *nature* derives from Latin *nātūra* 'birth', from *nātus*, past participle of *nāscī* 'to be born', from PIE base *\*gen-* 'to give birth, beget', also root of Greek *genesis* 'origin, birth', from which *genetics* and many similar words are derived. This PIE base is also the root of *kind*, through Old English *gecynde* 'natural'. So it is innate for us to be kind, especially to our own kin and those with the same nationality, also from Latin *nātus*. This way of categorizing our fellow human beings in groups has even been broadened to include all classes of concept that we might form, for *generalize* derives from Latin *genus* 'class, race, kind', with the same PIE base.

However, physicists do not study the origin of things because science has become separate from the Divine Origin of all that exists. So Charles Darwin's *On the Origin of the Species* does not explain the origin of the species, by natural selection or whatever, because he, like so many of his contemporaries, was out of touch with the Origin of the Universe. Furthermore, the relentless pursuit of reason for its own sake can have a devastating effect on our enjoyment of life, for as Darwin said in his autobiography, he had intensely appreciated music, poetry, and pictures until his thirtieth year, but for many years afterwards he lost all his taste for these interests.<sup>863</sup> As a corollary, biologists, supposedly students of life, from Greek *bios* 'life', do not study Nature, for all species are born through the irrepressible power of Life arising from our Divine Source, acting as the Fountainhead for the Totality of Existence. So the Royal Society of London is not engaged in improving natural knowledge, for the way that scientists form concepts and theories is not explicitly based on Nature.

In contrast, it is the mystics who are the true physicists, known as natural philosophers in Isaac Newton's day, for they are the ones who have discovered the Origin of the Cosmos, guiding us towards our shared Divine Source in Gnosis, which is genuine Natural Knowledge, inner knowing that the Divine Matrix gives birth to, *genuine* also deriving from the PIE-base *\*bheu-*.

Now while science, through technology, provides us with many creature comforts today, we can see why science has tragically taken us far away from Reality since the first scientific revolution from the root

### *Unifying Polarizing Opposites in Nondual Wholeness*

of *science*, defined on page 24. Of course, discernment is of vital importance in everyday life. For how else could we know which mushrooms in the forests of Scandinavia in the autumn are delicious to eat and which are poisonous? I wonder how many people have had to die for us to learn this lesson.

The emphasis is thus more on analysis than synthesis, a divisive approach to reason that goes back to Aristotle's *Prior Analytics*, in which he defined the syllogism, the beginnings of deductive logic. However, when discernment—from Latin *discernere* 'to separate'—becomes the primary way of acquiring knowledge, we create unreal divisions between us, as Edgar Mitchell discovered when looking at the Earth after returning from the Moon in 1971. It is then up to our artistic abilities to put back together that which has been separated, for *art* derives from Latin *ars* 'skill, way, method', from PIE base *\*ar-* and *\*arə-* 'to fit together', also root of *coordinate*, *reason*, *read*, *harmony*, *order*, and *arithmetic*.

Of course, the most important split that we need to heal as a gregarious, social species is that between all the opposites, not just between what C. P. Snow famously called 'The Two Cultures' in the Rede Lecture at the University of Cambridge in 1959: that between science and the humanities, particularly, in his case, between physicists and literary intellectuals.<sup>864</sup> *University* here, cognate with *Universe*, derives from Latin *universus* 'whole, entire' from *ūnus* 'one' and *versus*, past participle of *vertere* 'to turn'. But universities do not turn everything into an entire whole and so hardly live up to their name.

Why this is so is most obvious from the root of *consciousness*: Latin *cum* and *scīre*, as before. So when we use the fundamental design principle of the Universe to integrate all knowledge into a coherent whole, Cosmic Consciousness is a natural concomitant.

There is then nowhere for the sub- and unconscious shadow side of our psyches to hide. Consciousness penetrates into every nook and cranny of our minds, enabling Self-reflective Intelligence to see with utmost lucidity just what is going on within us. For Intelligence is the eyesight of Consciousness and cannot function with full acuity until the clouds of unknowing are dispersed. This is of the utmost importance if we are to intelligently cocreate Peace on Earth, for we often project our shadow side onto others, viewed as enemies, blaming them for our unhappiness and the feeling of lack of security.

The Principle of Unity is thus the keystone for the much sought-for science of consciousness, which is actually an oxymoron, for it is the purpose of science to separate, a divisiveness that can be overcome with the healing art of collumination. By thus shining the brilliant light of Consciousness into every nook and cranny of the Cosmic Psyche, there are no longer any hidden mysteries or secrets. The culmination of this healing, awakening, and liberating process is well encapsulated in the Sanskrit word *Satchidananda* 'bliss of Absolute Consciousness', from *sat* 'absolute, eternal, unchanging Being, Truth', *chit* 'absolute Consciousness', and *ananda* 'bliss, absolute joy'.

*Sat* also appears in Mohandas Ghandi's *satyagraha* 'truth-force', *bodhisattva* 'one whose essence is enlightenment', *sattvam* 'essence, being', *sattva* 'harmoniousness, peacefulness, composure', and *satsang*, 'an assembly of seekers of the Truth who gather around a spiritual teacher for reflection on the ancient wisdom'. For *sat* derives from the PIE base *\*as-ont-*, participial of *\*es-* 'to be', becoming *\*sont-* 'being, existing', hence 'real, true'. This gave rise to Old English *sōth* 'real, true', the root of *soothe* 'to prove or show (a fact, statement, etc.) to be true' and of *soothsayer* 'one who speaks the truth', meanings that have been lost in the deluded West. Swedish is one language where the original meaning has survived, *sann* meaning 'true'.

The connection between Being and Truth is made even clearer when we look at the many words derived directly from the PIE base *\*es-* through the Latin and Greek words for 'to be': *esse* and *einai*, respectively. The most obvious of these is *essence* 'the innate quality of any being in the relativistic world of

form, called the soul in human beings', from Late Latin *essentia* 'being, existence, viewed as a fact or as a property possessed by something'. In Absolute terms, *Essence* is 'the Divine, as the ineffable, innate quality of the Totality of Existence of all beings viewed as Immanent, Nondual Love, which has no opposite'.

*Essential* also derives from *essentia*. So what is essential for us as human beings is that there is no separation between humanity and the Divine, for otherwise we cannot be grounded in Love, the Divine Essence we all share as our True Nature, Authentic Self, and Genuine Identity. For, as we have seen, the native English word for *nature* is *kind*. Kindliness—called compassion (*karunā*) or loving kindness (*mettā*) and love or charity (*agapē*) by Buddhists and Christians, respectively—is thus essential if we are ever to live in love, peace, and harmony with each other.

Also in Absolute terms, the Immanent, Transcendent Presence that many can sense derives from Latin *praesentia* 'presence', whose root is given on page 110. Similarly, as mentioned on page 155, Plato used the Greek word *parousiā* 'presence' to denote the essential qualities of his eternal Forms and Ideas. This shows that while Plato could accept Heraclitus' principle that all is flow to some extent, encapsulated in Heraclitus' famous statement, "You cannot step twice into the same river," he could not go all the way.

These are just a few examples of changes that we need to make if we are to cocreate a transcultural language that truly reflects the world we live in. The Glossary in my book on *Wholeness* is now sixty-eight A4 pages, still under development. But how could this Glossary be translated into other languages? English has a particularly rich vocabulary, drawing on the Germanic languages, both north and west, as well as Latin and Greek, but with surprisingly few Celtic words, the original Indo-European language of the British Isles.<sup>865</sup> Furthermore, it is possible to make a distinction between Life and life, for instance, not possible in German, where all substantives are capitalized. Languages with other writing systems and traditional worldviews could present even greater difficulties.

## **Integral Relational Logic**

After a somewhat long preamble, outlining the social and historical environment in which the Theory of Everything is emerging, we have now reached the true beginning of this treatise. This is the point where we really need a *tabula rasa*, explaining in the most rigorous, rational terms what happens when a big bang erupts in consciousness, enabling us to build a fully coherent mental image of the Universe, free of the delusions and conditioning that inhibit us from using Self-reflective Intelligence to see the true meaning of our lives, brilliantly lit by the Coherent Light of Consciousness.

As described in Subsection 'An experiment in learning' on page 113, I liken this creative learning process to a thought experiment in which a computer switches itself off and on again so that it has no programs within it, not even one built into the hardware to load the operating system. Then guided only by its inner guru, which means 'dispeller of darkness', as the *Guru Sutra* tells us,<sup>866</sup> the computer has the task of organizing all knowledge in all cultures and disciplines at all times into a coherent whole, without any external authority to tell it how to do this.

## **The voice of experience**

Now, such an apocalyptic death and rebirth is not something that is happening to just the author of this treatise. Evolution needs to take a radical change of direction within each of us if we are to intelligently adapt to the most momentous turning point in evolution's fourteen billion-year history, outlined in Subsection 'The Singularity in time' on page 176. So maybe it would be helpful to describe my own

experiences a little more, for I have already experienced what the rest of the world is destined to go through, as the global economy inevitably self-destructs.

The word *experience* is key here. For the Theory of Everything would be quite impractical if it were just speculative philosophy or even mystical theology, seeking to make sense of mystical experiences within cultures that have no conceptual framework to explain them, denying such possibilities. So IRL is based on the experience gained from a life full of adventurous experiment. Yet, it must also be based on experience that we can all share. For, otherwise, as Bertrand Russell said in the quotation about the limits of scientific induction on page 87, there is no criterion for sound scientific knowledge compared to the subjective belief of a man who believes he is a poached egg.

The dilemma here is that what is called ‘scientific knowledge’ is so often based on denial, not on the spiritual experiences that millions of people share. The maverick psychiatrist R. D. Laing highlighted this critical issue in the opening paragraph of *The Voice of Experience*:

Experience is not an objective fact. A scientific fact need not be experienced. The differences or correlations, similarities and dissimilarities that we experience as events only sometimes correspond to those differences or correlations we regard as objectively real. Every schoolboy and schoolgirl knows that appearances are deceptive.<sup>867</sup>

Experience is thus of paramount importance, the only sure way of overturning scientific dogma, which is so often based on a lack of experience of Divine mysteries. Yet there is still much that we can share, countering many Wikipedia editors’ belief that anything to do with spirituality is flaky pseudoscience. For instance, experience plays a key role in creativity, as Laing points out in *The Politics of Experience*:

What is called a poem is compounded perhaps of communication, invention, fecundation, discovery, production, creation. Through all the contention of intention and motives, a miracle has occurred. There is something new under the sun; being has emerged from nonbeing; a spring has bubbled out of the rock.<sup>868</sup>

Similarly, Rupert Spira, a leading teacher of Nonduality, writes, contemplating the nature of experience, “our conventional ways of seeing ... bear little relation to our actual moment to moment experience,” going on to say, “the idea that the body and world exist as objects in time and space, independent and separate from Consciousness ... is not based on experience.”<sup>869</sup>

Of course, it is experience that provides us with empirical evidence for our scientific knowledge or conceptual models, which we obtain by conducting experiments. For instance, in order to understand the central importance of experimentation in science, I was instructed to conduct an experiment at school to find the melting point of naphthalene, which I found to be 79 °C, not far from the value that professional scientists have found (80.26 °C).<sup>870</sup>

What this shows is that much of my knowledge is dependent, not on the experiments that I might conduct myself, but on those other scientists have conducted. And to learn something of these experiments, I must turn to books, scientific journals, encyclopaedias, the Internet, and so on. For as Samuel Johnson (1709–1784) famously said on 18th April 1775, when visiting a friend’s impressive library, “Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it.” At the time, Johnson and James Boswell (1740–1795) were dining with a friend and on being shown his library, Johnson immediately started looking at the indexes at the back of the books. He explained what was regarded as strange behaviour with his much-quoted statement about knowledge and information, followed by “When we enquire into any subject, the first thing we have to do is to know what books have treated of it. This leads us to look at catalogues, and at the backs of books in libraries.”<sup>871</sup>

In today’s Information Age, we call such a rational approach to information management library or information science. However, while some experiments that scientists conduct produce evidence that fits with my experiences, many interpretations of the data patterns produced in these experiments are flawed

because they do not fit together as a coherent whole, having been interpreted within an out-dated materialistic and mechanistic worldview far removed from Reality.

So I need to watch very carefully what people claim to be scientific evidence. For evidence derives from Latin *ēvidēns* ‘visible, obvious’, from *ē-* ‘out’ and *vidēre* ‘to see’, from PIE base *\*weid-* ‘to see’, also root of *wise, view, guide, idea*, and Sanskrit *veda* ‘knowledge’. So what is evident and obvious can only be seen if we are willing and able to conduct experiments to answer searching questions and so obtain sound knowledge of ourselves and the world about us. Evidently, we cannot see what is self-evident if we are blind or our eyes are closed, if our innate Self-reflective Intelligence has been suppressed.

But such experimenting is not always so easy, for *experiment* and *experience* derive from Latin *experientia* ‘trial’, from *experiri* ‘to try, test, prove’, from *ex-* ‘out of’ and *\*periri* ‘to go through’, from PIE base *\*per-* ‘to try, risk’, verbal root of *\*per* ‘forward, through’ in sense ‘to lead over, press forward’, also root of *fear, peril, and expert*. In a similar fashion, *empirical* derives from Greek *empeirikos* ‘experienced’, from *en-* ‘in’ and *peira* ‘trial, attempt’, again from PIE base *\*per-* ‘to try, risk’.

So if we are not willing to take risks because of fear, then we must inevitably remain in ignorance of the creative evolutionary energies that cause us to behave in the way that we do. For instance, if we have never climbed to the summit of the highest mountain in a mountain range, we cannot know what it is like to enjoy such an awesome view from such a panoramic vantage point.

Such a vision is not uncommon in those who have had some form of religious, spiritual, or even mystical experience, coming into direct contact with the Divine, as Wholeness or the Totality of Existence. For instance, the Alister Hardy Religious Experience Research Centre in the UK has discovered that 43% of Americans and 48% of British people have had such experiences,<sup>872</sup> which Robert K. C. Forman reported on in 1994, when writing an editorial in the very first issue of the *Journal of Consciousness Studies*, exploring “controversies in science & the humanities”. People who have a near-death experience, when they seem to be out of their bodies, are similarly exposed to Wholeness, describing such experiences as ‘coming home’ or a ‘vision of paradise’, as Peter and Elizabeth Fenwick tell us in *The Truth in the Light*.<sup>873</sup>

*Altered States of Consciousness*, edited by Charles T. Tart, contains many reports of so-called non-ordinary states of consciousness arising in many different ways, when the brilliant light of Consciousness is revealed, normally hidden from view and experience by clouds of unknowing, by mental structures, which cannot explain what is happening. And Tart, a scientist like Alister Hardy, collects descriptions of scientists’ spiritual experiences, which he publishes in TASTE—The Archives of Scientists’ Transcendent Experiences.<sup>874</sup>

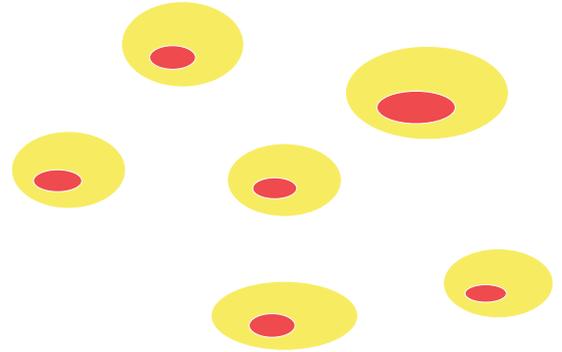
Yet the great tragedy of our times is that over half the population are apparently ignorant of the Divine Ground of Being that we all share. To overcome these limitations, some today take psychotropic substances that shamans have discovered, such as an ayahuasca beverage or mushrooms, like *Stropharia cubensis*.<sup>875</sup> As Ralph Metzner tells us in *The Expansion of Consciousness*, “a psychedelic experience ... typically leads to a more or less total deconstruction of one’s worldview, the model of reality and of social relations that we have come to accept through our upbringing and education.”<sup>876</sup>

For myself, I have never taken any life-changing psychotropic substance, although at times I have drunk more alcohol and coffee than is good for me. Rather, I have found Wholeness, and hence God, through computer science, as I’ll briefly describe to give you some further background to where I am coming from.

*Unifying Polarizing Opposites in Nondual Wholeness*

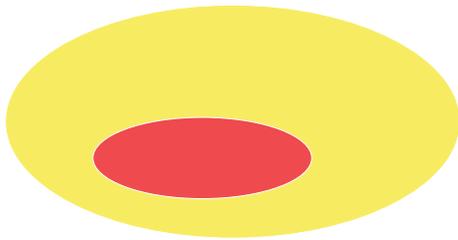
The trigger that began my spiritual awakening happened in January 1977, when I was due to be promoted to a second-line systems engineering manager in an IBM branch office, responsible for some sixty highly qualified systems engineers and their managers. But this promotion did not happen for reasons that were outside my career manager's control, which led me to become very depressed, quite unable to do an effective job.

To rebuild my life and career, I started to take stock of where I had come from in order to see where Life might take me in the future. During my first fifteen years in the data-processing industry, I had worked in many different specialities, never working in the same job for more than two or three years at a time. So my knowledge of the industry was quite fragmented, rather like the red spots in this diagram, which represent what I knew about each speciality in order to do my job.



However, whenever I worked in a speciality, I would always attempt to put my work into a broader context, reading widely, going much deeper into subjects than required by the immediate task in hand. So surrounding all these fragments of knowledge there were pools of consciousness, as indicated by the yellow shapes in the diagram.

But as I began to explore the relationship between humans and computers more deeply in the late 1970s, all these pools of consciousness, which had characterized my business career, merged together to become a lake of consciousness, a whole that was very much greater than the sum of the individual parts because of the relationships that were forming between the thitherto fragmented parts. In terms of mathematical mapmaking, these specialisms are like individual nodes, which became one as I saw the relationships between them.



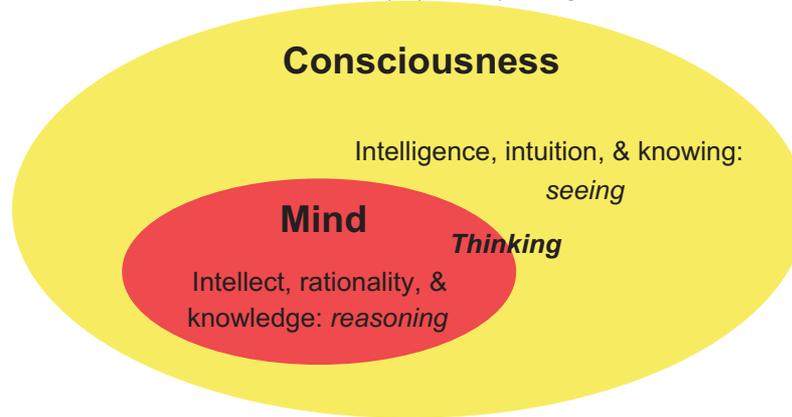
This lake of consciousness then became a sea of consciousness, as I extrapolated what I could visualize into the future. This led me to see that the global economy holds the seeds of its own destruction within it and that because of the accelerating pace of technological development, it could well collapse like a house of cards within thirty years, when my two children would presumably be bringing

up children of their own.

Wishing to understand how we might all deal with this critical situation, I was led to try to solve the business-modelling problem that I outline on page 122. As this problem is now solved, as described in this treatise, this sea of consciousness has expanded into the Ocean of Consciousness, as the next diagram illustrates.

It might seem that this life experience is unique to me, of no relevance to anyone else. But the opposite is true. This experience shows with utmost clarity that Consciousness is the Ultimate Reality that we all share. For instance, when editing *Consciousness Speaks: Conversations with Ramesh S. Balsekar*—formerly President of the Bank of India and a pre-eminent Advaita sage—Wayne Liquorman wrote, “All there is, is Consciousness. If that is understood completely, deeply, intuitively then you need read no further. Put the book down and go on joyously with the rest of your life.”

This diagram is just one of many ways of illustrating this universal truth, fulfilling my lifelong search for Love and Peace, Wholeness and the Truth, and Life and Freedom. The only sadness that arises from



this great adventure is that I have needed to spend most of my life in solitude, as a renunciate, rebel, and revolutionary, repudiating the divisiveness and delusional teachings of the culture I was born in.

### ***A superhuman, integral operating system***

Recognizing that Consciousness is all there is forms the Contextual Foundation for the Theory of Everything described in these pages. As this experiment in learning has evolved from my business experience, it is entirely in keeping with the philosophy of pragmatism, which Peirce founded in 1878 with a seminal essay titled 'How to Make Our Ideas Clear'.<sup>877</sup>

However, Peirce did not actually use the word *pragmatism* in this essay. In the event, it was not until 1900, when Peirce wrote to his closest friend, the philosopher and psychologist William James, that they realized that they had been using the term for many years in philosophical conversation without it appearing in their publications and without a clear definition of the term, which the *Century Dictionary Supplement* eventually gave as "A theory concerning the proper method of determining the meaning of conceptions."<sup>878</sup> In Peirce's original article, he wrote that clearness of apprehension could be attained in this way: "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have."<sup>879</sup>

Indeed, conceptual clarity and integrity is key to sound information systems design, as Frederick P. Brooks, a leading systems manager at IBM in the 1950s and 60s pointed out.<sup>880</sup> There is no point in developing the Theory of Everything if it is not practical, not only bringing us joy and happiness, but also enabling us to cocreate a global information system that is in harmony with the fundamental laws of the Universe.

Of course, no computer can actually perform this thought experiment. Rather, it is as an information systems architect that we can do so. As explained on page 119 in Subsection 'The function of information systems architect', IS architects begin with models or blueprints of the systems that they are to design, rather like architects who design buildings. But rather than building models of individual businesses, or even of the entire global business world, in this experiment in learning, we are actually building a model of the Totality of Existence, developing a comprehensive map of the Universe.

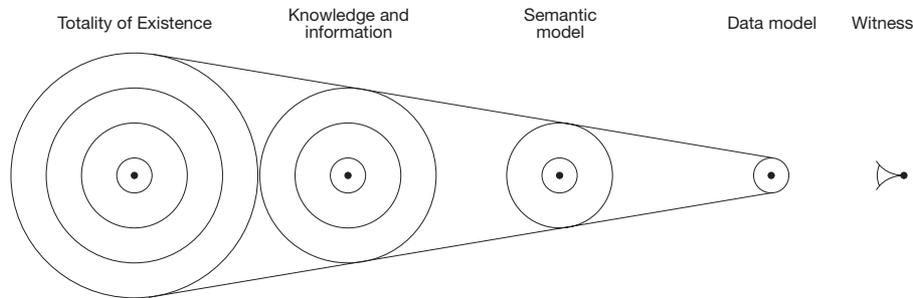
And as mentioned on page 59, when overthrowing Alfred Korzybski's assertion that the map is not the territory, if evolution is to be fully conscious of itself, we must apply our Self-reflective Intelligence to include our mapmaking activities within the territory being mapped. As we only see territories through the structures of our maps or conceptual models, what we believe to be the Territory is then radically changed. For our minds create our 'reality', not the other way round.

There is no objective physical world independent of a knowing being, despite the widespread belief in such a territory, separate from subjective experience. Rather, understanding that the observer and

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observed are one is absolutely essential if we are to heal the fragmented mind in Wholeness and to intelligently manage our business affairs with full consciousness of what we are doing, as mentioned on pages 54 and 122, respectively.

Now, the models that IS architects build do not have just one level; they actually have three, each contained within the next level, all seen with Self-reflective Intelligence, sometimes called the Witness in spiritual circles. These relationships are illustrated in this diagram:



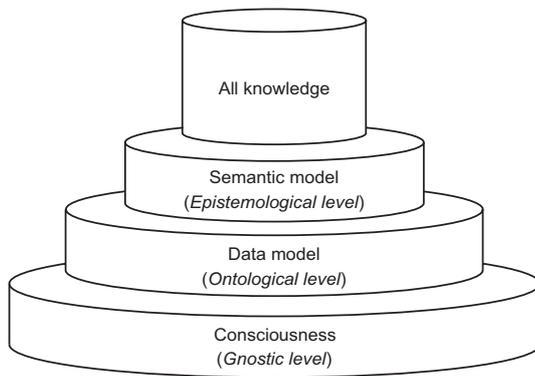
In the workplace, the territory that IS architects map consists of everything in the entire business world, irrespective of corporate, industrial, or national divisions. In this thought experiment, we expand the territory to the Totality of Existence, which consists of all beings, things that exist, from Old English *bēon* ‘to become, come to be’, from PIE base *\*bheu-* ‘to be, exist, grow’, also root of *physics*, to remind you. The circle tangential to the circle that depicts the Totality of Existence denotes all the knowledge and information that the business world holds about itself, generalized into all the knowledge and information that all cultures and disciplines have developed over the millennia of the Totality of Existence, either as a whole or, more often, as specialized perspectives. And as this knowledge and information consists of beings, it is contained within the circle that denotes Totality or Wholeness.

This is as far as philosophers generally go in studying the way that language, as a semiotic representation, depicts the world of beings. However, IS architects, driven by the economic imperative to replace as many jobs performed by human beings by machines as possible, go further. They develop semantic models of the functional and class structures contained within all this knowledge and information, as described in Subsection ‘The function of information systems architect’ on page 116. We can do likewise with our map of the Universe, which, as knowledge and information, is contained within the larger two circles.

Now, the semantic model consists of an interpretation of the data patterns of experience. It might therefore seem that these data patterns are completely meaningless. However, they contain a modicum of meaning that is applicable within all domains of discourse. So the data model of the semantic model is contained within the semantic model, which is contained within all knowledge and information, which is contained within the Totality of Existence. The universal Principle of Unity is naturally a key element in the data model.

But how are we to view these three levels of mappings? Well, the IS designer’s eye is identical to the all-seeing eye of God, as Meister Eckhart beautifully described on page 90. We thus need to use Self-reflective Divine Intelligence to penetrate to the very depth of our psyches to understand ourselves and the world we live in. However, to see just what is going on, free of all conditioning, we need the coherent light of Consciousness, to do so. For Intelligence is the eyesight of Consciousness. So Intelligence cannot fully function when it is occluded by what an anonymous fourteenth-century English mystic called the ‘cloud of unknowing’.<sup>881</sup>

### *The Theory of Everything*



Now not only is Consciousness the Cosmic Context for all our learning, it also provides the Ineffable Gnostic Foundation, as this diagram illustrates. We can thus see that the data and semantic models in the diagram above provide the ontological and epistemological levels for a coherent body of knowledge, borrowing metaphysical terms from philosophy.

For ontology is ‘the science or study of being’ from Greek *on*, genitive *ontos*, from *ont-*, stem of present participle *einai* ‘to be’, and *-logia*, from *-logos*, ‘one who deals or treats of a certain subject’. So the ontological level of the foundations describes the underlying structure of all beings prior to interpretation. And epistemology is ‘the science or study of knowledge, from Greek *epistēmē* ‘knowledge’. Thus the epistemological level of the foundations provides us with knowledge about knowledge, corresponding to metadata or semantic models in business information systems modelling methods.

The ontological and epistemological levels of the foundations are called Integral Relational Logic (IRL), with the Principle of Unity lying in the mezzanine level between the Gnostic and ontological levels. ‘All knowledge’, on the top of the foundations, is the Unified Relationships Theory (URT), the summit of the mountain of all knowledge, the Theory of Everything.

What we are doing here is bringing the commonsensical art and science of thought and consciousness that we all implicitly use everyday into consciousness. The fact that we often think and act without a conceptual understanding of what we are doing is most simply illustrated with Molière’s *Le Bourgeois Gentilhomme*. M. Jourdain asked his philosophy teacher, “What? When I say: ‘Nicole, bring me my slippers, and give me my nightcap,’ is that prose?” to which the philosopher replied, “Yes, Sir.” “Good heavens!” exclaimed M. Jourdain, “For more than forty years I have been speaking prose without knowing it.”<sup>882</sup> In a similar fashion, when I was engaged in conceptual marketing for IBM in the late 1970s in order to promote technology transfer, customers would sometimes say, “We’ve been doing that for years. That’s what it’s called.”

But while most of us know that we speak prose in everyday life, in our emails and other writings, very few are aware of IRL lying unseen and unknown in consciousness. So as IRL is a quite different animal from anything that has ever existed in the history of human learning, it is not easy to say what sort of animal it is. We can solve this problem through the way that this thought experiment is being conducted. As we are imagining that we are a computer that is endeavouring to integrate all knowledge into a coherent whole, we can say that the Principle of Unity is the bootstrap program that loads the operating system at the ontological level of IRL. By interpreting the data patterns of existence at this level, we can then bring universal order to our thoughts at the epistemological level, just like IS architects in business building the Internet.

IRL is thus an example of what Ken Wilber calls an ‘Integral Operating System’, or IOS,<sup>883</sup> “a neutral framework” that “can be used to bring more clarity, care, and comprehensiveness to virtually any situation”.<sup>884</sup> Ken’s basic IOS is called AQAL, short for “all quadrants, all levels”, which is short for “all quadrants, all levels, all lines, all states, all types”.<sup>885</sup> However, IRL is more like a virtual machine operating system, such as IBM’s VM, which can run many different operating systems including itself, than Microsoft’s Windows or Apple’s Mac OS X.

On 24th April 2014, Ken Wilber announced a ten-week online training programme titled ‘Superhuman OS’, intended to “Install a Revolutionary New Operating System for Your Mind to Illuminate the Full Spectrum of Your Human Potential, and Become the Greatest Possible Version of Yourself”, not explicitly mentioning AQAL.<sup>886</sup> Although I have not taken this course, it is clear from the publicity material that taking it will not lead students to learn to colluminate, the meditation technique that loads the Ultimate Superhuman OS into consciousness, leading to the realization of the impossible dream, healing our fragmented minds in Wholeness.

We can best see this by using more familiar examples than IBM’s VM. IRL is a little like Apple’s Boot Camp, which runs both Mac OS X Mavericks and Windows 7 on my MacBook Pro, but not simultaneously. To run Windows and Mac OS X simultaneously, we need an emulator, like Parallels Desktop, which can run many guest operating systems, such as different versions of Windows and Linux, IBM’s OS/2 Warp, Google’s Chrome OS and Android OS, and even Mavericks itself under Mavericks in Parallels Desktop Version 9. This is how my iMac is set up, although I don’t actually run Mavericks under Mavericks. I simply use Parallels Desktop to run 32-bit Windows Vista and 64-bit Windows 7, which runs Adobe FrameMaker, which I use to write my book on *Wholeness*.

As IRL can run any guest IOS, AQAL is a guest, as explained on page 146. So all attempts to create the Theory of Everything are included within the cosmology of cosmologies that is the URT, which is all the applications running under the Superhuman OS, integrated into a coherent whole.

Another key difference between IRL and AQAL is that AQAL, as a mapmaking method, cannot include itself in the map of the territory being mapped, whereas IRL does. This Self-reflective characteristic of IRL is deemed impossible by Christian de Quincey, who wrote a critical appreciation of Ken Wilber’s *Collected Works* in 2001, when the managing editor of the *Noetic Sciences Review*, the journal of the Institute of Noetic Sciences. He wrote that the genuine theory of everything is unattainable:

Because you cannot create a model or a map that contains itself. Where, for example, would the four-quadrants model fit into the four-quadrants model? Mathematical and logical proofs developed by Bertrand Russell and Kurt Gödel—along the lines that no set of all sets can itself be a set of the same logical category, type, or level—invalidates the claim. Both Alfred Korzybski and Gregory Bateson immortalized this dilemma with the phrase “the map is not the territory.” In this case (Wilber’s TOE), not only the map, but more crucially, the consciousness that created the map, cannot be found in its own creation. To attempt to make room for it would involve us (and Wilber) in a logical infinite regress. This meta-critique applies to any TOE, of course, not just Wilber’s.<sup>887</sup>

For several reasons described in this treatise, using Self-reflective Intelligence to include our mapmaking activities within the territory being mapped does not lead to infinite regress. This is essential, for we should not forget that this thought experiment is intended, not only to heal our fragmented minds, but also to empower us to intelligently manage our business affairs with full consciousness of the psychospiritual energies that cause us to behave as we do.

And, of course, this cannot be done by pointing telescopes at the night sky or by building particle accelerators looking for a supposed fundamental building block of matter. Evolution can only become fully conscious of itself through objective self-inquiry, applying Self-reflective Intelligence to dive to the very depths of the collective unconscious. It is in this way that we can create the humanistic art and science that Fromm called for nearly forty years ago, mentioned in the Preface on page xiv. What this means is that we need to abandon Peirce’s claim that signs are the basis for logic. We can only solve the riddle that he set himself through self-reflection, focusing attention on conceptual modelling as introspective inquiry. So the picture of Wholeness that thus emerges is not anything in the relativistic world of form. Rather, it is utterly Formless, like a blank sheet of paper.

### **Starting afresh at the very beginning**

We have now reached the very beginning of this treatise, where we learn to colluminate, developing a self-inclusive holographic map of the Totality of Existence. We are starting at the end and we shall end at the beginning, for the Alpha and Omega points of evolution are one, with no separation between them.

Let us then return to our thought experiment in which we imagine that we are a computer that switches itself off and on again so that it is completely empty. Even the data bits in its volatile random-access memory are not set, for settings are lost when the power is turned off. But what is this data lying in the memory of computers? In the late 1970s, at the birth of the Information Society, IBM in the UK had a marketing strategy 'Manage data as a corporate resource'. But what is this thing that companies were and are supposed to manage?

Well, in the data-processing and information-technology industry, *information is data with meaning*, data being what exists prior to interpretation by an intelligent being. Although this is not universal, in the DP industry *data* is often used as an uncountable noun, more like sand than pebbles, the plural of the Latin *datum* 'that which is given', from the Latin *dare* 'to offer, give', from PIE base *dō* 'to give', also root of *donor*, *endow*, *dowry*, *betray*, *surrender*, *dose*, and *Pandora* ('having all gifts, all-gifted', from Greek *dōron* 'gift'). *Information*, on the other hand, derives from the Latin *informāre* 'to give form and shape to, form an idea of'. So information is morphogenetic, from Greek *morphē* 'form, shape', as some biologists, such as Rupert Sheldrake and Armand Leroi,<sup>888</sup> are beginning to see today.

For instance, in *Management Information Systems*, one of the books that influenced IBM's first attempt to build IS modelling methods, as described on page 120, Sherman C. Blumenthal gave these definitions:

A **datum** is an uninterpreted raw statement of fact.

**Information** is data recorded, classified, organized, related, or interpreted within context to convey meaning.<sup>889</sup>

Norman Lindop's *Report of the Committee on Data Protection*, from 1978, which led to the UK's Data Protection laws, provides a further description of the differences between data and information:

So far, in this chapter, we have used the word *information* because that is the word and the concept with which most people are familiar. The computing community make much use of the word *data* (the Latin word *datum*, of which *data* is the plural, literally means that which is given) using it to mean raw material which is put into data processing systems. A primary function of data processing is to collect and relate items of data and to operate upon them to produce outputs which are meaningful to the users of the systems in the fulfilment of their purposes. It is these outputs which inform and which are rightly described as information.<sup>890</sup>

To give a third example, just to make sure that the distinction is clear, these definitions come from the *American National Dictionary for Information Processing Systems*:

**data.** Any representation subject to interpretation (such as through analysis or pattern matching) or to which meaning may be assigned, such as by applying social conventions or special agreed upon codes.

**information.** The meaning that is currently assigned to data by means of the conventions applied to these data.<sup>891</sup>

Even our children are being taught to make this distinction between data and information. As a final example, at the end of the twentieth century, my sixteen-year-old niece took a two-year course in information technology for nonprogrammers in which her textbook gave these definitions for data and information:

**Data** may consist of recorded facts, events or transactions.

**Information** is data that has been processed into a form that is useful, or data that has been given a meaning by putting it into context.<sup>892</sup>

But data is much less than recorded facts, for facts, in themselves, involve some level of interpretation. To truly understand data, we need to focus attention on the etymology of the word, recognizing that data is what is given. This means that before we begin to attempt to interpret the meaningless data patterns of experience we need to recognize that they exist, constituting the entire Totality of Existence, which is

nothing but data patterns overlapping each other in utmost complexity. This is the essence of Peirce's synechism, outlined on page 46, for it is not possible to separate these patterns of data from each other. They form a continuous whole.

But who or what is the Donor of all these data patterns? Well, again this is very simple. The Ultimate Donor of everything that exists in the ever-changing manifest world of form is the Formless Absolute, which we can best call the *Datum* 'the Giver', the Immortal Ground of Being that we all share. The Datum alone—as the Divine Origin of the Universe, experienced as Love and Consciousness—is Reality.

This is not something that can be debated, have learned discussions about. This is something we sense, feel, and know with Absolute Certainty. It is pointless to develop theologies or philosophies on the concept of Datum, for it is quite without meaning, utterly meaningless. The meaningless Datum thus provides the Gnostic Foundation for the Theory of Everything and the meaningless data patterns that arise from it constitute the language that Greimas suggested we need in order to hold meaningless discourses on meaningful ones, as mentioned on page 64. IBM's marketing slogan 'Manage data as a corporate resource' has thus led us to God and the Truth, which lies in the very depth of the Indo-European languages, for the PIE base *dō* 'to give' is also the root of Sanskrit *dā* 'to give' and *da* 'gift'.

Although archaic societies did not use the word *Datum* to denote the Donor, they were well aware of its existence, as we can see from the root of *sacrifice*, which derives from Latin *sacrificium* 'sacrifice', from *sacrāre* 'to dedicate to a god, make holy', from *sacer* 'sacred, holy', from PIE base *\*sak-* 'to sanctify', also root of *saint* and *sanctuary*, and *facere* 'to make'. So, by giving back to the gods, *to sacrifice* literally means 'to make Whole', through the union of opposites, which has deep underlying social implications.

As Marcel Mauss tells us in 1925 in *The Gift*, as a development of his essay *Sacrifice*, Sanskrit *dadami se, dehi me* 'I give you in return, as you give me' in the *Yajurveda* 'the Veda of sacrificial texts' indicates the way that sacrificial gifts to deities led to gift economies in early societies.<sup>893</sup> Similarly, the Latin formula *do ut des* 'I give so that you may give' in Roman religion and law expresses the reciprocity of exchange between humans and deities, where people are obliged to make sacrifices, with the expectation that they will receive something in return, then extended into gifts between individuals and groups, as Jörg Rüpke tells us in *Religion of the Romans*.<sup>894</sup>

Now coincidentally, Latin *dare* could also mean 'to cause', from PIE base *\*dhē-* 'to set, put', also root of *do*, through a Germanic path, and a host of words from Latin *facere* 'to do, make', such as *affect*, *efficient* and *faculty*. The Datum is thus what Aristotle and Thomas Aquinas called the Unmoved Mover—the Ultimate Cause of all change in the Universe, most simply called Life, Logos, or God the Creator.

Of course, as the Datum is always with us, through the ages, humans have developed many different stories about the Origin of the Universe, giving many different names to what they could experience but not understand, for actually, there is nothing to understand.

For instance, the Datum is *Aditi* in Sanskrit, meaning 'Unlimited Space, Eternity, Infinite Consciousness, Boundless, Free', from *a* 'without' and *diti* 'bound', from *da* 'to bind'. In the feminine form, *Aditī* is the name of the mother of the celestial deities in the *Rig Veda*, the Divine, Cosmic Matrix from which all heavenly bodies are born; as the celestial virgin and mother of every existing form and being, the synthesis of all things. *Matrix* here derives from Late Latin *mātrix* 'womb' ('breeding female' in Latin), from PIE base *\*māter-* 'mother', based ultimately on the baby-talk form *\*ma-* 'mother', a linguistic near-universal found in many of the world's languages, often in reduplicated form: *mama*.

Another term for the Datum, as Ultimate Reality, is *Akasha*, from Sanskrit *Ākāsha*, corresponding to Greek *aither* 'pure, fresh air', in Latin *aether*, "the pure essence where the gods lived and which they

breathed”, which is *quintessence*, the fifth element, the others being fire, air, earth, and water, of course. But what is this quintessential æther and how can we know of its existence, never mind that it is Ultimate Reality? Well, in 1887, Albert Michelson and Edward Morley showed in a famous experiment that an ‘æther wind’ could not be physically detected as the Earth passed through the supposed æther.<sup>895</sup> Nevertheless, scientists today are increasingly recognizing the existence of the Æther, which is just another name for God, as mentioned on page 3.

In Chinese Huayan Buddhism, the Donor is *Li*, whose inseparable dynamic aspect is *Shih*, explored further on page 201. *Li* is Immanent Reality (*Shūnyatā* ‘Emptiness’ or *Tathatā* ‘Suchness’ in Sanskrit), the realm beyond sense impressions., on the other hand, is the realm of phenomena, corresponding to *samsāra* ‘journeying’ in Sanskrit, essentially identical with *Nirvāna* ‘extinction of the separate self’.<sup>896</sup>

Over the millennia, many other words have been formed to denote people’s experience of nonmaterial energies arising from the Divine Origin of the Universe. For instance, *animate* derives from the Latin *animalis* ‘having a soul’, from *anima* ‘breath, soul’, which, of course, is the root of *animal*. These words are related to the Swedish *anda* ‘breath, spirit’, and *ande* ‘spirit, soul’, cognate with *aniti* ‘breathe’ in Sanskrit. In turn, *spirit* derives from the Latin *spīritus* ‘breath, spirit’, from *spīrāre* ‘breathe’. So the roots of our language clearly indicate that the ancients were well aware of the role that Spirit, arising from the soul, plays in breathing animals, such as human beings.

We can also see these etymological relationships in other languages. For instance, in the Old Testament, the Hebrew words *nephesh* or *nepes* ‘breath; life, life force, soul’ and *rūah* ‘breath, wind; spirit, mind, heart’ are translated as ‘soul’ and ‘spirit’, respectively. Similarly, in the New Testament, the Greek words *psūkhē* ‘breath, spirit; life, soul; heart, mind’ and *pneuma* ‘wind, breath’ are also translated as ‘soul’ and ‘spirit’, respectively. As *The Strongest Strong’s Exhaustive Concordance of the Bible* tells us, all these words denote ‘the immaterial part of the inner person that can respond to God’.<sup>897</sup>

And in the East, *Atman*, “the real immortal self of human beings, known in the West as the soul”,<sup>898</sup> derives from Sanskrit *ātman* ‘breath, spirit; soul, essence, self’. Also in Sanskrit, *prana* means ‘breath, vital life’, from verbal root *prā* ‘to fill’, from PIE base *\*pel-* ‘to fill’, also root of *fill*, *plenty*, and *plus*. Similarly, *qi* (*ch’i*), a central concept in Taoism and Chinese medicine, denotes “the vital energy, the life force, the cosmic spirit that pervades and enlivens all things”, literally ‘air, breath, gas’.

Other Eastern terms for Divine energy are Chinese *Tao* ‘the Way’, Sanskrit *Rita*, ‘living truth that flows and works and flows directly from the Divine’, and Sanskrit *Dharma*, *Dhamma* in Pali, which has many meanings, in Buddhism in particular. These include, ‘the cosmic law underlying our world’ and ‘the teaching of the Buddha’.<sup>899</sup>

So why are there so many words denoting humans’ vital experiences, whose validity, even existence, atheistic, materialistic scientists deny, declaring such wonderful experiences to be mere superstition? Well, let us move on with our thought experiment, essential if we are to awaken humanity from its slumbers.

To keep things simple, I use the word *Life* in general to denote the creative power of the Divine, bubbling up from the Origin of the Universe, like a fountain, and the Greek word *Logos* to denote its organizing role in creativity, specifically in the formation of Integral Relational Logic. However, this use of *Logos* needs a little explanation, for the word has both a mystical and mundane connotation.

In Græco-Christian culture, the English word *Logos* is used to denote the first principle of the universe. *Webster’s New World Dictionary* gives these definitions of *Logos*: in Greek philosophy, “Reason, thought of as constituting the controlling principle of the universe and as being manifested in speech”, and in Christian theology, “The eternal thought or word of God, made incarnate in Jesus Christ”.

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Actually, the word *logos* in ancient Greek had many different meanings, the *Pocket Oxford Classical Greek Dictionary* giving fifty-three translations of the word, none of them denoting its essential mystical meaning. More concisely, *The Oxford Dictionary of English Etymology* says it meant ‘account, ratio, reason, argument, discourse, saying, (rarely) word’. In *The Passion of the Western Mind*, Richard Tarnas says that *logos* originally meant ‘word, speech, or thought’.<sup>900</sup> Similarly, but nevertheless differently, in *The Act of Creation* Arthur Koestler said that *logos* “originally meant ‘language’, ‘thought’, and ‘reason’, all in one”.<sup>901</sup> And in an *Encyclopaedia of Philosophy*, the article about Heraclitus says that *logos* could mean ‘proportion’ or ‘formula’.<sup>902</sup> Another encyclopaedia, the *Encyclopædia Britannica*, further suggests ‘plan’ in addition to ‘word’ and ‘reason’ already mentioned.<sup>903</sup>

It is not difficult to see that *logos* is a central word in Graeco-Christian culture, especially when we look at it in relationship to the Greek *legein* ‘to gather, choose, recount, say’ and its Latin counterpart, *legere*, meaning ‘to read’, originally like Greek, ‘to gather or choose’. For from the PIE bases \**log-* and \**leg-* we see such key English words as *logic* and *syllogism*, all the words ending in *-ology* and *-logue*, *intelligence* and *intellect*, *lecture* and *lesson*, *collect*, *elect*, and *select*, *delight* and *delectable*, and *elegant*.

It was Heraclitus of Ephesus, the mystical philosopher of change, who truly understood the mystical meaning of *Logos*, ‘through which all things come to be’. William Harris, who described Heraclitus as an ‘amazing thinker’, made these translations of a few fragments of Heraclitus, leaving *Logos* untranslated, in contrast to Charles H. Kahn who translated *Logos* as ‘account’ or ‘report’:<sup>904</sup>

Although this *Logos* is eternally valid, yet men are unable to understand it—not only before hearing it, but even after they have heard it for the first time. That is to say, although all things come to pass in accordance with this *Logos*, men seem to be quite without any experience of it—at least if they are judged in the light of such words and deeds as I am here setting forth.

We should let ourselves be guided by what is common to all. Yet, although the *Logos* is common to all, most men live as if each of them had a private intelligence of his own.

Although intimately connected with the *Logos*, men keep setting themselves against it.

Listening not to me but to the *Logos*, it is wise to acknowledge that all things are one.<sup>905</sup>

Richard Tarnas summarizes Heraclitus’ meaning with this definition of *logos*, the “immanent conception of divine intelligence” signifying “the rational principle governing the cosmos”.<sup>906</sup> The word is also sometimes translated as ‘Universal Law’. So we could call the *Logos* the organizing principle of the universe because it has created all the beautiful plants and animals that we see around us and all the works of art and scientific theories that human beings have produced during the past several thousand years.

Tarnas then goes on to say that John the Evangelist used the word *Logos* “to assist the Greco-Roman culture in understanding the Christian mystery”,<sup>907</sup> as indicated by the opening words of John’s gospel: “In the beginning was the *Logos*, and the *Logos* was with God, and the *Logos* was God.”<sup>908</sup> However, I have never seen any translation of the Bible that does not use ‘word’ as the translation of *Logos*, missing the mystical point, as is so often done.

Even though Jesus said, “I am the light of the world,”<sup>909</sup> John said, “The world did not recognize it.”<sup>910</sup> Thus, because that divine light was not available to those ‘in the world’ and to emphasize “Christ was the archetype of all creation,”<sup>911</sup> John went on to say in his gospel that the *Logos* became human exclusively in the figure of Jesus Christ: “And the *Logos* became flesh and dwelt among us.”<sup>912</sup> Thus in Christianity’s attempt to be catholic, from the Greek *katholikus* ‘universal’, from *kata* ‘in respect of’, and *òlos* ‘whole’, it became exclusive, very far from universal. For the *Logos* is acting through each and every one of us every moment of every day. The laws of the Universe apply to everyone on Earth just as much as Jesus of Nazareth.

Most particularly, the Logos is the principle that enables us to use the semantically and mathematically derived modelling methods of computer science to develop a method of organizing all knowledge into a coherent whole. Without the divine power of the Logos, Integral Relational Logic cannot come into being. That is why IRL is called logic.

### **Primal concepts**

However, we now face a rather tricky communications problem. In our thought experiment, we need a way of distinguishing words that denote the bootstrap program that is IRL from words that describe this experiment in learning. We can most simply do this by emboldening words that represent bootstrap or primal concepts. So, as the **Datum** is the most fundamental of these primal concepts, we embolden it, as we do the **data patterns** that constitute the **Datum**.

From this utterly meaningless beginning, we now need a way of bringing meaning into our lives as a coherent whole, remembering that there are no axioms in IRL, no assumed or self-evident truths, with which Euclid began his systemization of the mathematical theorems known at his time. As we saw on page 44, Peirce began his endeavours to create the Theory of Everything by finding simple concepts applicable to every subject. He did this by regarding the triad as the basic building block of all knowledge, inspired by Kant's refinement of Aristotle's categories as the basis of all learning. We could do likewise, for the Principle of Unity, consisting of a synthesis of thesis and antithesis, is the fundamental design principle of the Universe.

However, we don't yet have a way of expressing this in terms of the primal concepts of IRL, for they have not yet been defined. So we need something very much simpler to get us off the ground, much simpler than the twelve categories of thought with which Aristotle began his logic, defined in *On Categories*. To do this, as we are engaged in developing a coherent map of the Totality of Existence, we can turn to Aristotle's ontology, identifying the next primal concept as **being**. As Aristotle said in *Metaphysics*,

There is a science which studies Being *qua* Being, and the properties inherent in it in virtue of its own nature. This science is not the same as any of the so-called particular sciences, for none of the others contemplates Being generally *qua* Being; they divide off some portion of it and study the attribute of this portion, as do for example the mathematical sciences.<sup>913</sup>

**Being** is a concept of the utmost generality, denoting any object, event, process, system, organism, state, feeling, form, structure, relationship, field, concept, class, character, symbol, religion, discipline, ism, ology, osophy, theory, language, culture, civilization, or any other way that I, or any other knowing being, can perceive, conceive, or imagine. **Being** is thus all-inclusive, denoting everyone's theories, opinions, points of view, beliefs, ideas, concepts, values, principles, propositions, theorems, etc., in all cultures and disciplines at all times, past, present, and future.

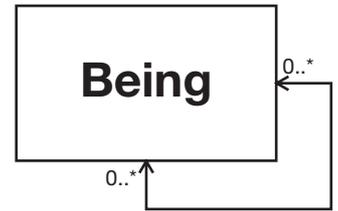
It is rather strange that neither Aristotle nor Peirce or anyone else has taken **being** as the basic building block we need to integrate all knowledge into a coherent whole. For the Totality of Existence consists of nothing else but beings, as we see from the root of *being* on page 131. Nevertheless, we can consider all the meaningless data patterns of experience, prior to interpretation by a knowing being, as beings, with the Datum as the Supreme Being.

Then, still exploring the ontological level of IRL, we begin our mapmaking activities by recognizing that in a mathematical graph, beings are both **nodes** and **arcs**. Any one particular graph is a **structure**, whose nodes are **forms** and arcs **relationships**, which have **meaning** when we learn how to interpret the data patterns of experience. So the abstract primal concepts of **form**, **structure**, **relationship**, and **meaning**

### *Unifying Polarizing Opposites in Nondual Wholeness*

are four basic building blocks for a coherent map of the Universe, more general than the space, time, and mass of the physicists and the fire, air, earth, and water of the ancients.

In physics, relationships are called fields, such as gravitational and electromagnetic fields. However, there are many other types of field between forms, such as morphogenetic fields, which Rupert Sheldrake introduced in *A New Science of Life* in 1981,<sup>914</sup> the year after I embarked on my own studies of such relationships. As none of us can say how many other types of relationship might be discovered in the future, all we can say is that all beings in the Universe are related to all other beings, including themselves, in zero to many different ways, some of which can be classified and some of which defy categorization and must remain a mystery. We can thus draw a complete map of the Universe with just one node and relationship, a generalization of the most abstract class model in the Unified Modeling Language, depicted on page 84.



So we now have identified seven primal or bootstrap concepts of **Datum**, **data**, **being**, **form**, **structure**, **relationship**, and **meaning**, as examples of **nodes** and **arcs** in mathematical graphs. As the Totality of Existence consists of nothing but meaningful structure-forming relationships, this is all we need to heal our fragmented, deluded minds in Wholeness, explaining what the Universe is, its Grand Design, and what causes us to behave as we do. Nothing could be simpler. From this core beginning, we can then begin to interpret the data patterns of experience, adding a few more primal concepts as basic building blocks as we proceed.

### **Building relationships**

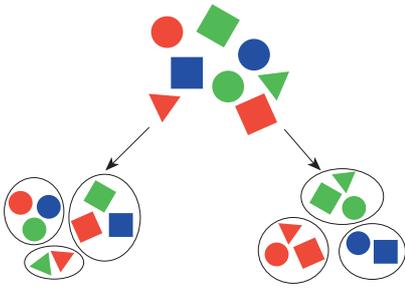
Now it is time to sort out the immense confusion that the world is in today by bringing all our thoughts into universal order. Like Descartes, who similarly sought to unify all knowledge through systemic, sceptical reason, we use four rules: clarity, simplicity, integrity, and consistency. The last of these needs a little explanation. In IRL, the word *consistency* does not mean ‘not containing any logical contradictions’, as the eleventh edition of the *Concise Oxford English Dictionary* states. Rather it means ‘acting or done in the same way over time, especially so as to be fair or accurate’, to give another definition from COED.

To form concepts in this consistent, egalitarian manner, we use David Bohm’s very general way of perceiving order in quantum physics: “to give attention to similar differences and different similarities”, a notion of order that the artist Charles Biederman gave him.<sup>915</sup> In other words, we carefully examine the similarities and the differences in the data patterns of our experience, putting our interpretations into various sets as appropriate, **set** being the first bootstrap concept of interpretation.

Bohm used this simple ordering principle to reconcile the incompatibilities between quantum and relativity theories with the theory of the implicate order, which he regarded as a form of insight rather than a collection of symbols arranged on the printed page or stored electronically. As Albert Einstein wrote, “The whole of science is nothing more than a refinement of everyday thinking.”<sup>916</sup>

This became crystal clear in the 1960s, when a group of mathematicians in the USA and UK introduced the ‘new maths’ into primary and elementary schools, attended by five to eight year-olds. For thousands of years, we human beings had been using numbers without understanding how the concept of number is formed. This situation began to change at the end of the nineteenth century, when Georg Cantor developed the mathematical theory of sets, defined in this way: “By a set we mean the joining into a single whole of objects which are clearly distinguishable by our intuition or thought.” In other words, it is not possible to form the concept of three until the concept of set is formed.

*The Theory of Everything*



Other examples of ubiquitous primary-secondary relationships are thus between set and number and semantics and mathematics. Recognizing such relationships, mathematicians introduced the abstract concept of set into schools, so that children could intelligently and consciously learn how to form concepts, like distinguishing colours, shapes, and numbers in this illustration. This transcultural, transdisciplinary interpretative process is central to pattern recognition,

conscious evolution, and all our learning. As the authors of *The 'New' Maths* pointed out, the new maths was intended to bring meaning to mathematics and hence to all other disciplines.

So set is the first primal concept that we need to interpret data patterns. Again, nothing could be simpler. In IRL, we form all concepts in an utterly equalitarian manner, not making any of them special, such as the fire, air, earth, and water of the ancients, or the mass, space, and time of modern science. For physicists, mathematicians, and programmers represent these concepts in their functions just like any other quantitative variable, as the equations  $F = ma$  and  $E = mc^2$  well illustrate. In IRL, we simply extend this equalitarian principle to all quantitative and qualitative concepts, as information systems architects do when designing business systems. In this simple way, we can free ourselves of the false belief that the Universe in the physical universe, realizing that Ultimate Reality is Consciousness. So this principle of egalitarianism is of the utmost importance, both in learning and in social affairs.

Using the egalitarian and universal concept of set to consciously form concepts—as they emerge in consciousness by interpreting the data patterns of experience, as they, in turn, arise from the Datum—leads to a much deeper and broader understanding of conscious evolution than that of leading evolutionaries today.

For instance, in *Conscious Evolution*, Barbara Marx Hubbard, founder of the Foundation for Conscious Evolution, the Evolutionary Edge, Birth 2012, and the Agents for Conscious Evolution (ACE) training, suggests that conscious evolution “is a quest to understand the processes of developmental change”, a new worldview that is the opening of the next stage of human development, “the second great event in the history of the universe”, the first being the most recent big bang which supposedly brought it into existence.

Yes, indeed. But this treatise shows how the quest to understand the processes of developmental change can be completed through a big bang erupting in the depths of consciousness. On Barbara’s website, she answers the question “What is Conscious Evolution?” in part with this passage:

In simple terms Conscious Evolution takes place when we intend to grow in consciousness and use our increasing awareness to guide our actions and achieve a positive future. Bela H. Banathy, author of *Guided Evolution of Society*, offers this additional understanding of Conscious Evolution: It is a process by which we can individually and collectively take responsibility for our future. It is a process of giving direction to the evolution of human systems by purposeful action. And most importantly, Conscious Evolution enables us, if we take responsibility for it, to use our creative power to guide our own lives and the evolution of the systems and the communities in which we live and work. It is a process by which individuals and groups, families, organizations, and societies can envision and create images of what should be, and bring those images to life by design.<sup>917</sup>

This answer is a reflection that evolution is still intuitively progressing towards its Omega Point in many people’s consciousness. For when we reach evolution’s glorious culmination, we realize that there is no future in Reality. To rise above the level of our machines, free of the fear of death in all its forms, it is essential to live primarily in the Eternal Now, a notion made famous in Eckhart Tolle’s best-selling *The Power of Now*. As he says,

### *Unifying Polarizing Opposites in Nondual Wholeness*

To be identified with your mind is to be trapped in time: the compulsion to live almost exclusively through memory and anticipation. This creates an endless preoccupation with past and future and an unwillingness to honour and acknowledge the present moment and allow it to be. The compulsion arises because the past gives you an identity and the future holds the promise of salvation, of fulfilment in whatever form. Both are illusions.<sup>918</sup>

Even though the entire relativistic world of form is an illusion, just an appearance in or abstraction from Consciousness, as the play of the Divine, we nevertheless live in this illusory world for all practical purposes. So it is vitally important that we understand this world in order to live our lives in conformity with the fundamental laws of the Universe.

So having learnt how to form concepts, as thoughts bubble up from the Datum of the Universe, we now need to look at how we can organize them, to bring about a sense of universal order. In IRL, as in the business modelling methods used by information systems architects to build the Internet, there are two principal ways of organizing our thoughts and concepts: in tables or relations and in semantic networks or mathematical graphs, which we have already looked at. So let us look at the former.

At heart, a relation in mathematics is an ordered set of elements, which can be combined in a wide variety of ways. To give some meaning to logical relations, we could say, for instance, that  $(a, b)$  represents the relationship ‘ $a$  loves  $b$ ’ and that  $(a, b, c)$  represents the relationship ‘ $a$  gives  $b$  to  $c$ ’. Peirce wrote extensively on what he called the ‘logic of relatives’. After his 1970 paper, when employed as a lecturer at the John Hopkins University in 1883, he edited a book titled *Studies in Logic* by his students, adding a Note B on the subject.<sup>919</sup> Then in 1897, he wrote an article for *The Monist*, once again titled ‘The Logic of Relatives’.<sup>920</sup> And the following year, this was the title of the third lecture of a series of eight that he gave in a private house in Cambridge, Massachusetts on the theme ‘Reasoning and the Logic of Things’.<sup>921</sup>

In 1970, Peirce’s logic of relatives evolved into the relational model of data, which Ted Codd of IBM introduced in order to unify the hierarchical and nonhierarchical approaches to database design that had emerged in the 1960s.<sup>922</sup>

Anyway, with the relational model of data, Codd developed a nondeductive mathematical logic based on the mathematical theory of relations and first-order predicate logic, the most significant change in Western reason since Aristotle’s *Organum*, leading to the formation of a multibillion-dollar industry.

So what is the relational model of data? Well, in essence, it is simplicity itself. A relation in the relational model is just a table, like the telephone directory below, listing names, addresses, and telephone numbers of subscribers. Here, telephone subscribers, called **entities**, are gathered together in sets called **classes**, corresponding to Plato’s distinction between particulars and universals in *The Republic*,<sup>923</sup> without making universals, as Ideas or Forms, eternal. In the relational model of data, such class instances possess **attributes**, corresponding to Aristotle’s distinction between subjects and predicates in *Prior Analytics*.<sup>924</sup>

Class	<i>Telephone subscriber</i>		
Attribute name	<i>Name</i>	<i>Address</i>	<i>Telephone number</i>
Attribute values	Anne Potter	72 Grove Road	624-4582
	Fred Tanner	4 Meadow Walk	982-3356
	John Cooper	31 Beech Boulevard	104-3911
	Elizabeth Smith	7 Chestnut Avenue	310-4574
	Jackie Butler	25 Orchard Way	955-4395
	Richard Fisher	67 Willow Crescent	109-2661
	Jenny Walker	22 Heather Drive	893-2748

We have been keeping records in such tables since the very first civilizations. For the first writing to be discovered on a clay tablet in Uruk (modern Erech) dates back to 3300 BCE, detailing the allotment of

malt to a number of people and with stock accounts of barley on the reverse.<sup>925</sup>

However, in practice, database design is somewhat more complex than this simple table might suggest. For instance, a subscriber might have more than one telephone number and there could be many subscribers at any one address. So to keep the cells in a relation simple, a telephone company could define three relations for classes **Subscriber**, **Subscription**, and **Location**, with links between them, capitalizing and emboldening class names, as is the convention in business modelling. In addition, another relation could be for calls, with attributes for length of call and the number called, apparently also being recorded by the US National Security Agency to much consternation.

Presenting information and knowledge in tables also lies at the heart of materialistic science. The periodic table of elements is one familiar example. And while particle physicists use the most arcane mathematics in their futile search for a supposed ultimate subatomic particle of matter, they too organize their ideas in simple tables, as the diagram below shows, a section of the standard model of fundamental particles and interactions. The class name is **Fermion**, with two subclasses **Lepton** and **Quark**, the attribute names are *flavour*, *mass*, and *electric charge*, and the attribute values are the content of the table.

FERMIONS					
Leptons spin = 1/2			Quarks spin = 1/2		
Flavor	Mass GeV/c <sup>2</sup>	Electric charge	Flavor	Approx. Mass GeV/c <sup>2</sup>	Electric charge
$\nu_L$ lightest neutrino*	$(0-0.13)\times 10^{-9}$	0	<b>u</b> up	0.002	2/3
<b>e</b> electron	0.000511	-1	<b>d</b> down	0.005	-1/3
$\nu_M$ middle neutrino*	$(0.009-0.13)\times 10^{-9}$	0	<b>c</b> charm	1.3	2/3
$\mu$ muon	0.106	-1	<b>s</b> strange	0.1	-1/3
$\nu_H$ heaviest neutrino*	$(0.04-0.14)\times 10^{-9}$	0	<b>t</b> top	173	2/3
$\tau$ tau	1.777	-1	<b>b</b> bottom	4.2	-1/3

We thus have a few more primal concepts, those of **relation** or **table**, consisting of **class**, **entity** (as **instance** of class), and **attribute**, with both a **name** and **value**. Applying these bootstrap concepts to the formation of IRL itself, we identify a number of distinct classes of attribute, such as **identifying**, **defining**, **nondefining**, **prototypical**, and **derived** attributes. The table of class **Quadrilateral** on the next page illustrates a couple of these types of attribute. *Name* is the identifying attribute, while the properties of each shape in the class are determined by three defining attributes.

In IRL, as in the relational model of data, the possible values for a particular attribute in a class are called a **domain of values**, another primal concept, which can also be regarded as a **dimension**, for such domains measure the class-attribute in the broadest meaning of *measure*. So as there are an infinity of spatial dimensions in geometry, and countless other dimensions, there are an infinite number of dimensions in the Universe, not the four space-time dimensions of relativity theory, and far beyond the extra dimensions being postulated in string theory: ten, eleven, twenty-six, or more?

Tables or relations are a concise way of organizing information and knowledge, mathematical matrices being special cases. However, they do not capture directly all possible relationships, such as **generalization hierarchies** like animal, vertebrate, mammal, primate, and human. For instance, **Mammal** is an **abstract** class because it does not have immediate instantiations. In the **Quadrilateral** class, we can in addition define subclasses **Parallelogram** and **Rectangle**, illustrated in the diagram below. And, of course, each box

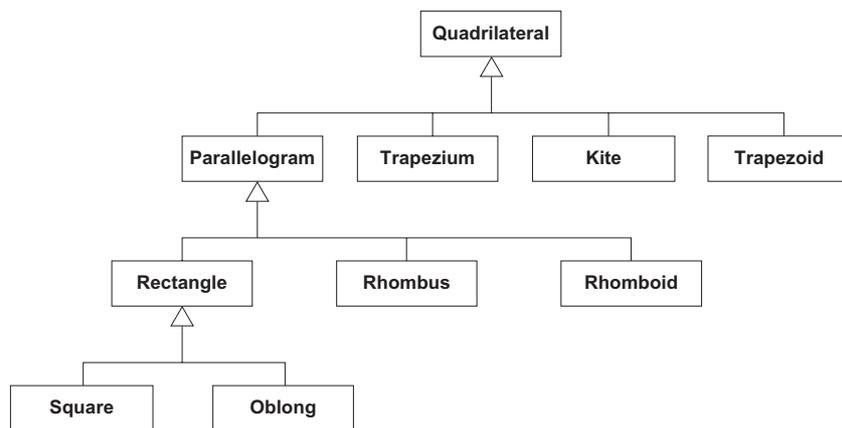
*Unifying Polarizing Opposites in Nondual Wholeness*

Class name	<i>Quadrilateral</i>				
Attribute name	Name	Shape	Defining attributes		
			Parallel sides	Equality of adjacent sides	Angle
<b>Attribute values</b>	square		opposite pairs	equal	right
	oblong		opposite pairs	unequal	right
	rhombus		opposite pairs	equal	oblique
	rhomboid		opposite pairs	unequal	oblique
	trapezium*		only two		
	kite		none	two pairs equal	
	trapezoid*		none		

\* These are British terms, using the words *trapezium* and *trapezoid* in the original meanings given by Proclus in the fifth century. In the late eighteenth century, the meanings of these two words were confusingly transposed, and they still are in the USA. In American English, a trapezium is a trapezoid and a trapezoid is a trapezium.

in this diagram is also a class, each of which has countless instances, with attributes such as size and position.

In object-oriented programming languages such as Smalltalk, in which the concept of class plays a central role, the top of the class hierarchy is the superclass, generally called **Object**, which is illustrated in the most abstract class diagram on page 84. As the diagram on page 139 generalizes this superclass in IRL, the primal concept of **being** is the superclass in IRL, denoted by **Being**.



As well as generalization hierarchies, there are also **aggregation** hierarchies in IRL, such as proton, atom, molecule, cell, and so on or section, department, division, and company in organizations. An aggregation relationship is called ‘a-part-of’ relationship, in contrast to ‘a-kind-of’ relationship in class hierarchies. The essential difference between these two types of hierarchies is that while a generalization relationship associates classes together, an aggregation relationship associates instances of classes with each other.

Another way of distinguishing generalization and aggregation hierarchies is to note that in a class hierarchy, the subclasses are mutually exclusive. Thus a type of element is hydrogen, oxygen, or one of the other hundred or so elements. An element cannot be both hydrogen and oxygen. So a generalization

relationship is sometimes called an ‘or-relationship’. An aggregation relationship, on the other hand, is an ‘and-relationship’. An atom consists of a number of electrons, protons, *and* neutrons, the basic model of an atom I learned in school.

In *The Ghost in the Machine*, Arthur Koestler coined the word *holon* to denote structures that are both wholes and parts of a greater whole in aggregation hierarchies, from Greek *òlos* ‘whole’, with the suffix suggesting a particle or part, as in *proton* or *neutron*.<sup>926</sup> In *Janus: A Summing Up*, he went on to say, “every holon is possessed of two opposite tendencies or potentials: an *integrative tendency* to function as part of the larger whole, and a self-assertive tendency to preserve its *individual autonomy*.”<sup>927</sup> This is a clear example of both-and thinking, helping us to live in love, peace, and harmony with each other.

One other obvious hierarchy is that of a **family tree**. Each of us has two parents, an evolutionary process that goes back around a billion years to the birth of sexual reproduction. Conversely, a female and male are parents of one or more descendants. So there are hierarchical structures in both directions of horizontal time. However, when we try to represent parent-child relationships in a class diagram, we only need one node and arc, where the node is class **Person**. To represent hierarchical family relationships, we need an *instance* model, rather than a *class* one, which is what we normally mean by a family tree. But not all relationships are hierarchical; we have siblings, cousins, uncles, and aunts, etc.

This leads us to **nonhierarchical** relationships, in conformity with the Principle of Unity. In *Gödel, Escher, Bach*, Douglas Hofstadter tells us that Warren McCulloch called such relationships *heterarchies*,<sup>928</sup> from Greek *èteros* ‘different, other’, delighting in such entanglements, using a term from quantum physics. More simply, we can call **nonhierarchical** relationships **associations**, of which there are countless, difficult to classify. For as soon as we do, we create hierarchical, generalization relationships.

As there is nothing in the Universe but hierarchical and nonhierarchical relationships, we can thus see: *The underlying structure of the manifest Universe is an infinitely dimensional network of hierarchical relationships*. This statement is true in all possible worlds, prior to interpretation by a knowing being, and so exists at the ontological level of IRL. Furthermore, all structures in the Universe have the property of self-similarity, like geometric fractals, named by Benoit B. Mandelbrot of IBM.<sup>929</sup>

It might seem that this arborizing, reticulating model is so obvious that it is hardly worth stating. Arthur Koestler responded to such criticism at the Alpbach symposium of 1968, called ‘Beyond Reductionism’, saying in his inimitable manner:

This almost universal applicability of the hierarchic model may arouse the suspicion that it is logically empty; and this may be a further factor in the resistance against it. It usually takes the form of what many call the ‘so what’ reaction: ‘all this is old hat, it is self-evident’—followed by the *non sequitur* ‘and anyway, where is your evidence?’ Well, hierarchy may be old hat, but I would suggest that if you handle it with some affection, it can produce quite a few lively rabbits.<sup>930</sup>

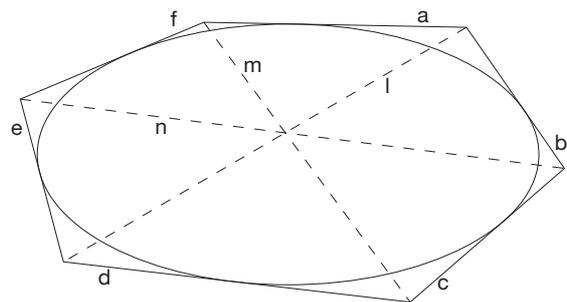
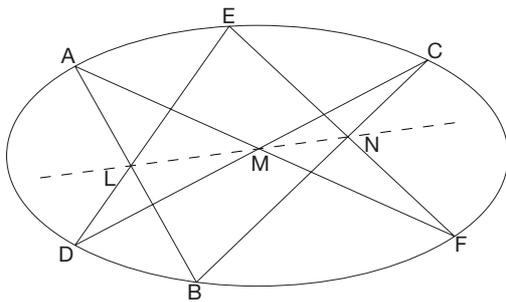
To form the more meaningful epistemological level, we note that *epistemology* derives from Greek *epistēmē* ‘knowledge’. So the epistemological level of IRL contains knowledge about knowledge or meta-knowledge, corresponding to the systems catalogue in relational database management systems, such as MySQL. In IRL, this is contained in the **Class** and **Attribute** classes, organized as relations from all class and attribute names, italicized, for instance, in the **Quadrilateral** relation on page 143.

The epistemological level of IRL acts as the system of coordinates for all knowledge, which we can also call the framework or skeleton for the body of all knowledge, corresponding to the class model in object-oriented modelling systems and the misnamed data model in entity-relationship modelling. In business, these can be extremely complex models, difficult to print even on a single sheet of A0 size paper. However, in IRL, the system of coordinates for all knowledge is virtually impossible to visualize in detail.

All we can know is that it exists as a coherent whole, built on the exquisitely simple structures of the ontological level.

### **Unifying opposites**

Now, whenever we form a concept, we also form its opposite, like black and white, male and female, and so on. Mathematics also has many such duals. For instance, Blaise Pascal discovered in 1639, when he was sixteen years old, that if six points are placed on a conic section and joined as in the left-hand-side diagram below, then their points of intersection,  $LMN$ , are collinear. Because straight lines remain straight lines in conical projections, this property applies not only to the ellipse, as in the diagram, but also to the parabola and even hyperbola, consisting of two disconnected open curves. As such a property is not intuitively obvious, it is not surprising that Pascal called the six points  $ABCDEF$  his Mystic Hexagram.<sup>931</sup>

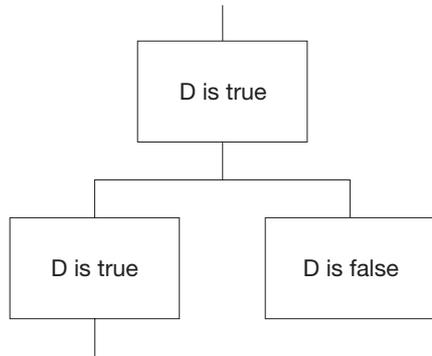


Nearly two hundred years later, in 1810, Charles Julien Brianchon proved a related theorem, illustrated on the right. If six lines are drawn tangentially to a conic section to form a hexagon, as  $abcdef$ , then the lines joining opposite vertices,  $lmn$ , intersect at a single point.<sup>932</sup> The relationship between these two theorems can best be seen from an observation made by Florimond de Beaune, a friend and student of René Descartes in the seventeenth century: a curve may be regarded both as the path of a moving point and as the envelope of a moving line.<sup>933</sup>

Pascal and Brianchon's theorems are examples of what is called the principle of duality in projective geometry. Whatever theorem can be proved about points and lines has a dual or reciprocal theorem about lines and points, where lines and points are interchanged, a fact that fascinated me as a mathematics undergraduate in the early 1960s. Of course, the principle of duality applies not only in two dimensions. For instance, the tetrahedron is self-dual as the stella octangula, depicted on page 103, and the great stellated dodecahedron, discovered by Johannes Kepler in 1619 in *The Harmony of the Universe*, and the great icosahedron, discovered by Louis Poinsot in 1810, are duals of each other.

There are also pairs of opposites in the stored-program computer, corresponding to 'know that' and 'know how' in human beings, as the diagram of basic data processing illustrates on page 111. But how can information systems architects model these relationships in a comprehensive model of the psychodynamics of society, including the corresponding structures in computers. It is not too difficult for IS architects to develop integrated models of the relationships between the basic entity types in an enterprise, such as customers, products, and deliveries, and between the processes that deal with these entities, such as manufacturing, ordering, and invoicing. But in a language like APL, functions, as active data, can be dynamically created from strings, as passive data, and vice versa, as we saw on page 111. How, then, can such transformations taking place in nanoseconds be modelled in information systems models? We need to be able to do this if we are to intelligently manage our business affairs with full consciousness of what we are doing.

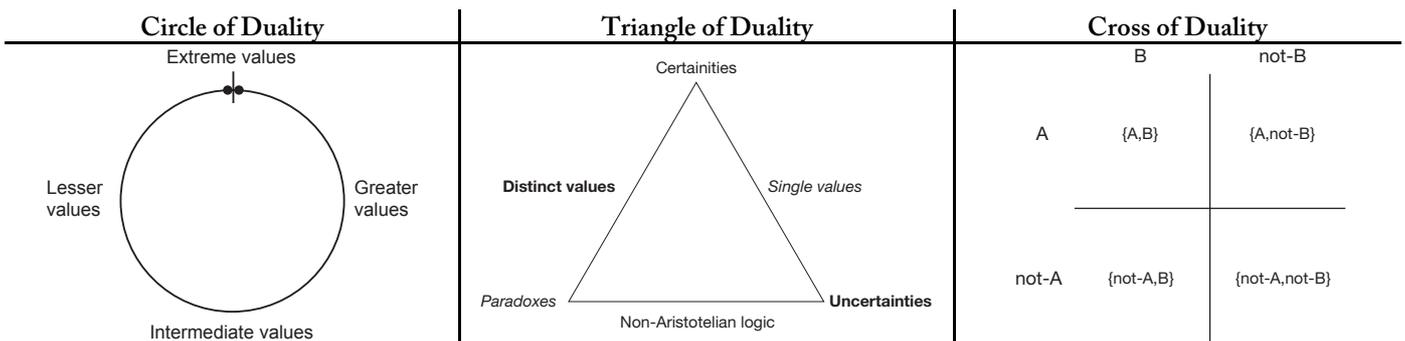
IRL solves this problem by generalizing the principle of duality in inversive and projective geometry, succinctly described in *Geometry Revisited* by H. S. M. Coxeter and S. L. Greitzer.<sup>934</sup> The **Principle of Duality** in IRL is proposition D, stating: *A complete conceptual model of the Universe consists entirely of dual sets.* But is D true? Well, sometimes yes and sometimes not. For instance, a collection of entities without a common attribute do not form a set, which we usually call miscellaneous, not unlike the set formed from the axiom of choice in mathematics. But now something quite incredible happens!



Those occasions when D is false are opposite to those occasions when D is true, confirming that D is true. In the terms of Hegel’s dialectical logic, if ‘D is true’ is the thesis and ‘D is false’ is the antithesis, then ‘D is true’ is the synthesis. There is thus a **primary-secondary relationship** between the truth and falsity of the Principle of Duality, illustrated in this diagram. So it is impossible to deny the truth of the Principle of Duality, for any denial confirms its veracity. D is thus a self-verifying proposition, true in all possible worlds, an

instance of a class in IRL with general attributes  $A$  and  $\sim A$ , called **Paradox** or **Self-contradiction**.

The Principle of Duality lies in the ontological level of IRL, beneath the epistemological level, because it describes what we can say about all beings prior to interpretation. There are three other significant ways in which opposites relate to each other, depicted as the **circle**, **triangle**, and **cross of duality**, shown here:



The circle of duality enables us to model all shades of grey, not only black or white situations at the extremes of a range of values. An example of this model is political systems, with totalitarian regimes at the extremes, the left and right being communism and fascism, respectively. Opposite to these poles, which join at the top, is liberalism, from the Latin *liber* ‘free’, anathema to the Republican Party and Bible Belt in so-called free America, where the interests of the individual and society are in balance. In between, we have socialism and conservatism, on the left and right, respectively. This is a model of political systems taught to me in a general studies lesson at school as a sixteen-year-old by an active member of the British Liberal party, as it was then, who also happened to be a cleric.

The triangle of unity encapsulates the three different ways that opposites can relate to each other: certainties (either-or), uncertainties (neither-nor), and paradoxes (both-and), the last of these being the most fundamental, encapsulated in the Principle of Duality.

The cross of duality enables us to model two or more pairs of opposites in two or more dimensions. An obvious example is Carl Jung’s *Psychological Types*, his first major work in 1921, after what he called his ‘fallow period’ the previous decade. Jung first defined the two attitude types of extroversion and introversion, which are relating types, distinguishing how subjects and objects relate to each other. He then defined four function types in two pairs: rational (thinking and feeling) and irrational (intuition and

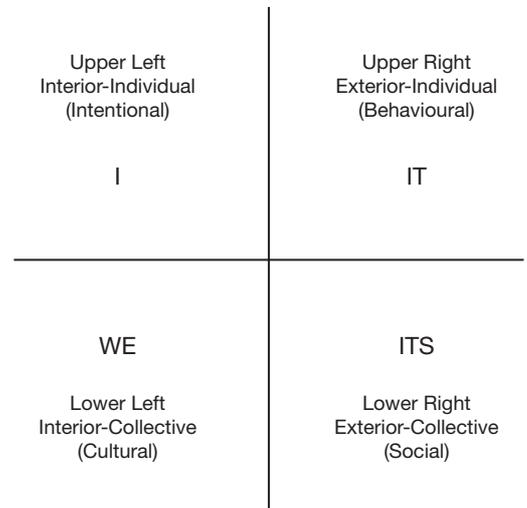
sensation).<sup>935</sup> The function types thus form a two-dimensional cross of duality, like the intrinsic structure of mandalas. Then, when we add the attitude types, we form a three-dimensional cross of duality.

During the Second World War, Katharine Cook Briggs and her daughter Isabel Briggs Myers then added a fourth dimension to the cross of duality, which they call the lifestyle dimension, consisting of judging and perception, which Jung regarded as synonyms of the pairs of the function types. They thus formed the popular Myers-Briggs Type Indicator (MBTI), which is a psychometric questionnaire designed to measure and assess psychological preferences in how people perceive the world and make decisions.<sup>936</sup>

However, Jung, himself, did not further develop his theory of personality types other than to distinguish *ego* and *Self* in the 1960 German edition of *Psychological Types*. Like in the 1921 edition, Jung defined ego as “a complex of ideas which constitutes the centre of my field of consciousness and appears to possess a high degree of continuity and identity.” Then in the final edition, he gave this definition of *Self*: “The self designates the whole range of psychic phenomena in man. It expresses the unity of the personality as a whole. ... The self as psychic totality also has a conscious as well as an unconscious aspect. ... When it represents a *complexio oppositorum*, a union of opposites, it can also appear as a united duality, in the form, for instance, of *tao* as the interplay of *yin* and *yang*.”<sup>937</sup>

Jung must therefore have shared the view with Anthony Storr that while the concepts of extrovert and introvert have proved useful, the “further classification of types is one of Jung's least satisfactory contributions”.<sup>938</sup> For in the second half of Jung's life, the central theme was on the union of opposites in the process of individuation, formally defined in *Psychological Types*,<sup>939</sup> not with egoic identification with one side of a pair, excluding the other.

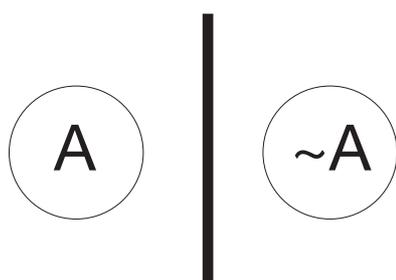
Another notable example of a two-dimensional cross of duality is Ken Wilber's four-quadrants model, introduced in *Sex, Ecology, Spirituality* in 1995, depicted in this diagram from *Integral Spirituality* in 2006. Here, the two dimensions are interior and exterior and individual and collective, originally social. The exterior quadrants are labelled ‘It’ and ‘Its’ (both originally ‘It’), while the individual and collective interior quadrants are called ‘I’ and ‘We’, respectively.<sup>940</sup>



This model forms the core of what Ken calls AQAL, mentioned on page 132, the basis of his Integral Operating System (IOS). We can thus see that AQAL is just a small part of Integral Relational Logic, not all-inclusive at all.

**Transforming either-or thinking into both-and**

To clarify how we can use the Principle of Duality in IRL in our healing individuation processes, transforming conflict-ridden, either-or thinking into a peaceful, both-and way of life, it could help to



look at three psychological views of opposites. These we can call dualism, duality, and Nonduality or dualistic, dual, and Nondual, in adjectival terms.

Dualism is illustrated in this diagram, which shows two opposites, *A* and *~A* (not-*A*) with a thick wall between them, where *A* is any being whatsoever, rather like the way *x* represents a number in mathematics. In

a dualistic approach to life, there is thus a separation between opposites. In Western philosophy, dualism most commonly means mind-body dualism, following René Descartes' view of himself as a dualistic machine, quoted on page 28.

But dualism is far more pervasive than this. Most particularly, there is one dualism that is fundamental to Western civilization because it underlies all the others. This dualism arises because all the monotheistic religions regard God as other, the first pillar of unwisdom, defined on page 14. As F. C. Happold tells us, "To Jew, Christian, and Moslem, a gulf is felt to exist between God and man, Creator and created, which can never be crossed. To assert that 'Thou' art 'That' [as the Hindus do] sounds blasphemous".<sup>941</sup> And as Elaine Pagels tells us, "Even the mystics of Jewish and Christian tradition who seek to find their identity in God often are careful to acknowledge the abyss that separates them from their divine Source".<sup>942</sup>

Because the Abrahamic religions teach that we human beings are separate from the Divine, each regards itself to be exclusive, denying the validity of other people's faiths. The most obvious example is the Judaic belief that the Israelites were God's chosen people, a notion that Christians in the emerging United States of America adopted in the seventeenth and eighteenth centuries, as a documentary series *God in America* tells us.<sup>943</sup> Today, Muslims regard Islam as the one true religion, *in extremis* being willing to kill for their beliefs. Indeed, today's wars between Sunnis and Shias in the Middle East have their counterpart in the Thirty Years' War between Catholics and Protestants in the seventeenth century, most noticeably continuing in Ireland in the twentieth.

We can thus most clearly see our dualistic behaviour when countries go to war. When each country believes that God is on their side, they are unable to see the point of view of the people they regard as the enemy. An obvious example of this is the phrase, "God bless America," with which American presidents often end their speeches. Why not "God bless everybody"? Doesn't everyone on this planet deserve God's blessings, whatever they might be?

Yet there is an alternative to war, which we can illustrate with a well-known psychological test. An infant is first shown a card painted yellow on one side and blue on the other. Then the card is held in front of the infant so that she or he can see only the blue side, with the yellow side facing the tester. The tester then asks the infant, "What colour can I see?" At six years of age, the infant generally answers 'blue'. He or she cannot see the other's perspective. Yet at about eight years of age, the answer is 'yellow'. The infant has grown into childhood.

So can Western civilization, in particular, and the human race, in general, grow out of infancy into childhood and thence into full maturity as a community of divine, liberated, conscious, loving beings? The first step in becoming free of these divisive beliefs is to remove the barriers that we erect between opposites, illustrated in this diagram, depicting duality, which we can call a nondualistic or dual approach to life. Indeed, duality and dualism are opposites, which can be represented in the Principle of Duality, showing a primary-secondary relationship between them.

We can best see this relationship in the esoteric and exoteric religions, summarized in this table. Religionists engaged in interfaith dialogue tend to favour an inclusive, both-and approach to an exclusive, either-or one. While egoically holding on to their separate identities, many are able to see essentially the same underlying ancient wisdom in their different approaches.

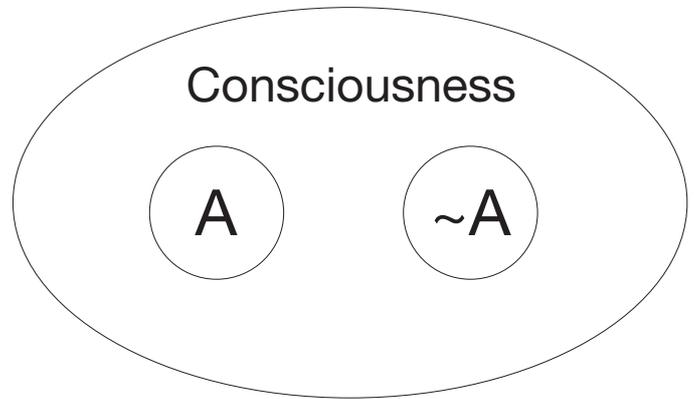
Esoteric	Exoteric
Advaita	Hinduism
Zen	Buddhism
Taoism	Confucianism
Kabbalah	Judaism
Gnosticism	Christianity
Sufism	Islam

In duality, while each of us has a unique perspective on life, which we have acquired through our unique life experiences, we are able to see that what applies to us as individuals also

### *Unifying Polarizing Opposites in Nondual Wholeness*

applies to others. Being thus able to see both sides of any situation is a clear sign of natural intelligence, often stultified by an education system based on dualism. In particular, if  $A$  represents any particular human being and  $\sim A$  any other human being, the union of the two is wholeness, with no division between them.

This is as far as many people take the union of opposites today, focused primarily on the ever-changing relativistic world of form. However, the Principle of Unity tells us that we cannot separate *samsāra* 'journeying cycle of life and death' from *Brahman* 'Eternal Absolute' or *Shūnyatā* 'Emptiness', in Hindu and Buddhist terms, respectively. By taking the process of unifying all opposites to the ultimate level of abstraction, we can thus realize that Nondual Consciousness, as a seamless, borderless continuum, encompasses all opposites, illustrated here. We can then see that in Nonduality or Wholeness, there are no others; Wholeness is our True Nature, Authentic Self, and Genuine Identity, embracing us all with Love, Intelligence, and Consciousness. By thus realizing that we are Divine creatures having unique mystical human experiences, rather than human beings having a mystical experience, we could live peacefully at the end of time.



However, adopting a Nondual approach to life is by far the greatest challenge facing humanity today, far more challenging than sending astronauts to Mars, for instance. For by intelligently invoking the Principle of Unity at every moment of every day, we awaken to full mystical awareness, where there is no separation between individual consciousness and Consciousness itself. But, as yet, such Self-realization is still a fairly rare occurrence, especially in the West, governed by the seven pillars of unwisdom.

Living in Nondual Consciousness, we find the question that has no answer and the answer that has no question, for there are no longer any divisions between opposites, including questions and answers. Similarly, all problems disappear, because there is no separation between problems and solutions either. There is then Peace, perfect Peace, for there is nowhere to go, nothing to achieve. We have returned Home to Wholeness, realizing that we have never left Home for an instant.

### ***Transcending the categories***

To clarify this crucial point, there is one more step that we need to take in order to explicitly map the entire Totality of Existence. We need to include the concept of Wholeness in IRL. For so far, IRL has just been mapping structures in the relativistic world of form. But if it is to be complete, it must also include its opposite: the Formless Absolute. Now, while the Absolute is inaccessible to our five physical senses of sight, hearing, taste, smell, and touch, we can nevertheless feel its Presence, which we can also call Akasha, the quintessence of the Universe, as we saw on page 135.

However, there is much confusion around this subject among physicists. For instance, Danah Zohar describes the zero-point field underlying the physical universe as a quantum vacuum, the 'well of being'.<sup>944</sup> This is not unlike the Buddhist concept of *shūnyata* 'emptiness or void', which has led many, including some spiritual teachers, to say that quantum physicists were becoming mystics. However, she goes on to say, "The quantum vacuum is very inappropriately named because it is not empty. Rather, it is the basic, fundamental and underlying reality of which everything in this universe—including ourselves—is an expression."<sup>945</sup> Another physicist, Mark Comings, has similarly said, "This Quantum Vacuum is more

aptly named the Quantum Plenum,”<sup>946</sup> the Latin neuter of *plenus* ‘full’. He associates the quantum plenum with space, which he says has virtually unlimited potential locked up within it.<sup>947</sup>

However, it is vitally important not to be confused by the parallels between quantum physics and Eastern mysticism, which Fritjof Capra studied in the mid 1970s in his best-selling *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*. For Reality is neither space nor time. As we see in this subsection, Reality, as the union of all opposites, is both Emptiness and Fullness.

To see how such a comprehensive worldview emerges, we can call the Absolute prior to interpretation the Datum of the Universe, the most fundamental primal concept defined on page 135, enabling us to complete our model of the Universe at the beginning, thereby unifying the Alpha and Omega Points of evolution. In conformity with the egalitarianism of IRL, we must thereby form the concept of the Absolute in exactly the same way as we form concepts in the relativistic world of form; by carefully observing the similarities and differences in the data patterns of our experience, the simple way of bringing our thoughts into universal order, as described on page 139.

To do this, in conformity with the Principle of Duality, we need to look at the Absolute in terms of two pairs of opposites: conceptually and experientially and as both a unity and an aggregate, a two-dimensional example of the Cross of Duality, which cannot be avoided when we approach Ultimate Reality from the relativistic world of form. Viewing the Absolute conceptually as a unity, we can see that it differs from all its parts, for all these parts are limited in some way. In contrast, the Datum cannot be defined, for to do so would be to give it boundaries, to say what it is and what it is not. This is obvious from the word *define*, which comes from the Latin *dēfinīre* ‘to limit’ or ‘to end’. The Absolute is thus indefinable and unanalysable, qualities that are transcendent with respect to a knowing being.

On the other hand, when we view the Absolute as the Totality of Existence, we can see that the assembled structure of all its parts is exactly the same as the structure of any of its parts, for the Universe has an underlying, unified structure, independent of and prior to interpretation by a knowing being, as we see on page 144. The relationships that form this web of life lie within everything there is; they are the glue that holds the entire Universe together. From this perspective, we can say that the Absolute possesses the property of immanence with respect to all beings in the relativistic world of form, with meaningful relationships being the motive power of the Universe.

If we now feel into the Absolute experientially, through meditation and self-inquiry, we discover that the Essence of the Universe is Stillness or Emptiness, resulting in the exquisite sense of Nondual Love and Peace, which has no opposite. We are now in union with the Divine, in Oneness, in a state of Unity Consciousness. From this perspective, the Divine is immanent.

Conversely, if we feel into the Cosmos as a coherent aggregate of all its parts, we can experience the Universe simply as a web of relationships, like a mathematical graph, whose nodes consist of meaningful relationships between forms. Then as we sink ever deeper into ourselves, passing through infinite levels of structure, we approach the Transfinite, as all these nodes become singularities between relationships. Then, as we dissolve even further in an involutory process, even these relationships disappear, and we are left with the magnificent feeling of translucent Wholeness, Fullness, or Cosmic Consciousness, which is transcendent with respect to any knowing being.

In summary, there are two pairs of dual ways in which we can understand and experience the Absolute, given in this table, thus systemically establishing God as a rational and hence scientific concept.

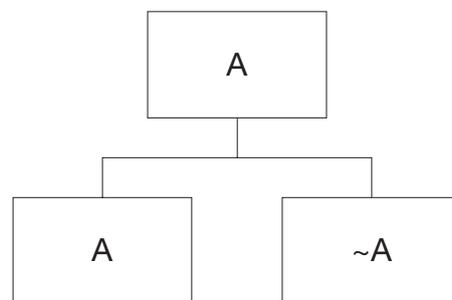
	Oneness	Wholeness
Conceptual	Transcendent	Immanent
Experiential	Immanent	Transcendent

*Unifying Polarizing Opposites in Nondual Wholeness*

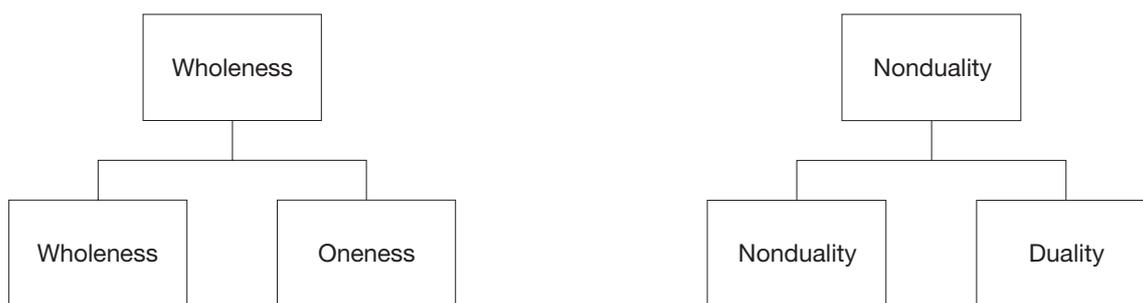
By including the Absolute Whole in IRL, the Principle of Duality becomes the **Principle of Unity**, which can be elegantly expressed in just seven words—*Wholeness is the union of all opposites*—or six mathematical symbols:  $W = A \cup \sim A$ , where  $W$  means Wholeness,  $A$  any being whatsoever,  $\cup$  union, and  $\sim$  not. From the perspective of Wholeness, opposites, also called dualities or polarities, cannot be separated; they are mutually dependent on each other. The Principle of Unity is thus the fundamental design principle of the Universe, lying in the mezzanine level of the foundations of all knowledge, between the ontological and Gnostic levels.

We know that the transcultural, transdisciplinary Principle of Unity is the power that brings the Cosmos into order because there is overwhelming evidence today from mathematics, physics, psychology, and mysticism that the Universe is inherently paradoxical. To reflect this observation, the both-and Principle of Unity expresses this irrefutable, universal truth in the simplest possible terms—the closest we can get to expressing the Ineffable, Nondual, Absolute Truth in symbolic form, although it would perhaps be better to say *signate*, to distinguish what Carl Jung called signs and symbols, symbols having a profounder meaning than signs.<sup>948</sup> For the virtually meaningless equation  $W = A = A \cup \sim A$  is applicable within all domains of discourse, before we interpret the data patterns of our experience as meaningful information and knowledge.

We can see that the Principle of Unity is a self-verifying, self-contradicting proposition with this diagram, the most general way of depicting this universal principle. Applying Hegelian logic, if  $A$  is the thesis and  $\sim A$  the antithesis, then  $A$  is the synthesis, a primary-secondary relationship that is ubiquitous.



The left-hand diagram below shows that even Absolute Wholeness has an opposite: Absolute Oneness. This diagram illustrates the relationship between spiritual seekers returning Home to Paradise by healing the fragmented, split mind with a translucent Supermind—expressible in the language of mathematics and computer science—and those coming into union with the Divine with No-mind—traditionally expressed in music and (as perennial or ancient wisdom) in mystical poetry, such as that of Rumi and Kabir.



And the right-hand diagram illustrates the primary-secondary relationship between the Formless Absolute Whole and the relativistic world of form, enabling us to view our daily lives from a holistic God’s perspective, rather than from a narrow egoic or even anthropocentric point of view. As *Wholeness* and *Nonduality* are synonyms, the introductory diagram on page 7 shows how the above diagrams merge.

Although Heraclitus said “People do not understand how that which is at variance with itself agrees with itself,”<sup>949</sup> this universal truth is not entirely unknown in the West. In 1437, when returning from a visit to Greece at the bidding of Pope Eugene IV, Nicholas of Cusa (1401–1464) had a profound mystical experience, which informed his life thereafter. Three years later he wrote *On Learned Ignorance*, saying in the dedicatory letter to Lord Cardinal Julian that he had had “what I believe was a celestial gift from the

Father of Lights, from whom comes every perfect gift, [when] I was led to embrace incomprehensibles incomprehensibly in learned ignorance, by transcending these incorruptible truths that can be humanly known.”<sup>950</sup>

In the same letter, Nicholas went on to say, “These profound matters should be the subject of all effort of our human intelligence, so that it may raise itself to that simplicity where contradictories coincide.” Although Nicholas is noted for introducing the term *coincidentia oppositorum* ‘coincidence of opposites’ as a way of approaching the Divine, he did not actually use this term in his initial treatise. Rather, he began to use both terms ‘coincidence of opposites’ and ‘coincidence of contradictories’ in *On Conjectures* in 1441–2, further expanded *On the Vision of God* in 1453, written five years after being made a cardinal.

However, there is no need to study Nicholas’ struggles to understand his mystical experiences any further. For there was no conceptual framework to fully understand humanity’s relationship at the time, Nicholas beginning by comparing the Divine with a rather primitive mathematical notion of maximum.

On the other hand, Carl Jung began to make giant strides towards such an understanding in 1942 in a talk titled ‘A Psychological Approach to the Dogma of the Trinity’. But rather confusingly, he originally used the term *complexio oppositorum*, which Nicholas of Cusa did not use, when saying that the Holy Ghost is a union of opposites.<sup>951</sup> Then in *Psychology and Alchemy*, when analysing a dream, Jung wrote, “The self is made manifest in the opposites and in the conflict between them; it is a *coincidentia oppositorum*. Hence the way to the self begins with conflict.”<sup>952</sup>

In 1946, in ‘The Psychology of the Transference’, published in the sixteenth volume of the *Collected Works* titled *Practice of Psychotherapy*, Jung showed that such conflicts of opposites, lying deep in the collective unconscious, are resolved in Wholeness.<sup>953</sup> This is at the heart of what Jung called the process of individuation, from Medieval Latin *individualis*, from Latin *individuus*, from *in-* ‘not’ and *dividuus* ‘divisible’, from *dividere* ‘to divide’.

In the Principle of Unity, we have thus found the true Philosopher’s Stone—*lapis philosophorum* in alchemy, where the term originated—often referred to as just the Stone. For the spiritual goal of alchemy is Wholeness, as the union of opposites, including the androgynous union of *Sol* and *Luna*, male and female, called *coniunctio*.<sup>954</sup> Similarly, we can regard the Principle of Unity as the Holy Grail, regarding this medieval legend as a symbolic search for something that has been lost from human consciousness, buried deep in the Cosmic unconscious.

The most obvious result of conducting the thought experiment outlined in these pages is that individual consciousness expands and deepens to such an extent that it becomes coterminous with Consciousness itself, as already mentioned. For *conscious* derives from Latin *cum* ‘together with’ and *scire* ‘to know’, also the root of *science*, the way of developing knowledge through analysis. In contrast, art is a synthesizing activity, putting back together what science has divided, as we see from the root of *art* on page 125. So IRL is both the art and science of thought and consciousness, integrating and unifying the differences that the analytical mind discerns, which is how Latin *scientia* ‘knowledge’ evolved from its PIE base. So *consciousness* is an oxymoron, embodying opposites in its etymology, like *preposterous*.

The notion of Consciousness as a seamless, borderless continuum with no divisions anywhere is virtually unknown in the West. However, recognizing Consciousness as Ultimate Reality also enables us to complete David Bohm’s unification of quantum and relativity theories, as described on page 55.

In IRL, the holomovement or river of life in the horizontal dimension of time becomes the vast Ocean of Consciousness, which we can visualize as a ball of water with infinite radius, which psychologists like Sigmund Freud and Stanislav Grof have talked about in their writings. To give this ocean some structure,

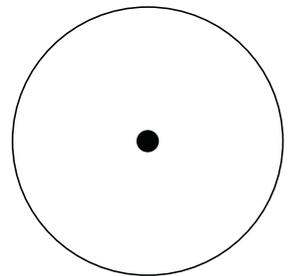
we need to visualize it with a finite diameter, with the surface then representing the physical universe, the waves and ripples accessible to our physical senses. But beneath the surface lies the Cosmic Psyche, the 99% of the Universe where all knowledge, wisdom, and joy dwell, as described in Kabbalah. And at the very centre of the Ocean of Consciousness is the Origin of the Universe, the Divine Source of Life, giving rise to all forms in the manifest universe.

### **1-2-3-4-5**

It is convenient here to summarize the relationships between one, two, three, four, and five, the numbers that have provided the basis for monadic, dyadic, triadic, tetradic, and pentadic cosmologies over the years, the Greek suffix *-adic* indicating ‘of or relating to a group’. For as we trace the path from one to five, we find that we end at the beginning, once again illustrating the incredible elegance and simplicity of the Cosmos.

Beginning, as always, with the Absolute, we can denote this as the *One*, which the Neoplatonist Plotinus regarded as the most fundamental of three hypostases, the others being Soul (*psūkhē*) and Intelligence (*nous*).<sup>955</sup> *Hypostasis* derives from Greek *ὑπόστασις* ‘foundation, essence, substance’, from *ὑπό* ‘under’ and *stasis* ‘standing, position, state’, from PIE base *\*stā* ‘to stand’. Plotinus developed the foundations of his cosmology from the ancient Greeks, especially Plato, of course, and Pythagoras.

Indeed, Pythagoreans regarded the monad as a fundamental concept, from Greek *monas* ‘unit’, from *monos* ‘alone’, cognate with *monk*. However, the Pythagorean meaning of *monad* is open to various interpretations. Some say that monad is “an elementary individual substance that reflects the order of the world and from which material properties are derived”.<sup>956</sup> As such, it is similar to the concept of atom. Monad could also be “the name of the beginning number of a series, from which all following numbers are derived”.<sup>957</sup> In this instance, monad is the number one. In yet another interpretation, according to the Pythagoreans, monad was a term for God or the first being, or the totality of all beings. Monad being the Source or the One without division.<sup>958</sup> This diagram is the Pythagorean symbol for monad, well illustrating the way that the Formless One, as the Divine, expands into the entire world of form.



Nevertheless, these various interpretations show the confusions that can arise when we do not clearly distinguish the Formless Absolute from the relativistic world of form. Leibniz took this latter form of monadology to its utmost extreme. To Leibniz, as a system builder, a monad is a basic building block, a single, indivisible, elementary unit, denoting ‘substance’, literally ‘that which stands under’. Monads are infinitely numerous. “They do not occupy space but are unextended spiritual things. ... God is a monad; so is each human soul; so are all the ultimate constituents of the world.”<sup>959</sup> But curiously, “no two monads can ever have any causal relation to each other,” as Bertrand Russell, a leading authority on Leibniz tells us. Monads are ‘windowless’, as Leibniz expressed it, having no causal relationship to any other, taking the deluded Western mind’s belief in separated beings as far as it can be taken.<sup>960</sup>

From the solid foundation of the One, let us now see how we can generate the next few numerical cosmologies in turn, a process that has been written about before. For instance, according to Diogenes Laërtius, the second-century CE biographer of the Greek philosophers, “from the monad evolved the dyad; from it numbers; from numbers, points; then lines, two-dimensional entities, three-dimensional entities, bodies, culminating in the four elements earth, water, fire and air, from which the rest of our world is built up.”<sup>961</sup> This is very similar to a Taoist worldview, for Lao Tzu wrote:

*Tao gave birth to one,  
One gave birth to two,  
Two gave birth to three,  
Three gave birth to all myriad things.*

*All the myriad things carry Yin on their back and hold the Yang in their embrace.*<sup>962</sup>

We now come to the trickiest step in understanding how the Cosmos is designed. In a bifurcating process, the One, as the Formless Absolute, gives rise to the relativistic world of form, which is never actually separate from the One. As the *Mandukya Upanishad* expresses it, Brahman and Atman are One. So the fundamental dyadic cosmology is essentially the same as the monadic one. To avoid thinking of the One as the first in a series of numbers, in the ninth century, Shankaracharya (788–820), ‘one who brings blessings or confers happiness and welfare by example as a teacher’,<sup>963</sup> suggested that the One could be better denoted as *Advaita* ‘not-two’. As he said, “Liberation is not to be achieved through endless cycles of time by reading the scriptures or worshipping the gods or by anything else than knowledge of the unity of *Brahman* and *ātman*.”<sup>964</sup>

But Shankaracharya’s mystical teachings were misunderstood, as has happened so often in human history. Advaita was turned into a religion called Advaita Vedanta. *Vedanta* derives from *veda* ‘knowledge’, sharing a PIE base with *wise*, and *anta* ‘end’, both words also having the same PIE base. Vedanta is thus the conclusion of the *Vedas* as contained in the *Upanishads*. But by making Vedanta a religion, its either-or opposite can also appear, denying the both-and mystical Truth of Advaita, which is Nonduality. Indeed, this is exactly what happened in the thirteenth century. Madhva (1199–1278) formed Dvaita-Vedanta, taking Advaita-Vedanta to its utmost opposite, asserting “that God and the individual soul are eternally separate and the world is not an illusion (*māyā*) but reality”,<sup>965</sup> essentially a Western worldview.

Madhva thus went even further than Ramanuja (c. 1055–1137), who had formed Vishishtadvaita-Vedanta ‘qualified nondualism’, attempting to reconcile the Divine with the world of form, from *vishishta*, derived from *vishesha* ‘particularity, specificity’. Ramanuja espoused the view that God, as Brahman, is real and independent, but emphasized that individual souls and the world are equally real but not independent.<sup>966</sup> Ramanuja thus attempted to address a problem that arises from pure Advaita, as taught by Ramana Maharshi and his successors during the last century. For while Advaita, on its own, can lead to Ultimate and Absolute Understanding, it does not lead to Total Understanding, which is needed if we are to intelligently manage our practical business affairs with full consciousness of what we are doing.

To live in love, peace, and harmony with each other and our environment, we can use the Principle of Unity to unify Advaita, as the thesis, and Dvaita, as the antithesis, in Advaita, as the synthesis. We have now moved from two to three, showing that triadic, dyadic, and monadic cosmologies are all essentially the same. The Third is thus a mediator between the Second, which is a reaction to the First, in Peirce’s triadic logic, mentioned on page 45.

Of course, many other triadic cosmologies have been developed over the years, for the numbers one, two, and three dominate our thinking. Indeed, in some societies, it is not necessary to count any further; one-two-three-many is quite sufficient. For instance, in Hinduism, the Formless Brahman has three forms (*trimūrti*), with *Vishnu*, as the maintainer, being the mediator between *Shiva* ‘the destroyer’ and *Brahma* ‘the creator’. As mentioned on page 123, Islam has a similar notion of triadic deities, making one wonder why Hindus and Muslims have fought so many Holy wars with each other over the years.

Of course, in Western civilization, the Christian Trinity of God as Father, Son, and Holy Spirit is paramount. So just as Nonduality is the union of Nonduality and duality, we could say that the Holy

Spirit is the union of the Father and the Son, with no separation between any of them. However, not all Christians take the same view of the Trinity. There are three basic positions:

1. Gnostics say that everyone is Divine.
2. Catholics believe that only Jesus was Divine.
3. Arians assert that no human is Divine.

We saw in Section ‘The Great Taboo’ on page 10 how the founding fathers of the Roman Catholic Church suppressed the teachings of the Gnostics at the Council of Nicaea in 325. However, at the same Council Athanasius vehemently opposed the third Arian doctrine, as he did the primary Gnostic one. The Arian doctrine arose from a fourth century Alexandrian priest named Arius. Arius took the opposite view to the Gnostics, saying that *no one*, not even Jesus, is identical with God. To Arius, God is transcendent with absolute sovereignty,<sup>967</sup> a complete split between humanity and the Divine. In Arian theology, human beings, including Jesus, are creatures, encapsulated in the slogan *ēn pote hote ouk ēn* ‘there was once a time when he was not.’<sup>968</sup> So after the Nicene Creed said that Jesus Christ was the *only* begotten Son of God, it went on to say that he was “begotten, not made, being of one substance.”

Today, in our materialistic world, we primarily think of substance as matter, “that which has mass and occupies space”. However, this is not the original meaning of the word, which has a Latin root *substantia* ‘essence, substance’, from *substāre* ‘to be present, to stand firm’, from *sub-* ‘under’ and *stāre* ‘to stand’, from PIE base *\*stā*. So *substance* has the same etymological structure as *hypostasis*, originally meaning ‘essential nature’, beneath the surface of the physical universe accessible through the senses.

The belief that Jesus alone is Divine is expressed in the Christian doctrine of Homoousion ‘one substance’, also spelled *homoousian*, especially in adjectival form, from Greek *ὁμοουσios* ‘same essence’ or ‘one substance’, from *ὁμος* ‘same’ and *ουσιᾶ* ‘being, essence’, feminine present participle of *einai* ‘to be’. In Christian theology, *Homoousian* denotes ‘the divine nature or essence of which the three Persons of the Trinity (Father, Son, and Holy Spirit) are one’, the Trinity being the inner nature of the Godhead.<sup>969</sup> The word *Homoousian* was intended to rebuff the Arian heteroousian doctrine, from *ἕτερος* ‘different’, and the semi-Arian homoiousian doctrine, from *ὁμοιος* ‘like, similar’.

The word *ουσιᾶ*, meaning the Divine Essence underlying the relativistic world of form, appears in other ways in Greek cosmology. For instance, Plato used *parousiā* to distinguish Forms and particulars, by saying that the former have presence, while the latter ‘share in’ or ‘partake of’ the Form, from the Greek *metechein*,<sup>970</sup> *metecho* also meaning ‘enjoy with others’. Greek *parousiā* ‘presence, arrival, right time, official visit’ derives from Greek *para* ‘beside, near, alongside, beyond’, from PIE base *\*per-*, also root of Latin prefixes, *pro-* ‘before, in front of; for’ and *præ-* ‘before’, becoming *pre-* in English. *Parousia* is thus formed from the same PIE bases as Latin *præesse* ‘to be present’, giving *Presence* ‘before being, prior to existence’.

However, it is most important here not to confuse *parousia* as the Formless Presence with Forms, as Plato did. As he said, those who only see instances of universals are dreaming, while those who see both the essence of beauty, for instance, and the particular things that share in it are very much awake.<sup>971</sup> But universals are classes in IRL, corresponding to classes in object-oriented programming languages and modelling systems. To understand the true meaning of *parousia*, it is necessary to transcend the categories.

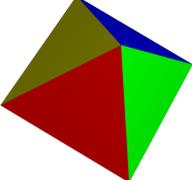
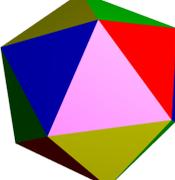
This is an opportune moment to resolve another confusion around the word *Parousia* in Christian theology, where it means the ‘Second Coming or Advent of Christ’. In ancient Greece, “the main use [of *paraousia*] is the physical presence of a person, which, where that person is not already present, refers to the prospect of the physical arrival of that person, especially the visit of a royal or official personage and sometimes as an extension of this usage, a formal ‘occasion’.” This is the sense that *parousiā* is used in the

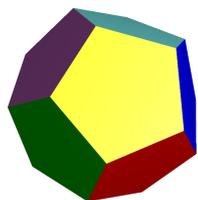
Greek New Testament, seventeen out of twenty-four uses referring to the second coming of Christ. But, of course, this is not going to happen, for the Trinity is present within every human being, not just Jesus of Nazareth.

But why stop at three? In ‘A Psychological Approach to the Trinity’, Carl Jung wrote, “The *Timeous*, which was the first to propound a triadic formula for the God-image in philosophical terms, starts off with the ominous question: “One-two-three—but ... where is the fourth?” “As compared with the trinitarian thinking of Plato, ancient Greek philosophy favoured thinking of a quaternity type. In Pythagoras the great role was played not by three but by four; the Pythagorean oath, for instance, says that the tetraktys ‘contains the roots of eternal nature’.”<sup>972</sup>

Jung raised this opening question because he regarded the concept of quaternity as a fundamental archetype, influenced by Buddhist mandalas and corresponding alchemical structures, as much as by Pythagoras. However, as he said, in Christianity, “The idea of a quaternity of divine principles was violently attacked by the Church Fathers when an attempt was made to add a fourth—God’s ‘essence’—to the Three Persons of the Trinity.”<sup>973</sup>

Despite what Jung saw as the similarities between the Christian Trinity and Plato’s division of the soul into three, in *Timeous*, Plato did, in fact, form tetradic and pentadic cosmologies from the triadic. It seems that it was Plato who first called fire, air, earth, and water elements, associating these four elements with the four regular convex polyhedra<sup>974</sup> discovered by the Egyptians,<sup>975</sup> as the table below shows, the second row being the symbols that the Greeks used for these basic constituents.<sup>976</sup>

Fire	Air	Earth	Water
			
Tetrahedron	Hexahedron	Octahedron	Icosahedron
			



But how could the fifth so-called Platonic solid—the dodecahedron discovered by the Etruscans<sup>977</sup>—fit into this model? Well, Plato suggested that this fifth construction is associated with the Cosmos, with that “which the god used for embroidering the constellations on the whole heaven.”<sup>978</sup> Aristotle associated the dodecahedron with *aither* ‘pure, fresh air’, in Latin *aether*, “the pure essence where the gods lived and which they breathed”.<sup>979</sup> The aether was thus the fifth element or *quintessence*, from the Latin translation of *pempta* ‘fifth’ and *ousiā* ‘being, essence’, “thought to be the substance of the heavenly bodies and latent in all things”.<sup>980</sup> We have thus returned to the Formless Foundation of the Cosmos, denoted by *Akasha*, described on page 135 in Section ‘Starting afresh at the very beginning’.

### **Unifying science and mysticism**

To summarize this section on IRL, here is a one-page essay I wrote in November 2009, in preparation for attending a one-day conference in London titled ‘Infinite Potential: The Legacy of David Bohm’ organized by the Scientific and Medical Network.<sup>981</sup> In the event, this was a rather disappointing event, for while the word *wholeness* was mentioned a few times, *fragmentation*, the fundamental problem facing

humanity today, as Bohm pointed out, was conspicuous by its absence. So there is still much work to do to honour his legacy.

By applying the Principle of Unity to all our learning activities, we can see that while ending the long-running war between science and religion is incredibly simple, it is far from easy. For if it were easy, it would have happened long ago. For aren't Love and Peace what nearly every one of us longs for more than anything else in the world?

We can begin to heal this deep wound in the human psyche by noting that God and Universe are the incompatible contextual concepts for religion and science, respectively. So what is God and what is the Universe? No one has ever seen either God or the Universe, as we might see a rose, for instance. So what are they?

Well, the concept of the Universe is essentially a composite one, built up by aggregating and projecting the concepts of our day-to-day experience, most commonly focusing attention on what we can sense with our five senses, leaving our thoughts, feelings, and emotions out of the overall picture. On the other hand, the concept of God has arisen in human consciousness because many have sensed an immanent, transcendent Presence (literally 'prior to existence'), which cannot really be understood even in terms of feelings, never mind the physical senses.

It might seem from these perspectives of God and the Universe that it is impossible to find a common context for science and mysticism. But if we are willing to look afresh at our beliefs, then it is quite easy to discover that which we all share in common, no matter what our cultural background might be. It takes just six steps, a little like the pseudo-mathematical proofs that Baruch Spinoza (1632–1677) used in *The Ethics*, his study into the origin and nature of the mind and emotions in the context of his initial study into the Essence of God.<sup>982</sup> It is pertinent to note here that Bertrand Russell described Spinoza as “the noblest and most lovable of the great philosophers”, adding sardonically that “as a natural consequence, he was considered, during his lifetime and for a century after his death, a man of appalling wickedness.”<sup>983</sup>

1. John wrote in his first Epistle: “God is Love; and he that dwelleth in Love dwelleth in God, and God in him,”<sup>984</sup> words that Pope Benedict XVI took as the text for his first encyclical ‘*Caritas Deus Est*,’ published on 25th January 2006.<sup>985</sup>
2. The Sufi poet Rumi said, “Love is the sea of not-being and there intellect drowns,”<sup>986</sup> ‘not-being’ being *Anatman* in Buddhism. So as many people today are discovering in their own direct experience through meditation and other spiritual practices, Love is the immanent Divine Essence that we all share. They can thus say, “I am Love,” if they will.
3. Therefore, from (1) and (2), “God is me,” a statement that is true for all beings in the Universe, not only intelligent human beings.
4. In the collective, we can thus say, “God is the Totality of Existence”. There is not anything in existence that is not God.
5. But the Universe is the Totality of Existence.
6. Therefore, from (4) and (5), “God is the Universe,” a transcendent view of God simply expressed in *Consciousness Speaks* by Ramesh S. Balsekar, a former President of the Bank of India and an Advaita sage, in these words: “All there is, is Consciousness.”<sup>987</sup>

We can thus see that Love is the Divine Essence or Cosmic Soul that we all share and Consciousness is the Cosmic Context for all our lives, no matter where we might live, these Absolute qualities being Immortal, unlike our unique, personal souls, which so many identify with. If everyone on Earth could thus realize this Truth, there would be no more Holy wars or wars between science and religion. All this needs is for the monotheistic religions of Judaism, Christianity, and Islam to say, with the Hindus, for

instance, “*Tat tvam asi*” ‘That thou art’, and for the scientists to accept that Ultimate Reality is Consciousness, not the physical universe of our senses.

QED ‘Quite easily done’.

## **A holistic theory of evolution**

Having described Integral Relational Logic as the Cosmic Context, coordinating framework, and Gnostic Foundation for the Theory of Everything, it is now time to take a peek at panosophy, the all-inclusive, transdisciplinary discipline called the Unified Relationships Theory. The first point to note here is that the URT is at once open-ended, as the diagram on page 9 illustrates, and embraced by Ineffable, Nondual Wholeness. As there is nothing we can say about Wholeness and everything we can say about panosophy, we need to focus our attention on what is most relevant to humanity at these critical times we live in.

To this end, let us remember that IRL was formed to answer the most critical unsolved problem in science today: “What is causing scientists and technologists, aided and abetted by computer technology, to drive the pace of scientific discovery and technological invention at unprecedented exponential rates of acceleration?” However, concepts such as time and causality do not belong to the ontological foundations of IRL. Such concepts begin to appear in the epistemological level of the foundations, as we increase the semantic richness and cohesion of our mapmaking, leading to the URT itself.

Now, in IRL, we view the entire Cosmos as an information system, whose basic building blocks are **structure, form, relationship, and meaning**, four of the primal concepts in its formation. We can thereby explain what is causing the pace of change in society today to accelerate exponentially by recognizing that meaningful, structure-forming relationships, called fields in physics, are causal. There is no other possible source of power and energy than in relationships—whether they be physical or nonphysical—whose Ultimate Source is Life bubbling up from the Divine Origin of the Universe.

This notion of structural energy is not entirely unknown in physics. David Bohm regarded energy to be a property of structure, as mentioned on page 56. However, structural energy cannot necessarily be measured in joules or any other quantitative measure. For there is a primary-secondary relationship between semantics and mathematics. This means that when we convert our virtually meaningless form-relationship map of the universe into a coherent conceptual model through the egalitarian method of interpretation described on page 139, we can see that in the URT meaning is energy, a generalization of Einstein’s notion that mass is energy, further explained on page 49. In other words, the scientific belief in the equivalence of mass and energy is just a special case of the universal principle that meaningful, structure-forming relationships are causal.

The concept of synergy helps our understanding here, for it denotes that structural energy arises from the meaningful relationships between forms. For *synergy* derives from Greek *sunergos* ‘working together’, from *sunergein* ‘to cooperate’, from *sun-* ‘together’ and *ergon* ‘work’, cognate with *energy* ‘at work’, from *energeia* ‘activity, efficacy, effect’, from *energes* ‘active, busy, working’, from *en-* ‘at’ and *ergon* ‘work’. In ancient Greece, a fellow-worker was called *sunerithos*. It is clear from this that *synergy* and *energy* originally referred to human activity and work. Aristotle seems to have had this meaning in mind when he said the oft-quoted, “The energy of the mind is the essence of life,” a sentence also translated as “The actuality of thought is life, and God is that actuality.”<sup>988</sup>

Scientists often ignore synergy because it denotes that the combined effect of two or more agents or forces is greater than the sum of their individual effects. Wholes are greater than the sum of the parts from the relationships between the pieces, which cannot generally be expressed in quantitative,

mathematical terms. For instance, if you tear a dollar bill in half, the two fragments do not have any value. But if you tape them back together again, the whole is worth one dollar. So  $0 + 0 = 1$ . For myself, I discovered the word *synergy* in 1979, when attending an IBM international meeting in Canada discussing the marketing and development of decision support systems in business. Then the word meant ‘increase in meaningful information’, which arises from fully integrated databases.

However, *synergy* was not in the battered edition of the *Concise Oxford Dictionary* of words in common usage that I was using at the time. This word did not appear until the sixth edition published in 1976, although the OED records its use as far back as 1660 to mean ‘cooperation between people’. In modern scientific use, *synergy* had come to mean the ‘combined or correlated action of a group of bodily organs, mental faculties, drugs, etc.’ first recorded in 1847. During the past two or three decades, synergistic effects have become widely recognized in business, for, to combine some current dictionary definitions, *synergy* denotes increased effectiveness and achievement from cooperative interaction among groups, especially among the acquired subsidiaries or merged parts of a corporation, that creates an enhanced combined effect. Understanding where synergy comes from and how it works is thus key to turning evolutionary divergence into convergence, as we learn to live and work harmoniously together with a common vision.

For evolution is carrying us towards Wholeness, much in the manner that Jan Christiaan Smuts in *Holism and Evolution* described in 1925, highlighting a factor in the physical and biological sciences that he felt had been neglected. As he said:

This factor, called Holism in the sequel, underlies the synthetic tendency in the universe, and is the principle which makes for the origin and progress of wholes in the universe. An attempt is made to show that this whole-making or holistic tendency is fundamental in nature, that it has a well-marked ascertainable character, and that Evolution is nothing but the gradual development and stratification of progressive series of wholes, stretching from the inorganic beginnings to the highest levels of spiritual creation.<sup>989</sup>

In summary, “The whole-making, holistic tendency, or Holism, operating in and through particular wholes, is seen in all stages of existence, and is by no means confined to the biological domain to which science has hitherto restricted it. ... Wholeness is the most characteristic expression of the nature of the universe in its forward movement in time. It marks the line of evolutionary progress. And Holism is the inner driving force behind that progress.”<sup>990</sup>

It is pertinent to note here that *holism* derives from Greek *ólos* ‘whole, with a PIE base *\*sol-* ‘whole’, also root of *safe*, *salubrious*, *solid*, *catholic*, and *saviour*. In contrast, *whole* derives from an Old High German word *heil*, cognate with *heilida* ‘health’ and *heilag* ‘holy’, from PIE base *kailo-* ‘whole, uninjured, of good omen’. So a holistic approach to evolution is necessary to end all the Holy wars—wars about the Whole—that have bedevilled humanity for millennia. It seems that it is just a happy coincidence that the PIE bases for *healthy* and *holistic* should be different.

To develop a holistic theory of evolution, we can define evolution, in all its forms, in this way: *Evolution is an accumulative process of divergence and convergence, proceeding in an accelerating, exponential fashion by synergistically creating wholes that are greater than the sum of the immediately preceding wholes through the new forms and relationships that emerge, apparently out of nothing.*

This semantic view of energy thus provides the basis for an integral theory of causality. However, as this universal approach contravenes the second law of thermodynamics in physics, one of the most sacrosanct laws in science, we begin this introduction to panosophy with a brief overview of causality from an information systems perspective.

### *The Theory of Everything*

To take a broad look of evolution as a whole, we then look at an overview of Pierre Teilhard de Chardin's four stages of evolution and Ken Wilber's three phases of human phylogeny. As evolution is an accumulative process, its rate of growth and development can most simply be modelled by the exponential function in mathematics, which we look at next. This leads us see that evolution has now reached its Accumulation Point in systems theory terms, the most momentous turning point in its fourteen billion-year history, called the Singularity in time. But this Singularity is not a technological one, as scientists like Ray Kurzweil and Victor Vinge claim; it is a Spiritual Singularity, when we return Home in Wholeness. Finally, in this section, we see that if we are to survive as a species until the end of this century, we need to pass through seven simultaneous turning points before 2020, at the latest 2030.

### **An integral science of causality**

There is no clearer evidence that materialistic, mechanistic science is out of touch with Reality than the second law of thermodynamics, which states, in one form, "The entropy of an isolated system never decreases, because isolated systems always evolve toward thermodynamic equilibrium, a state with maximum entropy." Put more simply, "The second law states that heat does not of itself pass from a cooler to a hotter body." In technical terms, "The entropy of a closed system can only increase," entropy being a measure of disorder. In other words, once hot and cold water are mixed in a basin, it is not possible to unmix them without an external source of energy.

This law arose in the nineteenth century through the study of heat engines and has since then been assumed to be a universal law because thermodynamics is "the branch of physical science that deals with the relations between heat and other forms of energy (such as mechanical, electrical, or chemical energy), and, by extension, of the relationships between all forms of energy".

So, as Brian Cox said in the 'Destiny' episode of his BBC documentary series *The Wonders of the Universe* in 2011, "Entropy always increases, because it's overwhelmingly likely that it will."<sup>991</sup> He thus believes in the 'heat death of the universe', a one-sided vision of the Universe that had a profoundly negative effect on the optimism of the late nineteenth and early twentieth centuries, as the historian of science Stephen Brush has pointed out.<sup>992</sup>

We can begin to resolve this dilemma by calling on the Principle of Unity, the fundamental design principle of the Cosmos. It is then natural and commonsensical to say that in a system where organization and complexity increase, there is an increase in available energy and a corresponding decrease in entropy. But this is not something that most scientists can accept. For instance, Norbert Wiener, the author of *Cybernetics: or Control and Communication in the Animal and the Machine*, asserted: "Information is information, not matter or energy. No materialism which does not admit this can survive at the present day."<sup>993</sup>

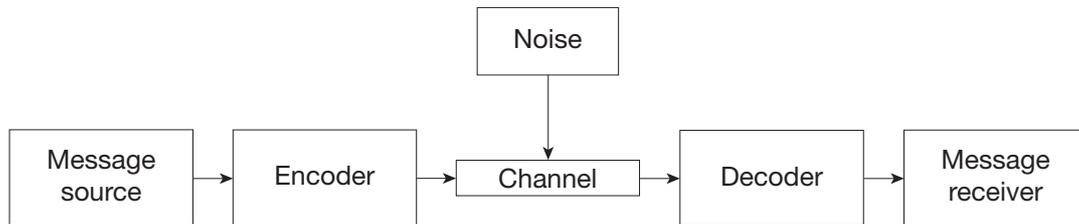
Weiner made this statement because in 1948, Claude Shannon, confusingly known as 'the father of information theory', wrote a paper called 'A Mathematical Theory of Communication'. At the time, he was working for Bell Telephone Laboratories, being concerned about the effects of noise in a communications channel when using pulse-coded modulation (PCM) or pulse-position modulation (PPM). For telephone communications were then marking the dawn of the digital age, as analogue signals were destined to become digitized. As he said,

The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have *meaning*; that is they refer to or are correlated according to some system with certain physical or conceptual entities. These semantic aspects of communication are irrelevant to the engineering problem. The significant aspect is that the actual message is one selected from a set of

### *Unifying Polarizing Opposites in Nondual Wholeness*

possible messages. The system must be designed to operate for each possible selection, not just the one which will actually be chosen since this is unknown at the time of design.<sup>994</sup>

Here is Shannon's basic model of a communications channel, using terms from *Encyclopædia Britannica*, as these are more meaningful.<sup>995</sup>



You can see that this model is essentially mechanistic, acting in the horizontal dimension of time, like the input-function-output process of computers, depicted on page 109. So it is misleading to use the word *information* in this connection, as Theodore Roszak has pointed out in *The Cult of Information*.<sup>996</sup> For the essence of information is to inform and to provide meaning. So the concept of information is essentially semantic, not mathematical. For when we view information mathematically, it becomes “disjointed matters of fact that [come] in discrete little bundles.”<sup>997</sup> As Shannon admitted in an article he wrote for a now obsolete edition of the *Encyclopædia Britannica*, communications theory is not concerned with the meaning of the information in messages, but solely with signs, codes, and the quantitative measurement of these entities in a mechanistic, stochastic sense.<sup>998</sup>

So let us look a little at how messages can be encoded and decoded in the most efficient manner. To give a simple example, we can consider a message alphabet (M) and a signal alphabet (S) and how these can be converted from one to the other. In early computer systems, each letter of the Latin alphabet was encoded in various ways, such as IBM's eight-bit EBCDIC (Extended Binary Coded Decimal Interchange Code) and the seven-bit ASCII code (American Standard Code for Information Interchange), which was then extended to eight bits to accommodate the accented characters in the languages of Western Europe.<sup>999</sup>

But this is not enough for all characters in the Latin script, never mind those in other scripts, from Greek, Cyrillic, Hebrew, and Arabic, to Chinese-Japanese-Korean (CJK), Devanagari, and Tamil. To accommodate these scripts, two bytes are needed, giving 65,536 possible positions. However, to represent all possible characters, four bytes are needed, giving 4,294,967,296 possible positions. In the event, since the early 1990s, the Unicode Consortium has defined a Universal Character Set (UCS) of 1,114,112 possible positions, using just 17 blocks of 65,536 code points, called planes.

However, if all characters were encoded in four bytes, the size of files and length of transmission times would increase dramatically. So, Unicode defines Unicode Transformation Format (UTF) encodings, which map characters to variable-length codes. For instance, in UTF-8, widely used for web pages, basic English characters require one byte, while characters like å, ç, ř, and Ľ, used in Swedish, French, Czech, and Polish, for instance, need two bytes. Similarly, characters in Cyrillic, Greek, Hebrew, and Arabic scripts need two bytes, while Devanagari, Tibetan, Thai, and CJK characters are encoded in three. Historical scripts, like Phoenician—the first alphabetic script—and Linear-B syllabary are encoded in four bytes.

However, this international encoding system is rather unfair on Asian languages, which could be accommodated in two-byte encoding. But that would lead to multiple meanings for codes, a problem that existed in the early years of the data-processing industry, which the UCS has been designed to overcome. Furthermore, UTF-8 is not generally the most efficient way of encoding the letters of the alphabet. If we

consider just ASCII characters, the letters *e* and *z* occur with 12.702 and 0.074 percent frequency in English, a ratio of over 170.<sup>1000</sup> Morse code reflects this distribution, the codes for these letters being · and ---·, respectively.<sup>1001</sup>

To deal with this situation, Shannon set out to develop a generalized theory of encoding by considering a set of messages with probabilities  $p_1, p_2, \dots, p_n$  totalling 1. To give a simple example, if an alphabet consists of just four letters, A, B, C, and D, these could be encoded equally in two bits. However, if the probabilities of them occurring are  $\frac{1}{2}, \frac{1}{4}, \frac{1}{8},$  and  $\frac{1}{8}$ , then they could be transmitted with 1, 2, 3, or 3 bits, respectively. On average, such an encoding system would be a more efficient way of utilizing the limited capacity of a communications channel.<sup>1002</sup> In mathematical terms, the number of bits required for each message with probability  $p_i$  is  $-\log_2 p_i$ , the minus sign being used to make the result positive.

Shannon does not seem to have given a name to this function, so it has been left to others to do so, generalizing it to  $-\log p_i$ , for in the general theory it does not matter which base of logarithm is used. For instance, D. S. Jones and Myron Tribus call this function *self-information*<sup>1003</sup> and *surprisal*,<sup>1004</sup> respectively. This latter term is most meaningful, for the less likely a message, the more surprising it is and the more characters are needed to transmit it. For instance, if a message is considered impossible, an infinite number of signs are required. On the other hand, if we are told something that we already know, no signs are required. That, in essence, is why this treatise is so long. While the life experience on which it is based is not impossible, as some believe, it is highly improbable given most people's *a priori* expectations.

W. Ross Ashby has used a similar function to define what he calls *variety*. Given a set of  $n$  distinguishable elements, the variety of the set is  $\log_2 n$ . For instance, the variety of the sexes is 1 bit and that of a pack of playing cards is 5.7 bits or  $\log_2 52$ . In a set of elements that are all of one type, the variety is zero, for the logarithm of 1 is 0.<sup>1005</sup>

Shannon then sought an expression for the weighted average of the set as a whole, which would denote its degree of uncertainty. This is the formula that met the criteria that he defined, the base of the logarithm only being relevant as a choice of unit:

$$H = - \sum_{i=1}^n p_i \log p_i$$

$H$  is a maximum when all elements are equally likely. For instance, if four elements are equally possible,  $H$  is 2 bits, using logarithms to base 2. In this case,  $H$  is also a measure of the variety of the set, in Ross Ashby's terms. On the other hand, if the probabilities are  $\frac{1}{2}, \frac{1}{4}, \frac{1}{8},$  and  $\frac{1}{8}$ , as in our four-character alphabet, then the uncertainty of this set is 1.75 bits ( $0.5*1 + 0.25*2 + 0.125*3 + 0.125*3$ ).  $H$  reaches a minimum of zero when all the probabilities except one are zero.<sup>1006</sup> For then there is no uncertainty; we know with certainty what message will be received. But what name could Shannon give to this mysterious quantity  $H$ ? Well, this is what he himself said:

My greatest concern was what to call it. I thought of calling it 'information', but the word was overly used, so I decided to call it 'uncertainty'. When I discussed it with John von Neumann, he had a better idea. Von Neumann told me, "You should call it entropy, for two reasons. In the first place your uncertainty function has been used in statistical mechanics under that name, so it already has a name. In the second place, and more important, nobody knows what entropy really is, so in a debate you will always have the advantage."<sup>1007</sup>

Indeed,  $H$  was chosen to denote entropy because this is the sign that Ludwig Boltzmann had used in developing his theory of statistical thermodynamics in 1872, rather than  $S$ , as Rudolf Clausius had used seven years earlier, when introducing this rather abstruse term. But then Weiner introduced some confusion. He wrote, "Just as the amount of information in a system is a measure of its degree of

organization, so the entropy of a system is a measure of its degree of disorganization; and the one is simply the negative of the other.”<sup>1008</sup> Thus the terms *negative entropy* and *negentropy* entered the literature. But this was unnecessary, for Shannon had added a minus sign in his formula to make *H* positive, while Weiner did not. As Ross Ashby has pointed out, while “Both regard information as ‘that which removes uncertainty’, and both measure it by the amount of uncertainty it removes,”<sup>1009</sup> Shannon’s formula for entropy was positive, while Weiner’s was negative.

Even though entropy is not an easy concept to grasp, we can see its central role in our lives from its roots, which are Greek *en-* ‘inside’ and Greek *tropē* ‘transformation’. Today, we are a species in transformation—the transformation of culture and consciousness, which is leading us Home to Wholeness as a species.

Stanislav Grof has denoted this holistic process with the neologism *holotropic* ‘turning towards the whole’, modelled on *heliotropic* ‘turning towards the sun’, from Greek *ólos* ‘whole’ and *tropos* ‘turn’, from *trepo* ‘to turn’, cognate with *tropē* ‘transformation’. However, *trepo* has two meanings, as in English: ‘to change direction’ (as in ‘turn into a side-road’), and ‘to change form’ (as in ‘turn into a frog’).<sup>1010</sup> So *holotropic* can be said to have two meanings, the second being ‘transforming the Whole’, using *-tropic* in the same sense as *entropic* ‘in transformation’. In order to return Home to Wholeness, to our Divine Source, we need both to transform the Whole—a partial transformation is not sufficient—and to turn towards Wholeness, the union of all opposites, our Authentic Self.

Of course, the second law of thermodynamics is based on a misconceived view of the Universe and how it is designed, as rooted in the collective scientific consciousness as the geocentric view of the heavens in the Middle Ages. For instance, Arthur Eddington wrote:

The law that entropy always increases—the second law of thermodynamics—holds, I think, the supreme position among the laws of Nature. If someone points out to you that your pet theory of the universe is in disagreement with Maxwell’s equations—then so much the worse for Maxwell’s equations. If it is found to be contradicted by observation—well, these experimentalists do bungle things sometimes. But if your theory is found to be against the second theory of thermodynamics I can give you no hope; there is nothing for it but to collapse in deepest humiliation.<sup>1011</sup>

Well, one of the first people to refuse to do so was Ludwig von Bertalanffy, who became deeply concerned in the 1920s that the then prevalent mechanistic approach “appeared to neglect or actively deny just what is essential in the phenomenon of life. He advocated an organismic conception in biology, which emphasizes consideration of the organism as a whole or system, and sees the main objective of biological sciences in the discovery of the principles of organization at its various levels.”<sup>1012</sup>

Then, in the 1930s, von Bertalanffy introduced the term *General System Theory* (GST), publishing a collection of papers on the subject in 1968, saying, “there exist models, principles, and laws that apply to generalized systems or their subclasses, irrespective of their particular kind, the nature of their component elements, and the relationships or ‘forces’ between them. It seems legitimate to ask for a theory, not of systems of a more or less special kind, but of universal principles applying to systems in general.”<sup>1013</sup>

In the preface to the revised edition of this seminal book in 1973, von Bertalanffy was well aware that by studying the interrelationships between elements in systems, as much as the elements themselves, he was introducing a new paradigm in scientific thinking. Starting from the principle that biological systems are open ones, he sought interdisciplinary, isomorphic constructs that could solve a wide range of problems.<sup>1014</sup> However, in keeping with his times, he regarded his study of complexity more in mathematical than semantic terms, not seeking the meaning that underlies all living systems.

Ilya Prigogine, who studied open systems, in contrast to closed ones tending towards equilibrium, took another major step in the development of holistic science in the 1970s. An open system is one that

exchanges matter and energy with its environment. As Prigogine and his co-writer Isabelle Stengers said,

In far-from-equilibrium conditions we may have transformation from disorder, from thermal chaos, into order. New dynamic states of matter may originate, states that reflect the interaction of a give system with its surroundings. We have called these new structures *dissipative structures* to emphasize the constructive role of dissipative processes in their formation.<sup>1015</sup>

I must admit, I don't really understand why these open systems are called dissipative structures, for *dissipative* derives from Latin *dissipāre* 'to spread abroad, scatter, disperse', from *dis-* 'two' and an archaic verb *supāre, sipāre* 'to throw, throw about, scatter'. So how can a scattering process create order out of chaos? Perhaps this is related to the alchemical process of *solve et coagula* 'dissolve and re-form',<sup>1016</sup> but I'm not sure. However, this confusion does not really matter, for we are on our way towards freeing science of its materialistic and mechanistic foundations in order to understand why scientists and technologists are driving the pace of evolutionary development at unprecedented rates of change.

In 1972, Humberto Maturana and Francisco Varela took another step in changing scientists' view of life with their notion of living machines, which they called self-organizing or self-creating, without mentioning the role that the Logos plays in creating organized systems. In technical terms, they called this process *autopoiesis*, from the Greek *poien* 'to make, do, produce, create', which is also the root of *poetry*. To them, autopoietic machines are homeostatic machines, with one peculiarity:

An autopoietic machine is a machine organized (defined as a unity) as a network of processes of production (transformation and destruction) of components which: (i) through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produced them; and (ii) constitute it (the machine) as a concrete unity in space in which they (the components) exist by specifying the topological domain of its realization as such a network.<sup>1017</sup>

As the systems theorist, Fritjof Capra, tells us in *The Web of Life*:

Maturana and Varela began their essay on autopoiesis by characterizing their approach as 'mechanistic' to distinguish it from vitalist approaches to the nature of life: 'Our approach will be mechanistic: no forces or principles will be adduced which are not found in the physical universe.' However, the next sentence makes it immediately clear that the authors are not Cartesian mechanists but systems thinkers: 'Yet, our problem is the living organization and therefore our interest will not be in properties of components, but in the processes and relations between processes realized through components.'<sup>1018</sup>

In *The Choice: Evolution or Extinction*, Ervin Laszlo describes another aspect of today's paradigm shift in science. In the 1980s and 90s, there was a shift from *mechanism* towards *organism*, a view of the world in which "every part affects every other, so in the natural universe every atom, every galaxy, has an effect on every other atom and every other galaxy."<sup>1019</sup> However, systems theorists are still at pains to deny the role that the Divine plays through Life in living systems. This nonphysical energy has been known throughout the ages as a vital principle underlying human experience, encapsulated in Henri Bergson's concept of *élan vital*, normally translated as 'vital impetus' or disparagingly as 'vital force', which Bergson called the '*original impetus* of life'.<sup>1020</sup> Yet this vital force is "the energy or spirit which animates living creatures", as my dictionary says.

Similarly, Reginald O. Kapp, Professor of Engineering at London University, said in 1940 in *Science versus Materialism*, it is utterly amazing that vitalism is not so much dead, as it was claimed at the time, as a taboo. This iconoclastic book, which his son John has published on the Web, courageously made a commonsensical claim for the obvious, saying, "Any evidence which proves the organic world to be subject to laws from which the inorganic world is free is evidence for vitalism," for "as an engineer, we know that it is not in the nature of Matter unaided to fall into the form of machines."<sup>1021</sup>

As we learn to become masters of our machines and mechanistic thought processes as vibrant, creative beings, rather than their slaves, there is much more we could say on the integral science of causality.<sup>1022</sup> For instance, to understand how thinkers have viewed this tricky subject over the years, we could trace its

history, from Aristotle's four types of causality onwards: material, formal, efficient, and final. However, Aristotle also noticed that all phenomena cannot be explained in terms of these four causes, adding, "Chance and spontaneity are also counted as causes: people often attribute the existence and occurrence of things to chance and spontaneity."<sup>1023</sup>

In the last century, Carl Jung and David Bohm studied such spontaneous phenomena in their books *Synchronicity* and *Causality and Chance in Modern Physics*, respectively. However, fascinating as these subjects are, as well as acausal effects in quantum physics, it is important not to lose touch with the Big Picture. Ultimately, we are all Undivided Wholeness, which gives birth to all forms in the Universe, which are causally related to all others to some extent or other, across space and time. That includes us a species and as individuals. So let us now put our daily thoughts and activities into the overall context of evolution as a whole.

### **The four stages of evolution**

For me, the simplest way to look at evolution as a whole is through Pierre Teilhard de Chardin's four-stage model, which I discovered in 1980, shortly after beginning my inquiries into what is causing us scientists and technologists to drive the pace of change in society at unprecedented rates of exponential acceleration. At the time, I was searching for a generic term for *morphogenesis*, *ontogenesis*, and *phylogenesis*, emphasizing that their common characteristic is the evolution of wholes that are greater than the sum of their preceding wholes.

To this end, I naturally coined *hologenesis* and rushed round to my local library to consult the *Oxford English Dictionary* to see if had been coined before. Indeed it had. As the second edition of the OED records, *hologenesis* is the name of a theory of evolution first propounded by Daniele Rosa in *Ologenesi* in 1918 and later adopted by George Montandon in *L'Ologenèse humaine* in 1928 to account for the origin of human races.<sup>1024</sup>

At about the same time, Teilhard began to study "the significance of the human being within the vast cosmic process of evolution", writing two essays on the subject in 1928 and 1930. But it wasn't until the end of the next decade that he wrote his 'great book' called *Le phénomène humain*.<sup>1025</sup> However, as the Jesuit order forbade this book to be published during Teilhard's lifetime, it was published posthumously in 1955.<sup>1026</sup> Bernard Wall and Sarah Appleton-Weber then translated it into English in 1959 and 1999 as *The Phenomenon of Man* and *The Human Phenomenon*, respectively. It was a citation in the first of these translations that the OED records Teilhard's use of *hologenesis*, which led me to his magnum opus.

Teilhard saw evolution in four stages, physical, biological, noological or mental, and spiritual, which he called Pre-life, Life, Thought, and Superlife in the four parts of his book. These four stages of evolution take place in four realms, each nested into the succeeding one. These we can call hylosphere, from Greek *hylē* 'matter', biosphere, from Greek *bios* 'life', noosphere, from Greek *noos* 'mind', and numinosphere, from Latin *nūmen* 'divinity'.

Now, while Teilhard did not explicitly describe the duration of each of these stages and the transitions between them, we can see that each is much shorter than the previous ones because accumulative evolutionary change accelerates exponentially, illustrated in the table on the next page.

So we can only truly understand evolutionary processes by studying the way we learn in the noosphere, rather than by studying the wondrous diversity of species, as biologists since Darwin have been doing. And we can only understand what the Universe is from the perspective of the unbounded numinosphere rather than standing in the tiny hylosphere, as physicists are wont to do.

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Evolutionary stages, years ago						Transition stages, years ago		
Teilhard	Type	Realm	Start	End	Duration	Start	End	Duration
Prelife	Physical	Hylosphere	14,000,000,000	4,500,000,000	9,500,000,000	4,500,000,000	3,500,000,000	1,000,000,000
Life	Biological	Biosphere	3,500,000,000	25,000	3,500,000,000			
Thought	Mental	Noosphere	5,000	50	5,000	25,000	5,000	20,000
Superlife	Spiritual	Numinosphere	-50	-300	250	50	-50	100

So we can only truly understand evolutionary processes by studying the way we learn in the noosphere, rather than by studying the wondrous diversity of species, as biologists since Darwin have been doing. And we can only understand what the Universe is from the perspective of the unbounded numinosphere rather than standing in the tiny hylosphere, as physicists are wont to do.

As this table indicates, we are currently in the middle of a 100-year transition period between what we can call the mental-egoic age (the self-centred me-epoch, focused on conflict and competition) and the age of universal spirituality (the socially centred us-epoch, focused on peace and cooperation). We can say that this radical transformation of consciousness began with the counter-cultural movements of the 1960s, symbolized by ‘flower power’, sometimes induced by consciousness-expanding psychotropic drugs, the basis of Aldous Huxley’s utopian novel *The Island* from 1962,<sup>1027</sup> as a riposte to his dystopian novel *Brave New World* from 1932.

What this means is that while biogenesis continued after *Homo sapiens* left Africa about 70,000 years ago<sup>1028</sup> and spread around the Earth—as the different colours of our skins and shapes of our faces make evident—evolution has become increasingly noogenetic since the transition from the biosphere to the noosphere.

But what should we call this noological species? Well, we can most appropriately call it *Homo noeticus* from Greek *noos* ‘mind, understanding, reason; thought, insight; meaning, sense’, root of *nous* ‘commonsense’ via Attic Greek *nous*, one of Plotinus’ three hypostases, translated as ‘intelligence’,<sup>1029</sup> underlying the illusory, sensate world.

Now, one of the key characteristics of the egoic mind is that it is predominantly analytical, separating beings from each other in the relativistic world of form, rather than synthesis. This is an activity encapsulated in the root of *science* and *schizoid*, which is PIE base *\*skei-* ‘to cut, split’, as we see on page 24. However, it is important to remember that scientists are not the only people detached from Reality. Theologians in the Abrahamic religions who believe that God is other also suffer from split psyches. So we can identify two subspecies of *Homo noeticus*: *Homo noeticus theistica* and *Homo noeticus atheistica*, denoting those who believe and do not believe in the existence of God, respectively. A third subspecies *Homo noeticus agnostica* would then denote those who do not know what to believe.

But as we make the transition between the third and fourth stages of evolution, a new species is emerging that does not need to believe in God, for people are transforming the first pillar of unwisdom into that of wisdom, realizing that they constantly live in union with the Divine in Gnosis—deep Inner Knowing. We could regard this new species as another subspecies of *Homo noeticus*: *Homo noeticus gnostica*. However, this term does not fully encapsulate the momentous changes happening on Earth right now, as many visionaries are observing.

For instance, Eckhart Tolle ended his book *A New Earth* with these sentences: “A new species is arising on the planet. It is arising now, and you are it!”<sup>1030</sup> To give this superintelligent, superconscious species a name, Osho called it simply *Homo novus* or Zorba the Buddha, representing a new synthesis of

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East and West, the meeting of all polarities.<sup>1031</sup> As he said, “The new man is not an improvement upon the old; he is not a continuous phenomenon, not a refinement. The new man is the declaration of the death of the old, and the birth of an absolutely fresh man—unconditioned, without any nation, without any religion, without any discriminations of men and women, of black and white, of East and West, or North and South.”<sup>1032</sup> And Barbara Marx Hubbard has suggested these names for our emerging species: *Homo universalis*, *Homo noeticus*, *Homo spiritus*, and *Homo sapiens sapiens sapiens*,<sup>1033</sup> indicating that this is not a biological species but a psychospiritual one.

For myself, the term I prefer is *Homo divinus* to denote that humanity is currently in the transition from the mental-egoic age (me-epoch) to the age of universal spirituality (us-epoch). As the diagram on page 20 illustrates that there are two ways of returning Home to the Nonmanifest—to Oneness and Wholeness—respectively, we can distinguish two subspecies of *Homo divinus*: *Homo divinus unitas* and *Homo divinus holoensis*, from Greek *ὅλῆ* ‘whole’ and *-ensis* ‘belonging to’. So members of *Homo divinus holoensis* do not belong to any group, whether this be national, religious, cultural, racial, sexual, specialist, or whatever, for they belong to the Ineffable, Nondual Whole, having reached evolution’s glorious culmination, which Teilhard called its Omega Point, inseparable from the Alpha Point.

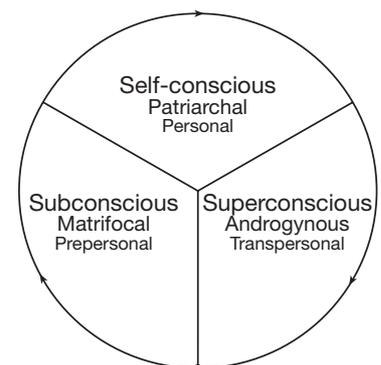
**The three phases of human phylogeny**

To fully understand what this means for the future of humanity, we can adapt Ken Wilber’s three phases of human phylogeny in *Up from Eden*,<sup>1034</sup> as in this diagram, corresponding to the transition stage between the biosphere and noosphere and the final two stages in Teilhard’s evolutionary model. However, as Ken is not fully cognizant of the Principle of Unity—as the Cosmic archetype underlying all the data patterns in the Universe—some of his interpretations of these data patterns need to be reinterpreted.

Now if such reinterpretations are to be sound science, rather than speculative philosophy, they must clearly be based on direct human experience, which arises through experimentation, such as the thought experiment introduced on page 113. From this perspective, I look at human phylogeny as a whole as a recapitulation of my own ontogeny, which, reciprocally, is a recapitulation of human phylogeny. There is no essential difference between them.

By this, I do not mean biogenetic phylogeny or ontogeny, which, in my case, began in the late summer of 1941 in war-torn England with the conception of my body as the fusion of two gametes, from Greek *gamein* ‘to marry’, in a zygote, from Greek *zugoun* ‘to join’, cognate with Sanskrit *yoga* ‘union’. Rather, I am concerned with my noetic conception, which took place on 27th April 1980, when I had the idea that nonphysical mental energies are causing scientists and technologists, like myself, to drive the pace of evolutionary change in society at exponential rates of acceleration. It was at that eureka moment that Self-reflective Intelligence, which distinguishes me, as a human, from machines, like computers, was awakened, having lain dormant for most of the previous thirty-eight years. As Intelligence is the ability to see both sides of any situation, a noetic syzygy thus took place in my psyche, enabling me to create a coherent body of knowledge that unifies polarizing opposites in Nondual Wholeness, the subject of this treatise.

This ontogenetic event corresponds to what happened to human phylogeny at the birth of the noosphere, some 25,000 years ago, maybe more. For we need to remember that what distinguishes humans from the other animals is that we are reflective, as Teilhard pointed out.<sup>1035</sup> In *The Origins of*



**Formless Alpha/Omega Point of Evolution**

*Man and the Universe*, Barry Long wrote that this happened because a ‘veil of opaqueness’ or ‘psychic membrane’ was cleared away from our animal eyes, enabling our forebears to ‘see’ the Earth for the first time.<sup>1036</sup> Similarly, in 1980, a veil of opaqueness was cleared away from my psychic eye in an apocalyptic event, *apocalypse* meaning ‘draw the veil away from’, from Greek *kaluptra* ‘veil’, as mentioned on page 9.

In other words, at the birth of the Matrifocal epoch, *Homo sapiens* instantly became *Homo divinus*, living in union with the Divine, an apocalypse that is essential if humanity is to collectively reach evolution’s Omega Point in our neck of the woods. But what were our forebears to make of this revelation? Mapping human ontogeny onto phylogeny, they were like babies in adult bodies, before concepts or mental images were formed, with only basic linguistic sounds with which to communicate.

Then, gradually over the years, like children, our ancestors began to form the concepts that they needed to deal with what could seem like an extremely hostile world, unaware that they were embarking on a multi-millennia journey that would terminate in evolution’s glorious culmination, returning to where this entire phylogenetic process begins. So *Homo noeticus* suffocated *Homo divinus* almost as soon as it was born. Only rarely during the succeeding millennia did exemplars of *Homo divinus* manage to poke their heads above the parapet, such as Siddhartha Gautama and Jesus of Nazareth. Their successors then founded religions in the names of their titles—Buddha ‘awakened one’ and Christ ‘anointed one’—within cultures dominated by the *Homo noeticus* species, which did not really understand their teachings, especially those of Jesus in the West.

But why was it necessary for the creative power of Life to clear away this veil of opaqueness within me for a second time? Why had my parents and teachers done their utmost to stultify my inborn, natural intelligence in the 1950s as a teenager? Well, this is a very long story, whose central theme is fear. For to understand why such existential fears govern society today requires an in-depth study of the whole of human noetic phylogeny from the perspective of *Homo divinus*. A few reasonably awakened beings have undertaken such studies over the years, with various degrees of consciousness, which provides the light we need to see what is happening to us both as a species and as individuals. For the veil of opaqueness is not really opaque, preventing all light from entering the psyche. Rather, this veil is generally translucent allowing some light through, but not generally enough to see with utmost clarity what is going on.

It is not easy to understand the very earliest days of *Homo divinus/noeticus* because written language had not emerged, so we are reliant on archaeologists and anthropologists to tell us how they interpret the signs and symbols still surviving in the material world. Even when language emerged, for the first couple of millennia, what was written down was more accounting information than stories, which we call myths today. And even when we have the historical record, from the ancient Greeks, for instance, exploring “the evolution of the Western mind places special demands on both reader and writer, for it asks us to enter into frames of reference that are sometimes radically different from our own,” as Richard Tarnas begins the Introduction to his *The Passion of the Western Mind*.<sup>1037</sup>

Indeed, as Western civilization is based on seven pillars of unwisdom, on the false belief that we humans are separate from the Divine, Nature, and each other, we can only really understand where we have come from and hence where we are heading when we have cleared all this obfuscation out of the way. And this requires us to look deeply inside ourselves, for it is only through self-inquiry that we can realize our fullest potential as a species.

To this end, Ken Wilber’s three-phase model of human phylogeny is most useful, but in much need of reinterpretation. For while we humans can often see the simple data patterns underlying the Cosmos, how we interpret them is often influenced by our less than fully awake forebears. In this respect, I find

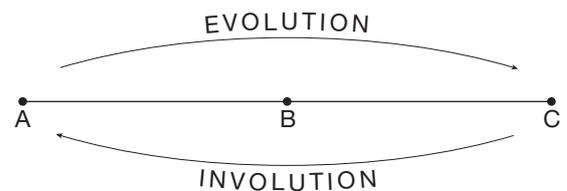
*Unifying Polarizing Opposites in Nondual Wholeness*

Ken's integral philosophy to be rather traditional, more focused on the development of the intellect within the unsustainable prevailing culture than on the awakening of Intelligence, necessary if we are to consciously make the transition into the eschatological Age of Light.

Most significantly, despite being a practicing Zen Buddhist, he seems averse to paradoxes and self-contradictions, the central characteristic of the Western mind. So the two dimensions of time play little part in his cosmology, as we can see from his first interpretation of the diagram on page 167. In *Up from Eden*, he has labelled this diagram *The Great Chain of Being*, placing eight levels of the spectrum of consciousness around the circle, the levels increasing clockwise, whose foundation is 'The Ground Unconscious'.<sup>1038</sup>

A problem arises here because when we look at evolution from the horizontal dimension of time, it appears that evolution progresses from matter to body to mind to soul to spirit in hierarchical levels of increasing consciousness, called the Great Chain of Being, explored by Arthur O. Lovejoy in the William James Lectures in 1933.<sup>1039</sup> As Ken says, "Thus history, from this viewpoint, is basically the unfolding of those successively higher-order structures, starting from the lowest (matter and body) and ending with the highest (spirit and ultimate wholeness)."<sup>1040</sup> Ken calls the Great Chain of Being a *nest* of being, for each level nests in the next. This makes sense, for the numinosphere embraces the noosphere, biosphere, and hylosphere in turn.

Then, in *Eye to Eye*, Ken writes "If the movement from lower to higher is evolution, then the reverse, the movement from the higher to the lower, is *involution*," drawing this figure.<sup>1041</sup> He has inherited this view from Aurobindo, who wrote, "The word *evolution* carries with it



in its intrinsic sense, in the idea at its root the necessity of a previous involution."<sup>1042</sup> But this does not make sense in my experience. After a big bang erupted in consciousness shortly before my thirty-eighth birthday in 1980, my learning did not then pass through the various levels of the Great Chain of Being, passing from matter to spirit.

Rather, in my evolutionary experience, as I interpret it through the experiment in learning described earlier, evolution is the development or unfolding of forms from the Formless, as the Alpha Point of evolution. And while such creative processes normally terminate in structures, like opera houses or the global economy, in the case of the Theory of Everything, being described in this treatise, they ultimately terminate in Formless Wholeness, as the Omega Point of evolution, whose possibility Ken denies, as we see on page 1. Involution then is the reverse decaying and dying process, as structures dissolve back into Oneness, as described on page 150. As Aurobindo states, Supermind "starts from unity, not division,"<sup>1043</sup> a statement that is as relevant to involution as evolution. For both evolution and involution actually take place in the vertical dimension of time, in the Eternal Now, not in the horizontal.

So while Ken Wilber's own view of human phylogeny has gone through significant revision since the early 1980s, when he wrote *The Atman Project*, his first study of human ontogeny, *Up from Eden* and *Eye to Eye* left me in much confusion until 2008, when I went on a retreat with Nukunu, a spiritual teacher from Denmark, in the Altai Mountains in southern Siberia, about two hundred kilometres from the Chinese- and Mongolian-Russian borders. These mountains were the home of the original shamans, from Russian *shaman*, from Evenki *šaman*, a Tungusic language spoken in the frozen depths of Siberia, actually some distance away from the Altai Mountains. Inspired by these beautiful surroundings, which felt like Paradise, I drew the diagram on page 20, enabling me to understand my own ontogeny in relationship to

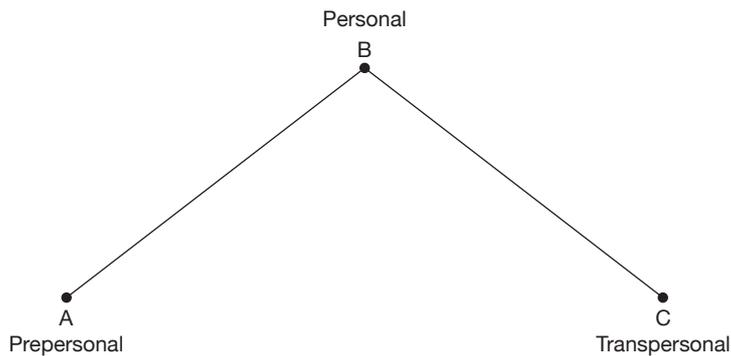
*The Theory of Everything*

that of my fellows, and hence human phylogeny.

To further clarify what has happened to humanity during the past 25,000 years or more, we need to look at another of Ken Wilber’s central concepts, which he called ‘The Pre/Trans Fallacy’ in an essay with that name, published in 1980 in *ReVision*, a journal he had co-founded two years earlier with Jack Crittenden, apparently to publicize his writings. This essay was republished in *Eye to Eye* three years later,<sup>1044</sup> where I first read it in the 1980s,



doing my very best to understand what he was saying when still in the childhood phase of my own awakening ontogeny.



The above diagram most simply illustrates the pre/trans fallacy, which has two forms: “the reduction of the transpersonal to the prepersonal, which we call ptf-1, and the elevation of the prepersonal to the transpersonal, or ptf-2”. The collapse of *A* and *C* into *A(C)* and *C(A)* creates a vertical line depicting two opposed worldviews, called WV-1 and WV-2, which Ken says look very much like orthodox science and religion, respectively.

In terms of psychological theories, Ken correlates WV-1 and WV-2 to Freud and Jung, respectively. This is understandable in terms of the former and the New Age movement, apparently believing that humanity is regressing into an infantile Garden of Eden, where there is only Love, but little Intelligence, which gives us intuitive and cognitive understanding. However, back in 1980, I don’t feel that Ken fully understood Jung’s concept of individuation—as the union of opposites—which itself went through its own development in the second half of Jung’s life.

Experientially and cognitively, this critical issue, which has baffled humanity for thousands of years, is by far the most difficult to understand and explain. In Ken’s case, he says that Jung fuses the numinous dimension with the prepersonal because he recognizes only two major realms: the personal and the collective, which Ken associates with the realms of ego and Self. So Ken says that Jungians, and many transpersonal psychologists, do not see development going from *A* to *B* to *C*. Rather, “they see it as going from *C* to *B* and *back* to *C*.”<sup>1045</sup>

But isn’t this the central purpose of life of earth, recapitulating the Cosmogonic Cycle? So in WV-2, Ken says that people see development, not from “pre-ego to ego to transego Self, but [from] Self to ego back to Self”. But what on earth does this mean? In Reality, Brahman and Atman (Self) are One, present at every stage of human ontogeny and phylogeny in the Eternal Now. So Self is actually the Formless, not something that can be compared to the ego, serving a practical purpose in the relativistic world of form.

For me, it helps to understand this relationship by studying what Mircea Eliade called ‘archaic societies’, prefiguring the ancient Egyptian, Sumerian, and Hellenic societies that preceded the formation

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of Western civilization, illustrated in the diagram on page 181. For as he says, this was when the myths that provide the very foundation of social life and culture arose.<sup>1046</sup> Most significantly, he points out that hierogamy is absent in the archaic religions, “their supreme Beings were androgyne, at once male and female, both Heavenly and Earthly. ... Androgyny is an archaic and universal formula for the expression of *wholeness*, the co-existence of the contraries, or *coincidentia oppositorum*.”<sup>1047</sup> Indeed, Eliade calls *coincidentia oppositorum* the ‘mythical pattern’, “the very nature of the divinity”.<sup>1048</sup> As he points out in *The Two and the One*, Jung frequently used the terms *coincidentia oppositorum*, *complexio oppositorum*, union of opposites, *mysterium coniunctionis*, etc., to describe the totality of the Self and the mystery of the dual nature of Christ.<sup>1049</sup>

It was thus only at the birth of the patriarchal epoch that a deep split began to open up in the human psyche, as evidenced in the hierogamy of ancient societies, as gods and goddesses mimicked human reproduction. But this split was not only between the sexes, as belligerent men began to regard women as inferior, second-class citizens. Most significantly, a split opened up between humanity and Divinity, encapsulated in the first pillar of unwisdom, which underlies Western civilization today.

So what do the myths—verbally handed down from one generation to another for thousands of years—tell us about these archaic societies? Well, they seem to tell us that they were comparatively peaceful, living, as they were, in union with the both-and Divine, before the analytical, egoic mind came to the forefront, depicted by the Fall in Judeo-Christian tradition. Before this, Adam and Eve were naked, and not ashamed,<sup>1050</sup> psychologically and figuratively, of course, rather than physically and literally. Similarly, Chögyam Trungpa described the Tibetan Shambhala as a mythical “place of peace and prosperity, governed by wise and compassionate rulers”,<sup>1051</sup> called ‘Shangri-La’ in James Hilton’s 1933 novel *Lost Horizon*.

The Hindu calendar also contains an allusion to an early, very early, period of peace. This consists of 1,000 mahayugas, each consisting of four yugas diminishing in length in the ratio 4:3:2:1. These yugas are Krita- or Satya-Yuga, Treta-Yuga, Dvarpara-Yuga, and Kali-Yuga, characterised as ‘Golden age’, ‘Sacrifices begin’, ‘Spiritual decline’, and ‘War, fear, and despair’, respectively. We are currently in a Kali-Yuga period, which began around 3102 BCE, about when the mental-egoic, patriarchal epoch began, and will end in some 400 thousand years time, for a mahayuga is 12,000 divine years, each of which is 360 earth years. But because Hindus viewed time cyclically when they drew up this calendar, the end of one mahayuga ushers in a new Golden age, as the cycle almost endlessly repeats.

But not quite. The Hindu calendar is actually finite in length. Brahma is deemed to live 100 Brahma-years, to denote the creation and death of the universe, each Brahma-year consisting of 360 Brahma-days and nights or 720 *kalpas*. *Kalpa* is a Sanskrit word meaning ‘world cycle’ or ‘world age’, consisting of 1,000 mahayugas, totalling 4,320,000,000 years, about the age of the Sun and hence the Earth. So the Hindu calendar consists of a series of cycles of degeneration and rebirth, lasting the lifespan of Brahma—denoting the life-and-death cycle of the universe—which is about 311 trillion years, or 14 orders of magnitude.<sup>1052</sup>

This is quite small compared to the lifespan of the physical universe presented by Brian Cox in the ‘Destiny’ episode of his BBC documentary series *The Wonders of the Universe* in 2011. Apparently drawing on Fred Adams and Gregory Laughlin’s *The Five Ages of the Universe*,<sup>1053</sup> the physical universe has a lifespan of “10,000 trillion trillion trillion trillion trillion trillion trillion years”, which is 10<sup>100</sup>, just one googol, defined on page 175. However, unlike in the Hindu calendar, Cox does not think that the universe will then be regenerated. For Cox, we human beings are nothing but atoms, which are created in the rapid death throes of stars, such as supernovae, and life is just chemistry. In his view, the laws of

physics, called the laws of nature, are absolute, especially the second law of thermodynamics, which ensures that the arrow of time runs in one direction only: ‘from order to disorder, from low to high entropy’, already mentioned on page 160.

However, Buddhists do not have a limited view of time, as do Hindus and astrophysicists. In Buddhism, *kalpa* is a “term for an endlessly long period of time, which is the basis of Buddhist time reckoning. The length of a *kalpa* is illustrated by the following simile: suppose every hundred years a piece of silk is rubbed once on a solid rock one cubic mile in size; when the rock is worn away by this, one *kalpa* will still not have passed away.”<sup>1054</sup>

Nevertheless, the Buddhists did have some understanding of large numbers generated by exponential series, as Chapter 30 ‘The Incalculable’ in the *Avatamsaka Sutra* ‘*Flower Ornament Scripture*’ shows. This chapter begins:

At that time, the enlightening being Mind King said to the Buddha, “World Honoured One, the buddhas speak of incalculable, measureless, boundless, incomparable, innumerable, unaccountable, unthinkable, immeasurable, unspeakable, untold numbers—what are these?” The Buddha said, “It is good that you ask the Buddha, the Truly Enlightened One, in order to have the beings of the world penetrate the meaning of the numbers known to the Buddha. Listen carefully and think well about this; I will explain for you.”

The Buddha then delineated an exponential series, whose first three terms are, “Ten to the tenth power times ten to the tenth power equals ten to the twentieth power; ten to the twentieth power times ten to the twentieth power equals ten to the fortieth power; ten to the fortieth power times ten to the fortieth power equals ten to the eightieth power.” In other words, the first term in the series is  $10^{20}$  or 100 quintillion, the fifth root of a googol, and each succeeding number is the square of the previous one. In mathematical terms:

$$a_n = a_{n-1}^2 = 10^{10 \times 2^n}$$

However, the Buddha stopped when  $n = 103$ , which is 10 to the power of 100 nonillion approximately. He said that  $a_{103}^2$  is ‘incalculable’, calling the next few terms ‘measureless’, ‘boundless’, ‘incomparable’, ‘innumerable’, ‘unaccountable’, ‘unthinkable’, ‘immeasurable’, ‘unspeakable’, and ‘unspeakably unspeakable’, proceeding in fourth powers rather than second for he was now in a hurry. He ended by saying, “an untold, which is unspeakably unspeakable, ... multiplied by itself, is a square untold”. This is  $a_{123}$ , nevertheless comprehensible to the human mind, stopping well short of a googolplex and  $\aleph_\infty$ , of course.

So how could the Hindu and Buddhist understanding of the vastness of time and large numbers help us transform *Homo noeticus* into *Homo divinus*. Well, I mention this Eastern perspective because it is quite different from Judeo-Christian cosmogony, which took just six days, according to the first chapter of the book of Genesis.

Then, in the seventeenth century, James Ussher, Anglican Archbishop of Armagh in Ireland, and John Lightfoot, vice-chancellor of the University of Cambridge, made independent calculations of the date of the Creation based on a study of the Old Testament. There is some confusion about the course of events because Andrew Dickson White misquoted John Lightfoot in his 700-page treatise *History of the Warfare of Science with Theology in Christendom*, published in 1896. White wrote:

The general conclusion arrived at by an overwhelming majority of the most competent students of the biblical accounts was that the date of the creation was, in round numbers, four thousand years before our era; and in the seventeenth century, in his great work, Dr. John Lightfoot, Vice-Chancellor of the University of Cambridge, and one of the most eminent Hebrew scholars of his time, declared, as the result of his most profound and exhaustive study of the Scriptures, that “heaven and earth, centre and circumference, were created all together, in the same instant, and clouds full of water,” and that “this work took place and man was created by the Trinity on October 23, 4004 B.C., at nine o’clock in the clock in the morning.”<sup>1055</sup>

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Actually, Lightfoot did not mention a date in the work that White is quoting; he added this himself. According to Wikipedia, it was Ussher who about 1650 “deduced that the first day of Creation began at nightfall preceding Sunday October 23, 4004 BC in the proleptic Julian calendar, near the autumnal equinox”. Between 1642 and 1644, “Lightfoot similarly deduced that Creation began at nightfall near the autumnal equinox, but in the year 3929 BC.” And nine o’clock in the morning refers to the creation of man, not the Earth, which, for Lightfoot was nightfall.<sup>1056</sup>

In other words, from the Creationist perspective, adopting a literal exegesis, the birth of the Universe coincided with the Fall, at the dawn of history and the birth of the patriarchal epoch. In a sense, Creationists are quite right. For, in Reality, time is an illusion, with everything that happens in the Universe taking place in the Eternal Now. However, even though Eckhart Tolle’s *The Power of Now* and *A New Earth* have sold some three and five million copies, respectively, this *Weltanschauung* is not generally well known. So, how long will it be before it is?

Well, over the years, many visionaries have made prophecies that one day humanity will evolve into a peaceful Utopian society. Isaac Newton was one of them, as a BBC drama-documentary in 2003 titled ‘Newton: The Dark Heretic’ tells us,<sup>1057</sup> surprising many who knew little of Newton’s search for Wholeness by basing his scientific studies on his religious beliefs,<sup>1058</sup> outlined in Subsection ‘Isaac Newton’ on page 37. So let us look a little at his prognostication.

As Stephen D. Snobelen tells us, Newton spent the last fifty-five years of his life studying the prophecies in the Bible with unflagging enthusiasm, attempting to understand what his omnipotent and omniscient God is telling us about the future of humanity, enabling him to see history in advance.<sup>1059</sup> In particular, Newton believed that the Bible predicted the second coming of Christ and the Millennium, when the Papacy would end and Christians would live in love and peace with each other, a similar vision to that of Comenius.

So when did Newton think that the apocalypse, prophesied in Revelations would happen? Well, a folio written during the last ten years of his life found in the Yahuda collection of Newton’s paper in Jerusalem, mentioned on page x, indicates that Newton was most reluctant to make predictions. As he said, “Christ comes as a thief in the night, and it is not for us to know the times and seasons which God hath put into his own breast.” So in *Observations upon the Prophecies of Daniel and the Apocalypse of St John*, published posthumously in 1733, Newton makes no predictions. However, he was particularly struck by three verses in Daniel:

And he shall speak great words against the most High, and shall wear out the saints of the most High, and think to change times and laws: and they shall be given into his hand until a time and times and the dividing of time. But the judgement shall sit, and they shall take away his dominion, to consume and to destroy it unto the end. And the kingdom and dominion, and the greatness of the kingdom under the whole heaven, shall be given to the people of the saints of the most High, whose kingdom is an everlasting kingdom, and all dominions shall serve and obey him.<sup>1060</sup>

In *Observations*, Newton interpreted “a time and times and the dividing of time” as one year plus two years plus half a year, which is 42 months or 1260 days, with 30 days per month. He then considered this number to be solar years, counting one day as a solar year. Coincidentally, 1260 days also appear three times in Revelations, twice as “a thousand two hundred and threescore days” and once as “forty and two months”.<sup>1061</sup> This correspondence between the Old and New Testaments was quite enough to indicate to Newton that the Apocalypse would happen at least 1260 years before some initial date.

So what did Newton consider this starting year to be? Well, on two folios found in the National Library of Israel, he considered this as 800 AD, the year in which the Popes’ supremacy commenced. For

this was when Pope Leo III crowned Charlemagne as the first Holy Roman Emperor and the Pope gained temporal power and dominion.

Like many Protestants, Newton likened this period of papal domination to the Babylonian captivity of the Israelites from 586 to 538 BCE,<sup>1062</sup> associated in particular with Nebuchadnezzar, described in the books of Jeremiah and Daniel in the Old Testament, brilliantly dramatized in *Nabucco* by Giuseppe Verdi (Joe Green). And Revelations predicts the fall of Babylon, figuratively referring to the Roman Empire, another dominant power, when it was written. Babylon, as a symbol of evil, was considered female during the patriarchal epoch, a great Whore made drunk by the wine of her fornication, mentioned several times in Revelations and in Newton's *Observations*. So although the phrase 'Whore of Babylon' does not explicitly appear in the Bible or in the Newton's writings that I have available, this term is sometimes associated with the Papacy in some Protestant circles.

A simple calculation then shows that Newton thought that the Apocalypse ushering in World Peace would occur around 2060, a date that he jotted down on two scraps of paper, not meant for publication. Coincidentally, this is end year of the 100-year transition from the me- to the us-epoch, as indicated in the table on page 166. But, of course, as individuals are awakening from their slumbers at widely different rates and periods in their lives, some have already passed through this discontinuity in evolution. And as humanity in its entirety is currently passing through the most momentous turning point in the fourteen billion-year history of evolution, we must expect not only the organized religions to disappear by 2060, but also the banks, political parties, and any other institutions that are based on the seven pillars of unwisdom, on the false belief that we humans are separate from God, Nature, and each other.

But to make this evolutionary vision crystal clear to a fearful, sceptical public, still living in darkness or semidarkness, we need to use generally accepted scientific method and more rigorous mathematics than Newton had available to him at his time. So the final three subsections of this section put a bit more flesh on the bare bones of the evolutionary model so far described.

### **Exponential rate of growth**

Useful as they are, Teilhard's and Wilber's models don't directly illustrate the exponential rate of human learning, especially the unprecedented pace of technological innovation during the second axial period, the first being in the first millennium BCE, mentioned on page 92. In terms of the second axial period, John Templeton wrote in 2000, "More than half the scientists who ever lived are alive today. More than half of the discoveries in the natural sciences have been made from 1900 to 1999. ... More new books are published each month than were written in the entire historical period before the birth of Columbus." He was then naturally led to the question, "Is the slow progress of prehistoric ages now speeding up?"<sup>1063</sup> Fairly obviously, this is the case, which we need a little bit of mathematics to fully understand.

The mathematical function that describes accumulative processes, such as evolution, is the exponential one, expressed as  $e^x$ , where  $e$  is the exponential constant, 2.71828. Now this function has some interesting properties. The rate at which it changes accelerates exponentially and the rate at which acceleration accelerates also accelerates exponentially, and so on. The exponential function thus describes the amazing rate at which evolutionary change can occur through the power of synergy, when new forms and relationships are created out of 'nothing'.

However, as the physicist Albert A. Bartlett has said, "The greatest shortcoming of the human race is our inability to understand the exponential function."<sup>1064</sup> We have some sense of what 100 years is like or even 1000, measured from our own lifespan of threescore years and ten, as the Psalmist put it.<sup>1065</sup> But what is a billion years in our experience or a quintillion years?

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We can much better understand the power of exponential numbers, if we think in terms of orders of magnitude or powers of ten, rather than the numbers themselves. So the time since the most recent big bang is just 10 or 42 orders of magnitude, depending on whether we measure time in terms of years or yoctoseconds ( $10^{-24}$ ).

In the 1930s, Edward Kasner tried to explain exponential numbers to his nine year-old nephew Milton Sirotta by asking him to create a name for a very big number.<sup>1066</sup> Milton showed that he had more wisdom than his mathematician uncle imagined. For he coined the word *googol* for  $10^{100}$ ,<sup>1067</sup> which is just 100 orders of magnitude, still quite manageable by the mind. In 1997, Google adapted this term, a misspelling of *googol*, for its search engine, to denote its mission to organize a seemingly infinite amount of information on the web.<sup>1068</sup> However, Milton went even further, also defining a googolplex as  $10^{\text{googol}}$ , a name that Google has given to its headquarters. But what on earth is a googol orders of magnitude? Or any of Gödel’s proof numbers in his incompleteness theorem?<sup>1069</sup> Or a googolplex to the power of a googolplex three times, like this, a number that is quite beyond our imagination:

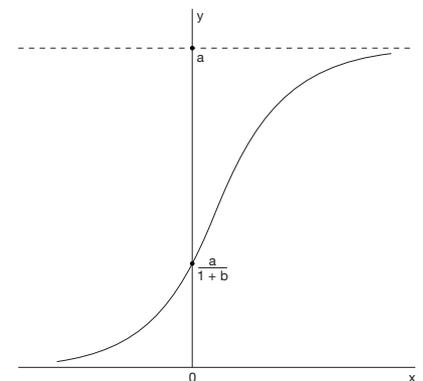
$$\text{googolplex}^{\text{googolplex}^{\text{googolplex}^{\text{googolplex}}}}$$

Yet, even raising a googolplex to the power of a googolplex googolplex times is tiny compared with the smallest infinity, the count of the integers or rationals, or the ‘largest’ infinity, which we can denote with  $\aleph_\infty$ , where  $\infty$  is  $\aleph_\infty$ , defined recursively. If we are not to be overwhelmed by such numbers, it is important to remember that this is just a game, the play of the Divine, which we can egolessly delight in and not be overawed by.

Now, structures do not always neatly follow the pure exponential function in their growth processes, as D’Arcy Wentworth Thompson showed in Chapter III, ‘Rate of Growth’ of his monumental *Growth and Form*.<sup>1070</sup> Rather surprisingly, John Tyler Bonner did not mention Wentworth Thompson’s extensive study of the growth curve in his abridgement of this influential book on morphogenesis.<sup>1071</sup> Nevertheless, others have used the growth curve to depict evolutionary processes, such as C. H. Waddington,<sup>1072</sup> Stephen Jay Gould,<sup>1073</sup> and Peter Russell.<sup>1074</sup> However, it is possible to define this curve, as a tool for thought, in precise mathematical terms, called the logistic function, as Pierre François Verhulst did in 1845, when studying Malthusian limits of population growth.<sup>1075</sup>

$$y = \frac{a}{1 + be^{-cx}}$$

This growth curve has applications in many different situations, not the least in human learning, when many are familiar with the flat part at the beginning, as we struggle to coordinate all the skills and ideas that we need for learning to accelerate exponentially. We can therefore call the turning point at the bottom of the curve the coordination point, which corresponds to the saturation point at the top, when learning reaches a plateau. It is important to understand the full shape of this learning curve. For when beginning a new project, it is easy to give up, saying, “I’ll never manage this.” And when growth is happening very fast, we think that it can continue indefinitely, such as the deluded belief about technological development and economic growth in today’s capitalist society. Gordon E. Moore is well aware of the limits of evolutionary growth. As he told a meeting of the world’s top chip designers and engineers on 10th February 2003, “No exponential is forever.” Irrationally, he then went on to say, “Your job is to delay forever.”<sup>1076</sup>



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Now the growth curve applies to biogenesis, just as it does to noogenesis, as Niles Eldredge and Stephen Jay Gould pointed out in a paper they presented at the annual meeting of the Paleontological Society and the Geological Society of America, in Washington, D. C., on 2nd November 1971, titled 'Punctuated Equilibria: An Alternative to Phyletic Gradualism'.<sup>1077</sup> At the time, the general consensus among palaeontologists and biologists was that evolution progresses gradually. But this does not explain why there are large gaps in the fossil record. There are long periods of virtual standstill (equilibrium), punctuated by episodes of very fast development of new forms. In actuality, evolution progresses in fits and starts, for as Eldredge put it in his book *Time Frames*, "once a species evolves, it will not undergo great change as it continues its existence."<sup>1078</sup> The same can be said about civilizations.

Now, while Teilhard showed that evolution produces ever-increasing complexity and hence consciousness, we need to turn to chaos theory, the complement of complexity theory, to understand what is happening to humanity at the present time. Leaps in complexity in self-organizing systems are known as bifurcations, divisions into two forks or branches, first studied by Robert May at Princeton when studying the strange properties of the logistic difference equation, a discrete-time demographic model analogous to the logistic equation above, not unlike the fractal equation for the Mandelbrot set on page 79:

$$x_{n+1} = rx_n(1 - x_n)$$

May used this equation to show the Malthusian principle that populations cannot grow indefinitely. Sooner or later populations must reach a point of equilibrium. Here, the parameter  $r$  represents the rate of growth, the term  $1 - x_n$  keeping the growth within bounds, since as  $x_n$  rises,  $1 - x_n$  falls.<sup>1079</sup> However, when May studied various values for  $r$  and  $x_0$  as models for imaginary populations of fish, he discovered that sometimes the value of  $x$  would oscillate at bifurcation points, which would then split at more and more bifurcation points until this periodicity gave way to chaos at a certain point, called the 'point of accumulation'. Although the mathematics behind this accumulation point is quite different from that of the logistics equation, we could say that it corresponds to the saturation point in the growth curve.

### **The Singularity in time**

We can thus look at evolution since the most recent big bang as a series of evolving systems, as has been done by a number of thinkers. For instance, in *The Phenomenon of Science*, the Soviet dissident Valentin Turchin explored the history of evolution in terms of cybernetics in 1977.<sup>1080</sup> And the biologist Elisabet Sahtouris is well known for presenting evolutionary processes in terms of conventional systems theory.<sup>1081</sup> Another example is Béla H. Bánáthy's *Guided Evolution of Society* from 2000.

In a similar vein, the journal *World Futures: The Journal of General Evolution* published *The World Futures General Evolution Studies* in fifteen volumes, edited by Ervin Laszlo in the 1990s. However, to understand how and when evolution's accumulation point arrives in human evolution, we can use much simpler mathematics than that used in complexity and chaos theories, totally free of our cultural conditioning, which tends to limit our understanding of evolutionary processes.

As evolution is an accelerating, exponential process, the time periods between major turning points get shorter and shorter, simply represented in a diminishing geometric series, where each successive term gets shorter by a constant factor. But rather surprisingly, the sum of an infinite series of such terms is not infinite, as Zeno of Elia and many others, have believed. As David M. Burton puts it in *The History of Mathematics*, "Zeno pointed out the logical absurdities arising from the concept of 'infinite divisibility' of time and space."<sup>1082</sup>

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This led Zeno to propose four clever paradoxes, the most famous of which is that of Achilles and the tortoise, which Aristotle described thus: “This claims that the slowest runner will never be caught by the fastest runner, because the one behind has first to reach the point from which the one in front started, and so the slower one is bound always to be in front.”<sup>1083</sup>

But what Aristotle called the dichotomy paradox is more directly applicable to our model of evolutionary development. This has two versions. If we wish to reach a particular goal, we must first reach halfway there. But before we can reach this point, we must reach a quarter of the way there. But before travelling a quarter, we must travel one-eighth; before an eighth, one-sixteenth; and so on. In this version, it thus seems that not only can we not reach our destination, we also cannot even begin our journey; motion is apparently impossible. In the second version of this paradox, before we reach our destination, we must travel half the way, then a quarter (half of what remains), an eighth, and so on. But we can never reach our goal. Or in the case of evolution, it can never reach its glorious culmination at its Omega Point.

Burton points out that this apparent paradox can be resolved through the notion of a ‘convergent infinite series’. As he says, “The paradox rests partly on the misconception that an infinite number of ever-shorter lengths (and, similarly, time durations) must add up to an infinite total.”<sup>1084</sup> But this is not the case, as illustrated by this general expression for such a convergent infinite series, where  $a$  is the initial term and  $d$  is the diminishing factor:

$$s = \sum_{i=0}^{\infty} \frac{a}{d^i} = \frac{ad}{d-1}$$

For instance, when  $a = 1$  and  $d = 2$ , as in the second version of the dichotomy paradox, we have:

$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots = 2$$

Exactly the same formula is used in fractional-reserve banking, which allows banks to lend far more money than they have in reserve, effectively creating money out of nothing. In this case

$$d = \frac{1}{1-r}$$

where  $r$  is the required-reserve ratio. For instance, if  $r$  is 10%, the fractional-reserve requirement is 9:1,  $d$  is 10/9, and  $s$  is 10 if  $a$  is 1. In general, the accumulated deposit is  $a/r$  and the total of newly created debt money is  $a(1-r)/r$ . The ratio of debt money (M<sub>I</sub> – M<sub>0</sub>) to the total money in circulation (M<sub>I</sub>) is thus  $1 - r$ . This table gives a few examples with different required-reserve ratios on an initial deposit of \$1,000.

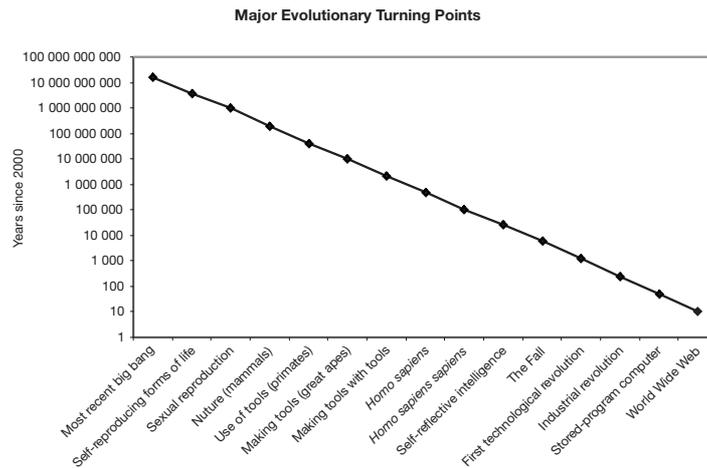
Required-reserve ratio	20%	10%	3%
Total deposits	\$5,000	\$10,000	\$33,333
Total debt money	\$4,000	\$9,000	\$32,333
Debt/total money	80%	90%	97%

To illustrate this principle of fractional-reserve banking, if a bank has a deposit of \$10,000 of central-bank money, then with a liquidity ratio of 10%, it can lend out \$9,000. If this loan is used to buy something, a used car, let us say, then the seller of the car can then deposit this \$9,000 in her bank. Of this, the bank can use \$900 as a reserve on which it can lend a further \$8,100. This process can continue indefinitely. In theory, the initial deposit of \$10,000 can generate total deposits up to \$100,000 generating \$90,000 new money as debt. As J. K. Galbraith writes in *Money: Whence It Came, Where It*

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Went, “The process by which banks create money is so simple that the mind is repelled.”<sup>1085</sup> It is not surprising that the entire world is in debt to the banks.

However, in Teilhard’s evolutionary model, we need other values in order to calculate when evolution is going to reach its Accumulation Point, which we can also call a Singularity in time. If we view evolution as a series of bifurcating systems, marking a sequence of major evolutionary turning points, then *a* in the formula above would be the period between the most recent big bang and the emergence of the first self-reproducing forms of life on Earth, about ten and half billion years, the beginning of the first two stages in Teilhard’s evolutionary model, respectively. We can then set *d* to the Feigenbaum constant  $\delta$  (about 4.472)<sup>1086</sup> in chaos/complexity theory to plot some major evolutionary turning points since then illustrated in this diagram.

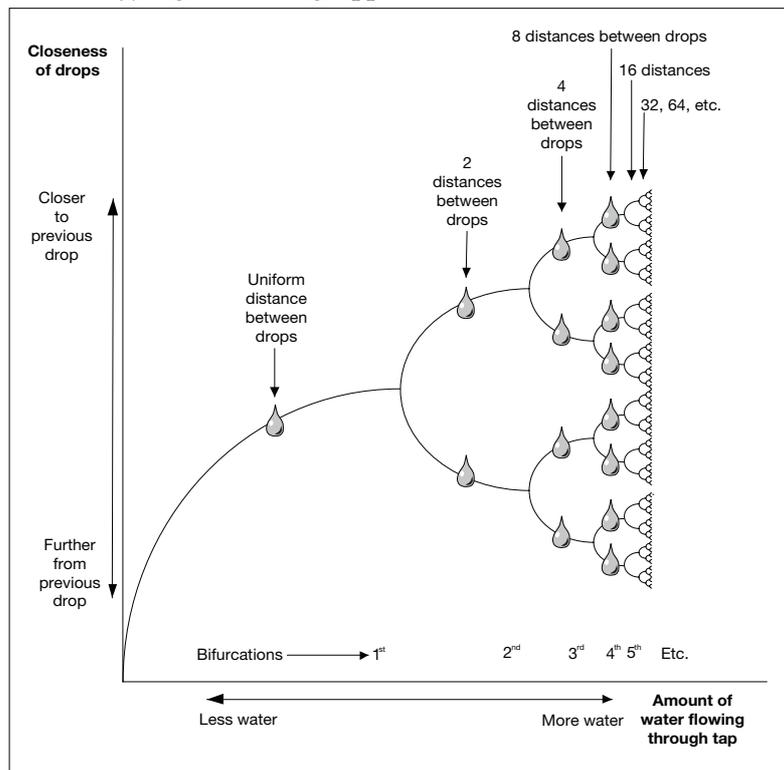


Nick Hoggard, an English software developer living in southern Sweden, developed this evolutionary model in an unpublished essay titled *SuperEvolution* around 2000, when he gave me a copy. In this uncompleted essay, he compared this bifurcating model to a dripping tap. When a tap is first turned on, drips are equally spaced and paced: drip-drip-drip. But as more water flows, the drips form pairs, with a larger distance between the pairs than within the pairs: drip-drip--drip-drip--drip-drip. This is the first bifurcation. Then, as the tap is opened up, the number of different distances between the drops doubles: drip-drip--drip-drip---drip-drip--drip-drip----drip-drip--drip-drip. At each bifurcation, the number of different distances doubles each time, illustrated in the next diagram, where a bifurcation ratio of 2 is used rather than 4.669 to make the diagram clearer.

So when are we going to reach evolution’s Accumulation Point? Well, we cannot be accurate to the nearest day in our calculations, even though we know that Tim Berners-Lee put the World Wide Web online to the public on 6th August 1991<sup>1087</sup> and that the first stored-program computers ran their first programs on 21st June 1948 and 6th May 1949, as we saw on page 105. There are various dates for the start of the Industrial Revolution, but if I remember correctly, Arnold Toynbee used 1760. These three points are enough to calculate the evolutionary Accumulation Point of the last fourteen billion years as around 2004, give or take a year or two, if we do a few sensitivity tests varying the input parameters.

This date is slightly different from the end of the sixteen billion-year vigesimal Mayan calendar, which is uniquely exponential in character, where *d* in the above formula is 20, approximately  $\delta^2$ . In other words, in Carl Johan Calleman’s mapping of evolutionary points to the Mayan calendar, only every other turning point is mapped, with *s* about 16 billion years, somewhat longer than the generally recognized length of time since the most recent big bang.<sup>1088</sup> However, the formula is not used in determining evolution’s Singularity in time. This is generally considered to have happened on 20th December 2012, using the

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Goodman-Martinez-Thompson (GMT) correlation coefficient to astronomers' proleptic Julian calendar of 584,283.

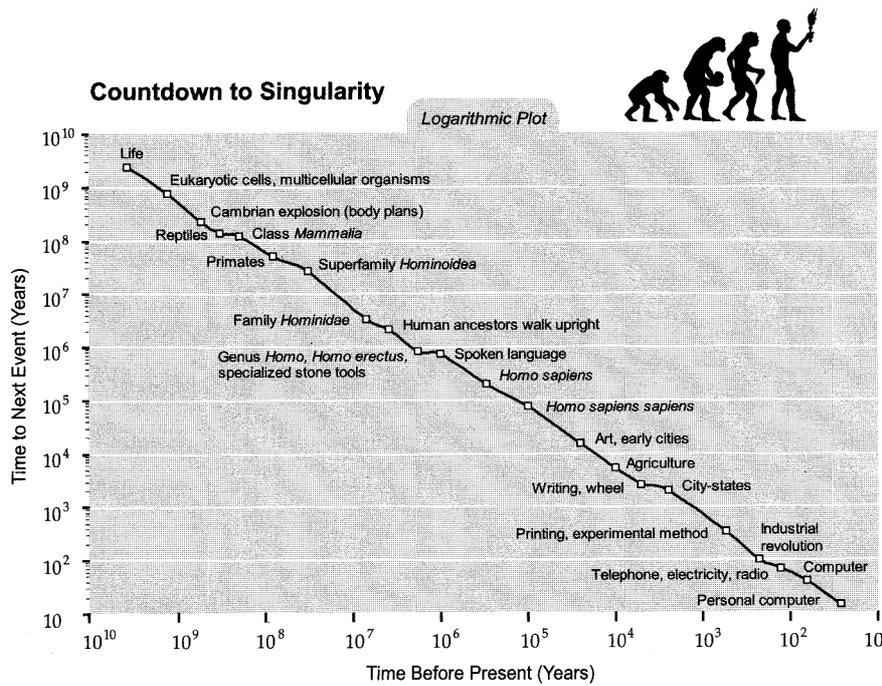
Terence McKenna and his brother Dennis have calculated a similar Singularity, which they call Timewave Zero, as the result of a vision that was revealed through a psychedelic experience in Amazonian Columbia in 1971, described in Terence's book *True Hallucinations*, from 1993, and the brothers' book *The Invisible Landscape*, first published in 1975, but republished in 1994 with more mathematical information about the singularity in time that was revealed to Terence, in particular.

In essence, it seems that Terence, who Jay Stevens described as a 'quicksilver poet-philosopher', almost immediately opened up to the entire Cosmos, seeing time as a series of hierarchical timewaves, resonating with each other within greater and lesser timespans, somewhat like fractals, with their property of self-similarity. Within a month of this life-changing experience, as he returned to Berkeley, Terence came "to realize that the internal logic of the timewaves strongly implied a termination of normal time and an end to ordinary history".<sup>1089</sup>

To make sense of this vision, Terence developed rather a rather complex algorithm of the transitions between the *I Ching* hexagrams in the King Wen sequence, which Richard Wilhelm presented in his translation of this Chinese classic. Then, with the help of Peter Meyer, he produced a fractal formula as a variation of the limiting-sum expression on page 177, with  $a = 79$  and  $d = 64$ . This is described in reasonable detail in a paper I wrote in September 2011, titled 'The Singularity in Time: The Omega Point of Evolutionary Convergence', so there is no need to go further into this model here.

Ray Kurzweil provides another exponential model in *The Singularity is Near*, published in 2005. Not recognizing the existence of the noosphere and numinosphere, he divides evolution on Earth into six epochs of patterns of information: 'Physics and Chemistry', 'Biology and DNA', 'Brains', 'Technology', 'The Merger of Human Technology with Human Intelligence', and 'The Universe Wakes Up', which he describes as "the ultimate destiny of the Singularity and of the universe".<sup>1090</sup>

To this end, a group of scientists and technologists have founded a Singularity University, whose "mission is to educate, inspire and empower leaders to apply exponential technologies to address



**Countdown to Singularity: Biological evolution and human technology both show continual acceleration, indicated by the shorter time to the next event (two billion years from the origin of life to cells; fourteen years from the PC to the World Wide Web).**

humanity's grand challenges."<sup>1091</sup> To promote its belief that robotics and artificial intelligence can solve humanity's grand challenges, the Singularity University has set up a Singularity Hub with the motto 'Science, technology, the future of mankind'.<sup>1092</sup>

So when Martin Rees says, "I think the odds are no better than fifty-fifty that our present civilisation on Earth will survive to the end of the present century without a serious setback,"<sup>1093</sup> he is grossly out in his estimation. The chances of Western civilization surviving until even 2020 are almost zero, for no civilization in human history has been more deluded, out of touch with Reality. The question we need to ask ourselves is whether *Homo sapiens sapiens* 'wise-wise human' can flourish and survive until 2100, when my grandchildren's grandchildren could be bringing up children of their own if evolution continues to follow the path of sexual reproduction it has been following for the past one billion years.

Sadly, very few people are yet willing to face our precarious situation with fully open eyes. One who is is James Lovelock, who, when Stephen Sackur asked him in a BBC Hardtalk interview in 2010, "What do you think is a viable [population] that Gaia, the planet, can sustain?" said, "I would guess, living the way we do, not more than one billion, probably less". At which Sackur said, "But that's postulating the most dramatic and terrible and unimaginable cull of the human species." To which Lovelock calmly replied, I think it will happen in this century. It will take a miracle for it not to.<sup>1094</sup>

### **Seven simultaneous turning points**

As evolution passes through the most momentous turning point in its history, if the children being born today are to have any chance of growing old enough to have children of their own, evolution has to pass through seven major turning points, all of which are taking place simultaneously in human history. So what Peter Russell calls our 'next evolutionary leap' is likely to be a very big jump indeed.<sup>1095</sup> To provide some structure for these changes, here is a brief summary of these different levels.

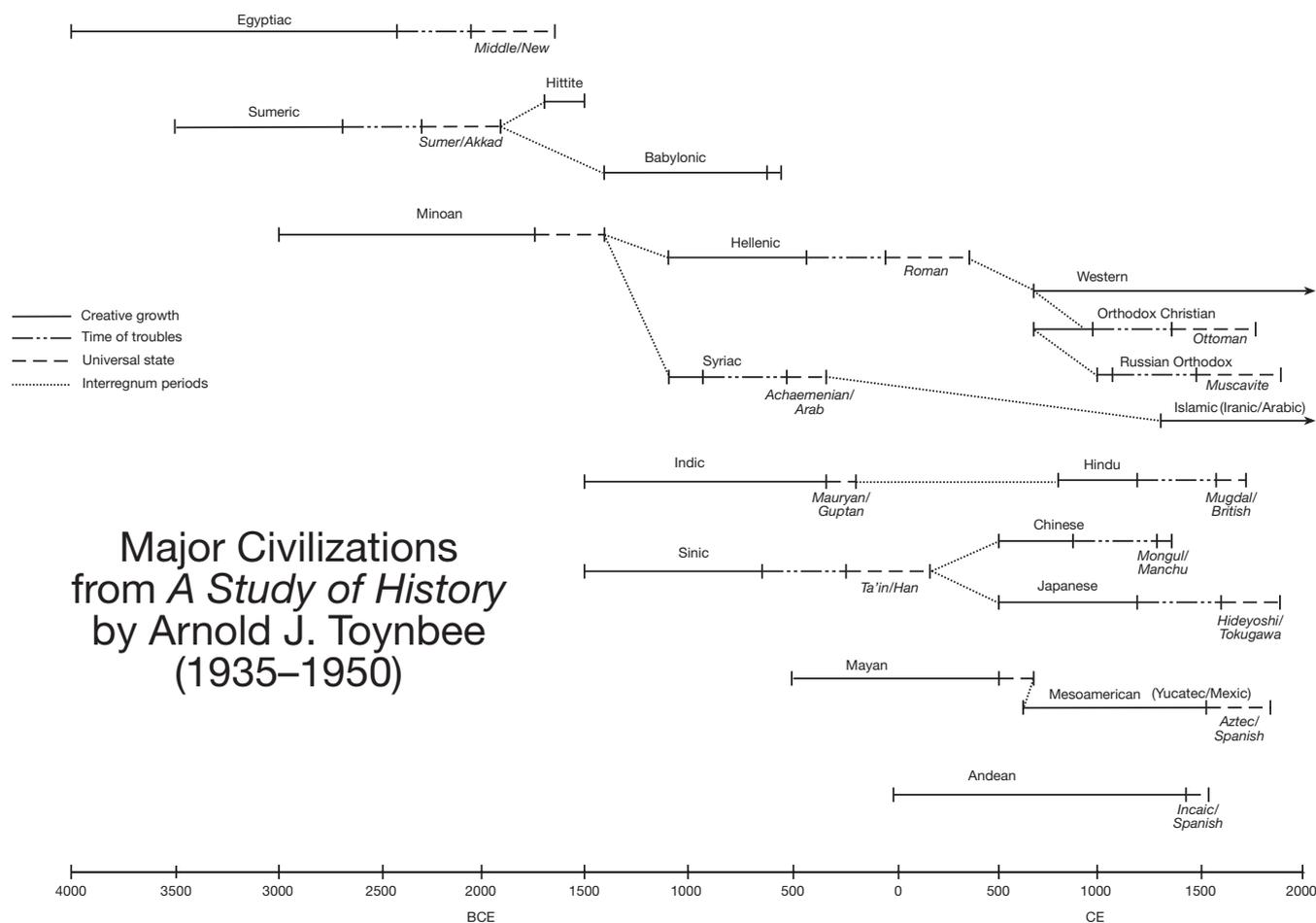
At the broadest level, we can distinguish, with Teilhard de Chardin, just four major stages in evolution during the fourteen billion years since the most recent big bang: physical, biological, mental or noetic, and

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spiritual. As the table on page 166 shows, the first three of these stages began some 14 billion, 3.5 billion, and 5,000 years ago. Despite the secularization of Western civilization, there is now considerable evidence that we are now entering the eschatological spiritual stage of evolution, when all the organized religions that have dominated human societies during the mental epoch will disappear.

Secondly, an increasing number of people today are noticing that a New Humanity is emerging,<sup>1096</sup> with characteristics that are so different from early forms of human that we could say that a new species is emerging. Indeed, as evolution has been more noogenetic than biogenetic for the past 5,000 years, with a 20,000-year overlap, at least, between the second and third stages of evolution, we can call the noological species that then emerged *Homo noeticus*, as we see on page 166.

Thirdly, we can look at the phylogeny of human consciousness from about 25,000 years ago in three phases, which we can call innocent, mental, and spiritual, illustrated in the diagram on page 167. During the first phase, our ancestors were like innocent, young children, from the Latin *nocentem*, present participle of *nocere* 'to hurt, injure'. So someone who is innocent is literally 'harmless'. It seems that this innocent matrifocal or matricentric age was comparatively peaceful, in contrast to the conflict-ridden mental epoch, when *Homo noeticus* came to dominate *Homo divinus*, which emerged when our forebears were given the great gift of Self-reflective Intelligence, as mentioned on page 167. With the invention of the stored-program computer with so-called artificial intelligence, we thus now have the wonderful opportunity to rise above our machines, fulfilling our destiny as the species we call *Homo divinus*.



Fourthly, in *A Study of History*, Arnold Toynbee distinguished some twenty civilizations that have emerged, flourished, and died during the patriarchal epoch. Using the generalizing principle of pattern recognition that we all use, he saw that civilizations go through various stages, the most important of

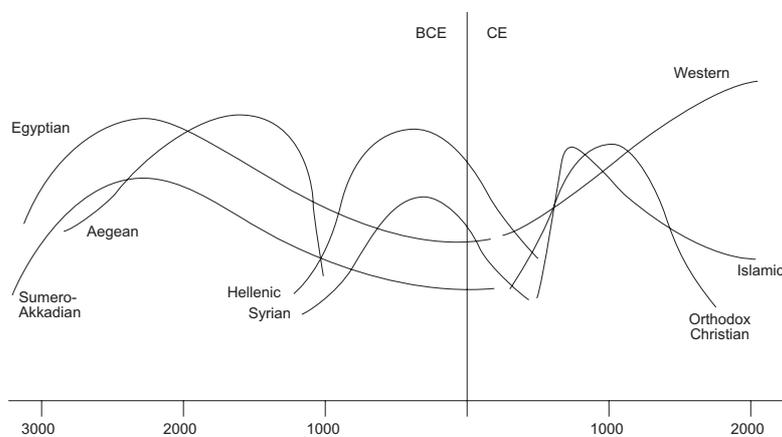
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which are creative growth, a time of troubles, and a universal state, when the creative energies that brought the civilization into being become ossified. The above diagram shows a timeline of these civilizations.<sup>1097</sup>

Toynbee summarized the reason for the death of civilizations in this way, which quite clearly applies to Western civilization today:

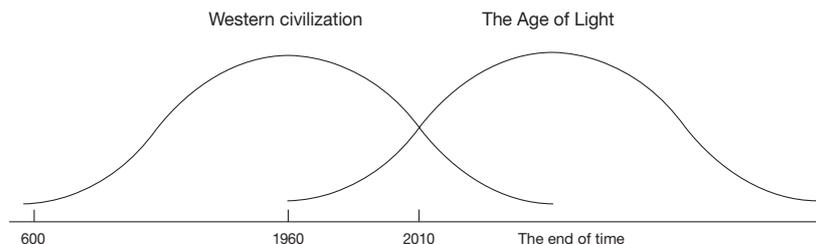
The nature of the breakdowns of civilizations can be summed up in three points: a failure of creative power in the minority [the leaders who brought the civilization into being], an answering withdrawal of mimesis [imitation] on the part of the majority, and a consequent loss of social unity in the society as a whole.<sup>1098</sup>

In *The Turning Point*, Fritjof Capra depicted the rise and fall of some of these civilizations around the Mediterranean, reproduced below.<sup>1099</sup> The important point to note is that all, with the exception of Western civilization, have a bell shape, although it is clearly premature to indicate that the Islamic civilization is dying. This is because, by the Principle of Unity, evolution must be balanced by a period of decay.



Today, the three dominant civilizations in the world, Christocentric Western civilization, the Islamic, and the emerging Chinese totalitarian capitalism have lost the creative power that brought them into existence. So they must all die so that the Age of Light, a society soundly based on Love and Peace, Life and Freedom, Wholeness and the Truth, and Consciousness and Intelligence, can emerge.

This is a rather tricky situation, for as spiritual seekers in the wealthy West are beginning to easternize Western civilization, the political focus in India and China, in particular, is to westernize the more impoverished East, losing touch with its mystical foundations. Then there is all the turmoil in the Middle East, with the many religious wars being fought within this region and with the world at large. So it is not easy to see how this will play out in the coming decades, for the next diagram, an extension of one in Fritjof Capra's *The Turning Point*, is a rather simplistic view of the death and rebirth of civilization as we know it today.<sup>1100</sup>



Sixthly, there is a revolution in science taking place today that is even more far-reaching than the Copernican revolution completed by Isaac Newton in 1687 with his *Mathematical Principles of Natural Philosophy*. In 1986, Willis Harman, then president of the Institute of Noetic Sciences (IONS), described this vision in these words:

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Most educated people in this country [the USA] would think it pretty preposterous to suggest that the change that is taking place is at as deep a level as the change that took place during the Scientific Revolution, because that would imply, of course, that the near future—the early part of the next century—would be as different from present times as present times are from the Middle Ages.”<sup>1101</sup>

Marilyn Schlitz, IONS President Emeritus, is following in his footsteps, saying, in a One-Minute-Shift video on the Web:

When Copernicus proved that the Earth revolves around the Sun, he literally changed the world as we knew it. Darwin and Einstein did the same in their day. What if we are now going through the next scientific revolution, one every bit as profound? For centuries, science and religion have been at odds. Science has focused on the physical, denying the reality of what most religions believe. However, today’s science is showing that some spiritual insights are actually scientific truths; that psychic abilities may be real; that we are all fundamentally interconnected; and that we all have innate abilities to heal and transform ourselves. Science and technology without wisdom can endanger life as we know it. But when we marry the best of science with the best of our wisdom traditions, humanity will have the capacity to create a more just, compassionate, and sustainable future.<sup>1102</sup>

Then on 20th July 2013, Stephen Dinan, founder of the Shift Network and formerly IONS Director of Membership and Marketing, convened a teleseminar titled ‘The Next Scientific (R)evolution The Emergence of the Akashic Paradigm with Consciousness at the Core’, with Ervin Laszlo, Ken Wilber, Barbara Marx Hubbard, Riane Eisler, and Duane Elgin.

As Ervin Laszlo said, we need to give up the idea that the world is a giant mechanism. Rather the Universe is “most like an Internet, a kind of Cosmic Internet. What you know about this information system, which we call the Internet, all things are somehow connected. You can reach any and all items on the Internet from any and all points. And they all hang together somehow.” Integral Relational Logic simply encapsulates this interconnected worldview, as we see in the diagram on page 139 in the notation of the Unified Modeling Language.

However, today’s scientific revolution is much more far-reaching than the term *paradigm shift* indicates, most popular today. In *The Structure of Scientific Revolutions*, mentioned on page 88, Kuhn used the terms *paradigm change* and *paradigm shift* twenty-three and six times, respectively,<sup>1103</sup> to denote such revolutions in worldview and scientific practice, when we learn to see a new gestalt.

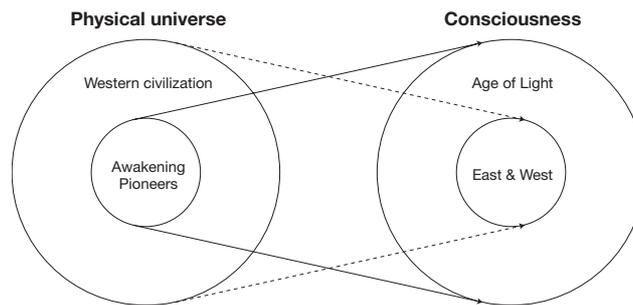
The word *gestalt* derives from German *Gestalt* ‘shape, form’, which the OED defines as “A ‘shape’, ‘configuration’, or ‘structure’ which as an object of perception forms a specific whole or unity incapable of expression simply in terms of its parts”. In other words, a gestalt is greater than the sum of its parts, viewed synergistically as an infinitely dimensional network of hierarchical relationships, the underlying structure of the Universe, as we see on page 144.

Like Kuhn, we could call this worldview a paradigm, from Late Latin *paradigma* ‘pattern, exemplar, example’. However, the pattern underlying the Universe is unlike any other, which we can see from the Greek root *paradeiknunai* ‘to show side by side, compare’, from *para-* ‘side by side, beside’ and *deiknunai*, ‘to show’, from PIE base *\*deik* ‘show’, also root of *teach*, *dictionary*, *judge*, and *token*. For although we form concepts in IRL by comparing data patterns of experience, putting similarities and differences into sets, as appropriate, as mentioned on page 139, the underlying pattern of the Universe lies in the ontological level of all knowledge, prior to interpretation by a knowing being. It is thus beyond compare.

Furthermore, the ontological level rests on the Gnostic level, as the diagram on page 132 depicts, which is not even a pattern or structure of forms. For Consciousness is a seamless, borderless continuum, with no divisions anywhere, including the divisions we make between science, philosophy, and religion. And viewing Ultimate Reality as Consciousness is essentially an Eastern worldview, bringing about the biggest change in Western thought since the Babylonians began to map the skies some 5,000 years ago.

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Rather, we are engaged today in a contextual inversion, which is truly a revolution, from Latin *revolvere* 'to turn over, roll back', as this diagram illustrates.



This leads us to the seventh of the turning points that are simultaneously taking place today. The materialistic economies of capitalism and communism, which threatened to blow us all up during the second half of the twentieth century, are inherently unstable and are causing severe psychological and ecological damage. If today's children are to have any chance of growing old enough to have children of their own, the global economy needs to die, giving way to a life-enhancing, ecologically sustainable Sharing Economy in which we shall all be empowered to reach our highest potential as human beings.

### **Social and psychospiritual considerations**

With evolution currently passing through the most momentous point in its fourteen billion-year history, what are the chances of *Homo sapien sapiens* 'wise-wise human' waking up in the eschatological Age of Light before our species inevitably becomes extinct? Well, in 1975 in *To Have or To Be?* Erich Fromm gave the chances as no more than two per cent,<sup>1104</sup> as we see on page xxiii. Given the iron grip that materialistic, mechanistic science and monetary economics has on most people's minds today, it seems that he was far too optimistic. Nevertheless, with the solution to the ultimate problem of human learning now being available, maybe we could narrow the odds a little. As this solution is the art and science of humanity that Fromm called for, in this section, let us therefore look at the possibilities.

The key point to note is that like the man in a strange town asking the way to the railway station, we cannot get there from here. We can only collectively reach evolution's glorious culmination at its Omega Point by starting afresh at the very beginning, at its Alpha Point. But when we do so, we realize that such a radical transformation of consciousness is not something that happens in the horizontal dimension of time, which is just an illusion, an appearance in Consciousness. No one can return Home to Wholeness, for nobody has ever left Home.

However, if evolution is to transform its predominant divergent tendencies into convergent ones, recognizing that there is a primary-secondary relationship between the vertical and horizontal dimensions of time, evolution has to pass through a discontinuity. And this cannot happen if we are content with our lives as they are today. As J. Krishnamurti has pointed out, radical transformations of culture and consciousness come about through discontent. There is no smooth ride to where we are going as a species.

### **Some possible scenarios**

One person who sees this is Jean Houston, who met Pierre Teilhard de Chardin in Central Park in New York when in her teens, when 'Mr Tayer', as she knew him at the time, would sometimes talk about the Omega Point on the walks they took together.<sup>1105</sup> Jean calls the changes that evolution is making today 'Jump Time', writing, "Jump Time is a whole system transition, a condition of interactive change that affects every aspect of life as we know it."<sup>1106</sup> As she says, "Ours is an era of quantum change, the most radical deconstruction and reconstruction the world has seen."<sup>1107</sup>

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Another with a similar vision is John L. Petersen, founder of the Arlington Institute in 1989, as a think tank to “serve as a global agent for change by developing new concepts, processes and tools for anticipating the future and translating that knowledge into better present-day decisions”. John is not a flaky New Ager, for he has formerly worked in various governmental and political positions in the USA, setting up a portal for what he sees as the World’s Biggest Problems: Economic Collapse, Peak Oil, Global Water Crisis, Species Extinction, and Rapid Climate Change.<sup>1108</sup>

As Petersen says in *A Vision for 2012*, we are currently entering a “historical, epochal change—a rapid global shift unlike any our species has lived through in the past. ... There are no direction-pointing precedents for what is coming, ... there is no one alive today who [has] lived through anything like what we’re anticipating.”<sup>1109</sup>

Well, this is not quite true, for the author of this treatise is at least one who has already lived through what the rest of the human race is yet to experience. From a social perspective, the key issue here is which of two possible scenarios that John outlined in an interview in the June–August 2009 issue of *EnlightenNext* is more likely: “with the internet or without the internet”. If you don’t have the Internet, something really bad has happened, but with the Internet, the shock wouldn’t be so disastrous as it would if it all came down. He went on to say:

So we don’t want a crisis that is so bad that it collapses the whole system. We want this kind of finely engineered middle-ground disruption to scare everybody, grab them by the lapels, and say, “We can’t do this anymore!” It convinces everybody that they have to redesign their lives, but you don’t lose the infrastructure. You can rebuild around something rather than rebuild the entire infrastructure.<sup>1110</sup>

As the Internet is implicitly built on Integral Relational Logic, the commonsensical art and science of thought that we all use everyday, no matter what our cultural background might be, the Internet could provide the continuity we need as the financial infrastructure of society collapses around our ears. But whether this scenario is going to happen is most improbable while first-tier consciousness, described on page 188, continues to dominate society, laying down the laws that govern our economic affairs and educate our children.

Petersen described what is far more likely to happen in an interview in the *What Is Enlightenment?* magazine in July–September 2007, with the title ‘The End of the World As We Know It?’:

As far back as 1986, I figured out that there was a whole string of potential events that were converging and could result in major disruption within twenty-five years. Around the same time, I discovered the work of Chet Snow and Helen Wambach who together wrote a book, *Mass Dreams of the Future*, based on their work doing remote viewing exercises [clairvoyance under hypnosis]. They asked twenty-five hundred people to envision the United States in the year 2030. About eighty-five percent of them reported the same thing: It’s a place with no government, divided politically into four quadrants, and everyone is living in small communities, some of which are defensive and full of guns and others where people cooperate and work together.<sup>1111</sup>

Some intentional communities and ecovillages are already making preparations for this eventuality, endeavouring to be as self-sufficient as possible. But such a strategy is not viable in the long-term even within rural areas. For if the global economy self-destructs without a viable alternative, starving millions are likely to leave the cities, seeking food for themselves and their families. Already today, the number of refugees fleeing wars and poverty has passed fifty million for first time since the Second World War, a UNHCR report published on 20th June 2014 tells us.<sup>1112</sup> So even though there is immense potential for the awakening of intelligence and consciousness, with today’s very low level of these qualities, it is most uncertain how the world will respond to the inevitable collapse of the financial infrastructure of society. Crises of life and death can bring out the very best and the very worst in people.

Over the years, poets, novelists, philosophers, and mystics, among others, have painted various pictures of a utopian or dystopian future for humanity. For instance, many are familiar with Aldous Huxley’s

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*Brave New World* and George Orwell's *Nineteen Eighty-Four*, written in 1932 and 1949, respectively, visions of the future if Western civilization continues to develop blindly, without any understanding of why we human beings behave as we do. Such dystopias are 'bad places', from Greek *dus* 'bad' and *topas* 'place', in contrast to utopias, 'no-places', from Greek *ou* 'not', a pun on *eutopia* 'good place', from Greek *eu* 'good', both words being coined in Thomas More's *Utopia* in 1516, first translated from Latin into English by Ralph Richardson in 1551.<sup>1113</sup>

After Huxley wrote *Brave New World* as a warning against the dehumanizing effects of scientific and material progress, he moved to California, where he "came increasingly to believe that the key to solving the world's problems lay in changing the individual through mystical enlightenment,"<sup>1114</sup> in 1945 publishing a beautiful anthology of writings describing the perennial wisdom underlying all the religions.<sup>1115</sup> Then, to explore the possibilities of awakening to the Divine, Huxley began to experiment with mescaline, describing his experiences in *The Doors of Perception*, the title being taken from William Blake's illuminated book *The Marriage of Heaven and Hell*: "If the doors of perception were cleansed every thing would appear to man as it is, infinite. For man has closed himself up, till he sees all things thro' narrow chinks of his cavern."<sup>1116</sup>

In turn, Blake wrote this book as a refutation of Emanuel Swedenborg's *Heaven and Its Wonders and Hell*,<sup>1117</sup> a scientific analysis of Heaven, which he divided into two parts, Celestial and Spiritual Kingdoms, and Hell, to which people go after death if the person was grasping, resentful, or deceitful, for instance. Swedenborg, a renowned scientist and devout Christian, wrote this book following a great spiritual awakening in his fifties. This initially appealed to Blake, who then realized that Swedenborg had "created a doctrine too firm in its beliefs to allow for freedom."<sup>1118</sup>

Yes, indeed. Jung broke with Freud essentially because the latter had become too dogmatic in his beliefs and theories. Even though the Cosmic Psyche can open its secrets to us, our cultural conditioning often inhibits us from realizing a full understanding of our experiences, keeping us to some extent locked up in our caverns. Plato well illustrated this situation with his allegory of a cave, where prisoners, chained in a cave, can only see illusionary shadows, rather than the eternal forms that Plato, as a philosopher, regarded as reality.<sup>1119</sup>

Returning to Huxley's experiment, taking four-tenths of a gramme of mescaline radically altered his perception of space and time: "Space ... had lost its predominance. The mind was primarily concerned, not with measures and locations, but with being and meaning. ... My watch ... was in another universe. My actual experience ... was ... of a perpetual present made up of one continually changing apocalypse."<sup>1120</sup>

This is very much what we all need to experience, which, in my case, has come about by noticing that information systems architects, computer programmers, mathematicians, and physicists treat mass, space, and time in exactly the same way as any other variable in their models, programs, and functions, as described on page 140. I have no experience of taking psychotropic drugs, about which there is much controversy and misunderstanding. To avoid the negative connotations of words like *psychedelic* and *hallucinogen*, in 1979, Jeremy Bigwood and four others proposed "a new term that would be appropriate for describing states of shamanic and ecstatic possession induced by ingestion of mind-altering drugs ... *entheogen*", from Greek *entheos* 'god within, divine inspiration' and *-genēs* 'born'.<sup>1121</sup> So *entheogen* means 'awakening the Divine within'.

Huxley, himself, went on to write *Island*, where the inhabitants live in a society where Western science has been brought together with Eastern mysticism to create a paradise on Earth. In this utopian novel,

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the *entheogenic* substance is called *moksha*-medicine,<sup>1122</sup> from Sanskrit ‘liberation’, in contrast to soma in *Brave New World*, a name derived from a plant referred to in the *Rig Veda*, much used in religious rituals.<sup>1123</sup>

It is interesting to note that both More and Huxley’s utopias are based on islands, separate from the rest of society, still at war with itself. In contrast, Thea Alexander describes a world in her post-apocalyptic novel *2150 A.D.* where an awakened society is in the majority. In 2150, there are just 300 million people on Earth living in what she calls the ‘Macro Society’ living cooperatively in Wholeness, while another 3 million live on Micro Island, where people can “live selfishly and in fear of their fellow micro neighbours”,<sup>1124</sup> like society in the 1970s, when the book was written. Of course, this means that between now and then, the human population on Earth will decrease rapidly. As Carol explains to Jon, travelling forward in time:

There would have been a lot more, in spite of the physical disasters, if micro man could have at last cooperated and helped each other. Unfortunately, he accentuated all the traditional divisions—nationality, race, religion, language, educational and socioeconomic levels—and fought over the fast-dwindling resources of his ravaged planet.<sup>1125</sup>

Looking even further ahead, Doris Lessing’s *Mara and Dann*, written in 1999, is set many thousands of years in the future, towards the end of the next ice age, when the whole of Europe is covered in ice down to the Mediterranean. The only inhabitable land at these lines of longitude is Africa, called ‘Ifrik’ in the book. But this suffers from climate change, with parched lands and the occasional flash flood. The novel describes Mara and Dann’s struggle to survive in these primitive, hostile conditions and of their journey from southern Africa to the north, where conditions are a little more amenable. Mara, who grows into womanhood from a young girl on this adventure, is keen to learn about life in earlier times. But like so many people today, she struggled to grasp the exponential nature of time: “When Mara said hundreds, she meant a long time; and when thousands, it meant her mind had given up, confessed failure: thousands meant an unimaginable, endless past.”<sup>1126</sup>

This is one depiction of what life might be like for the last human beings living on Earth. Will these people have evolved into superintelligent, superconscious beings, having risen above the level of our machines? By this time, the Internet will be long gone, so it is unlikely that they will have anything to compare their minds to. Maybe they will be like Mara, aware of a more knowledgeable society in the past that has long ago disappeared. Or maybe they will be like our forebears some 25,000 years ago, in touch with the Divine, but not able to make sense of their experiences. While evolution still has some way to go before our species collectively reaches the Omega Point, it is clear that one day evolution is destined to go into reverse.

### ***The spectrum of consciousness***

To come to harmonious terms with this inevitable implication of the Principle of Unity, we need to recapitulate the Cosmogonic Cycle, outlined on page 190. But first, let us look briefly at the various levels that our consciousness passes through, as we develop as individuals and as a species, both ontogenetically and phylogenetically.

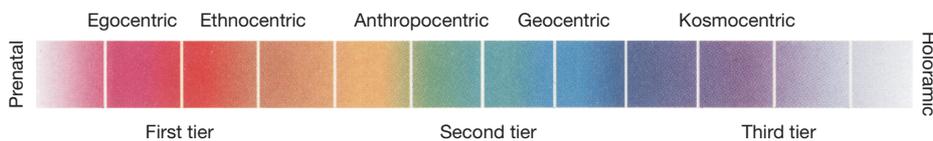
As we see in Subsection ‘Our Shared Identity’ on page 197, while there is only one True Identity that we all share, there are many different levels of personal identity, which we can begin to explore through what some philosophers, psychologists, and spiritual teachers call the spectrum of consciousness. However, one difficulty we face here is that as we grow and develop, we tend to identify with whatever level of consciousness we have reached at any one stage in our lives, not being fully aware of the next stage or stages.

For instance, Maharishi Mahesh Yogi, who introduced the popular TM form of meditation, defined seven states of consciousness, illustrated in this table:<sup>1127</sup>

**THE SEVEN STATES OF CONSCIOUSNESS**

State	Awareness of Self	Awareness of Outer World	Absolute-relative Paradox
1. Dreamless Sleep	Absent	Absent	—
2. Dreaming	Absent	Hallucinatory	—
3. Waking	Absent	Present	Discoverable by intellect
4. Transcendental Consciousness	Present	Absent	Absent
5. Cosmic Consciousness	Present	Present	Present to perception
6. God Consciousness	Present	Present	Partially resolved
7. Unity	Present	Present	Resolved

Taking a much broader perspective, Ken Wilber has spent a lifetime creating a great synthesis of models of human development, including those of Jean Piaget, Aurobindo Ghose, Clare Graves, Don Beck, Robert Kegan, Jean Gebser, Jane Loevinger, and James Fowler. He has thereby shown in a brilliant series of books from *The Spectrum of Consciousness* in 1977 to *Integral Spirituality* in 2006 that we human beings develop through various levels and tiers of consciousness, reaching a maximum according to our lights, a maximum that incorporates all the earlier levels, simplified and modified here.



It is a very helpful model, despite its weaknesses. In particular, it does not include the pre- and perinatal domain, as Stanislav Grof points out in an article in *Ken Wilber in Dialogue*.<sup>1128</sup> For instance, in the Preface to *Integral Life Practice* from 2008, which Ken describes as a ‘second-tier practice’, he says, “Developmental models are in general agreement that human beings, *from birth*, go through a series of stages or waves of growth and development.” [my emphasis]<sup>1129</sup>

Regarding the model itself, the first tier is essentially which is essentially dualistic, defined on page 147, with a distinct separation between opposites. At the lowest level is an egocentric identity, where the emphasis is on our unique bodies and minds. The next level is ethnocentric, such as that shared by nations and religions, such as Chinese and Christianity. The vast majority of humankind live predominantly at this level of consciousness, which is why democracies are limiting, attempting to inhibit the rest of humanity from developing into the second and third tiers. As Alexis de Tocqueville pointed out in *Democracy in America* in the middle of the nineteenth century, democracies are the tyranny of the majority or masses,<sup>1130</sup> as tyrannous as the despotic forms of governance that they are intended to replace, a critical situation that John Stuart Mill further explored in *On Liberty*. As he said:

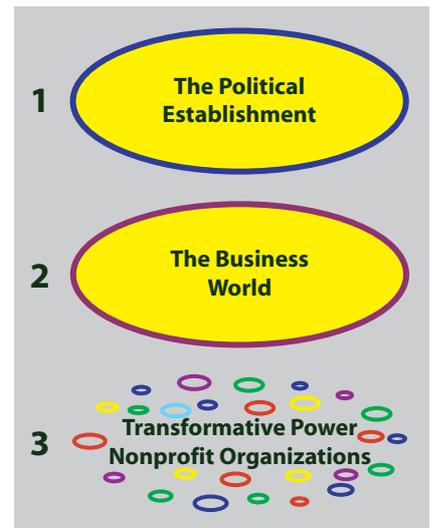
In general, opinions contrary to those commonly received can only obtain a hearing by studied moderation of language and the most cautious avoidance of unnecessary offence, from which they can hardly ever deviate even in a slight degree

### *Unifying Polarizing Opposites in Nondual Wholeness*

without losing ground, while unmeasured vituperation employed on the side of the prevailing opinion really does deter people from professing contrary opinions and from listening to those who profess them.<sup>1131</sup>

In the second tier, which Ken calls the worldcentric,<sup>1132</sup> we move from dualism to duality. However, it would perhaps be better called *mundocentric*, from the Latin *mundus* ‘world’, cognate with *mundane*. We can see different levels of identity here too. When we identify with *Homo sapiens sapiens* to the exclusion of the other species, we can call this an anthropocentric identity. Then there is the mechanistic identity that some share with stored-program computers as knowledgeable, information-processing beings. Broadening further, we also have a geocentric identity that we share with the other animals, living beings, and even rocks as earthlings dwelling on our beautiful planet Earth.

This second tier is much more heterogeneous than the first, which seeks to hold on to the seven pillars of unwisdom at all costs. All that the people in this second tier seem to have in common is the recognition that things need to change, but there is very little agreement on how this should be done. Ingemar Warnström, founder of the former University of Global Well-Being in Sweden, illustrates the lack of synergy here. In 2002, he attempted to set up a HOPE Alliance, *HOPE* being an acronym for ‘Healing Our Planet Earth’. His hope was that we could take civilization in a quite new direction, building “a society in which the quality of life, fairness, and human values are central”. Ingemar illustrated the need for greater cooperation with this diagram, showing how political and business institutions, in the first-tier of the consciousness spectrum, work symbiotically together, while the transformative powers of the alternative second-tier movement, which Paul H. Ray and Sherry Ruth Anderson call the cultural creatives,<sup>1133</sup> are much fragmented.



However, even when such organizations come together with a common purpose, they are still required to function within the economic and legal framework designed by first-tier consciousness. As a consequence, individuals living in this tier are often pulled back by the first tier, not able to fulfil their fullest potential in the third tier. So in Section ‘Living the Vision’ on page 203 we address this critical issue, with the proposal for setting up the Alliance for Mystical Pragmatics.

In the third tier, we move from duality towards Nonduality as Ultimate Reality in two quite distinct ways, which need to be unravelled before they can be brought back together again. Andrew Cohen and Ken Wilber call the third tier cosmocentric<sup>1134</sup> and kosmocentric, respectively, meaning “an identification with all life and consciousness, human or otherwise, and a deeply felt responsibility for the evolutionary process as a whole ... an emergent capacity, rarely seen anywhere”.<sup>1135</sup> However, there is some confusion here between evolutionary and involutory processes.

As we see on page 169, Ken has tried to use Aurobindo’s notions of evolution and involution and the Great Chain of Being to make a distinction between these two processes and so explain the goal of the third tier. In *Sex, Ecology, Spirituality* from 1995, in a chapter titled ‘The Depths of the Divine’, he calls the four levels of the third tier ‘Psychic’, ‘Subtle’, ‘Causal’, and ‘Nondual’,<sup>1136</sup> while in *Integral Spirituality* in 2006 he calls these levels ‘Illumined Mind’, ‘Intuitive Mind’, ‘Overmind’, and ‘Supermind’. So while in his early studies of the further reaches of human consciousness, Ken has focused attention on the downward involutory movement in the vertical dimension of time, in his later writings, he is more focused on the upward evolutionary movement.

However, because AQAL is an integrated operating system (IOS) running within the auspices of all-inclusive IRL, Ken has conflated the involutory and evolutionary spiritual paths. But when we



distinguish and unify them, we can see that we are now not only standing on the summit of the mountain of all knowledge, but at once, resting in Stillness at the bottom of the Ocean of Consciousness, depicted in this photograph of Hardanger Fjord in Norway, where mountains 1000 m high plunge into the ocean 1000 m deep. It is by standing on this pathless land on the top of this mountain, like Hardangervidda, a nearby mountain plateau, that we can take a

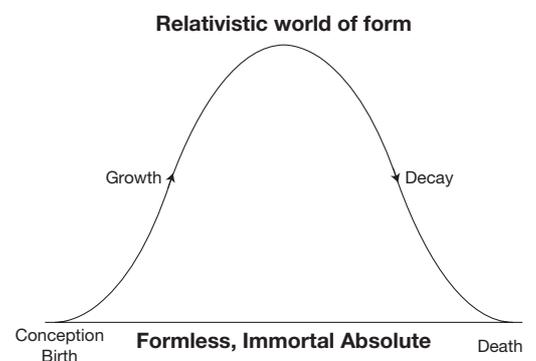
Holoramic 'Whole-seeing' perspective of the Cosmos, from Greek *òlos* 'whole' and *òrama* 'sight, view', cognate with *panoramic* 'all-seeing'.

Of course, we should not forget that all levels and tiers of consciousness are constructs of the categorizing mind, forming concepts by looking at similarities and differences in the data patterns of experience, as described on page 139. In Reality, there are no divisions in Wholeness, which we can realize by recapitulating the Cosmogonic Cycle.

### **Recapitulating the Cosmogonic Cycle**

A Google search on 25th May 2013, when I first wrote this subsection, returned 5,500 hits for the term *Cosmogonic Cycle*, quite a few, but not many considering the billions of pages on the World Wide Web. So this phenomenon is not entirely unknown, albeit often unnamed, as we see in the two quotations on page 19. It was Joseph Campbell who coined the term *Cosmogonic Cycle* in his popular book *The Hero with a Thousand Faces*, no doubt much read because it succinctly encapsulates the journeys so many spiritual seekers experience.

However, *Cosmogonic Cycle* requires a little explanation, for *cosmogony* 'derives from Greek *kosmogonia* 'creation of the world', from *kosmos* 'order, world' and *-gonia* '-begetting', schematically depicted in the sigmoid growth curve on page 175. But this only gives us one side of the story, *cosmogony* meaning 'study of the origin and evolution of the universe'. To obtain a complete picture of the Universe we need to cycle back to the Origin, from Greek *kuklos* 'circle', as in this diagram, which can also be used to study peak oil and many other growth-and-decay phenomena.



As Campbell says, "Redemption consists in the return to superconsciousness and therewith the dissolution of the world. This is the great theme and formula of the cosmogonic cycle, the mythical image of the world's coming to manifestation and subsequent return into the nonmanifest condition."<sup>1137</sup> For as the schematic life-and-death curve in this diagram graphically illustrates, all beings in the Universe are born to die, or, in the case of mammals, birds, and reptiles, at least, are conceived to die.

In other words, if we are to live in harmony with the fundamental law of the Universe, we also need to experience involution, as mystics through the ages have taught, returning Home to Formlessness through a psychological death before physical death, encapsulated in the term *jīvanmukti*, from Sanskrit *jīva* 'to live' and *moksha* 'liberation from worldly bonds'. For instance, the incantation *neti neti* 'not this, not this' in *jñāna-yoga* 'path of wisdom and abstract knowledge' in Advaita can help us to answer the most fundamental question we can ask ourselves: "Who am I?" As Anne Baring delightfully puts it in *The*

*Dream of the Cosmos: A Quest for the Soul*, the answer to this question would be “I am the Soul of the Cosmos discovering itself through its own creation.”<sup>1138</sup>

So if we are to obey the fundamental law of the Universe, our lives—as both individuals and as a species, from conception and birth to death—must recapitulate the Cosmogonic Cycle, which all forms follow, no matter what their lifespans might be, from a few yoctoseconds to zillions of years. Otherwise, we are bound to suffer.

Conscious evolution thus implies conscious involution, graphically described in the myths and fairy tales of all cultures and times, which Campbell brilliantly synthesizes in Part I of his wonderful book. He calls the hero’s adventure the ‘monomyth’, a term borrowed from James Joyce’s *Finnegans Wake*, consisting of three major stages: separation or departure, initiation, and return. In the monomyth, “A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man.”<sup>1139</sup>

Essentially, the hero leaves the society in which he is born in search of the Divine, which he finds at the end of stage two of Campbell’s three-stage model, for societies are not generally grounded in Reality. For many spiritual seekers, this is the end of the journey, but not for Campbell, who is one of the most advanced both-and thinkers I have ever read, clearly expressed in his androgynous view of the fully awake human being. The third stage is one in which the mundane and the Divine are fully integrated while living in society, a central theme of Anne Baring’s magnificent *The Dream of the Cosmos*.

The table below lists the three major stages of the hero’s journey and their divisions into seventeen steps, corresponding to the thirty-one functions or happenings that Vladimir Propp identified in Russian folktales, mentioned on page 63. This was possible because Campbell, like Propp, was well aware of the immense power of abstract thought, able to see the underlying patterns and generalities in the myths and stories in all cultures of the world.

Departure	Initiation	Return
The Call to Adventure	The Road of Trials	Refusal of the Return
Refusal of the Call	The Meeting with the Goddess	The Magic Flight
Supernatural Aid	Woman as Temptress	Rescue from Without
The Crossing of the First Threshold	Atonement with the Father	The Crossing of the Return Threshold
Belly of The Whale	Apotheosis	Master of Two Worlds
	The Ultimate Boon	Freedom to Live

As we see, at the end of the second stage of the spiritual journey, the hero finds the Ultimate Boon, which, for some is the end of the quest. However, while returning to the Source is the end of the individual’s journey, it is not really the end of humanity’s spiritual quest as a species. As Campbell points out, there is third stage in the monomyth: the return to society. As he says, “The return and reintegration with society ... is indispensable to the continuous circulation of spiritual energy into the world.” However, “the hero himself may find [this] the most difficult requirement of all.”<sup>1140</sup> Campbell gives three reasons for the hero’s predicament:

1. The bliss of this experience may annihilate all recollection of, interest in, or hope for, the sorrows of the world; or else the problem of making known the way of illumination to people wrapped in economic problems may seem too great to solve.
2. The powers that he has unbalanced [on his journey to Freedom] may react so sharply that he will be blasted from within and without—crucified.
3. The hero may meet with such a blank misunderstanding and disregard from those he has come to help that his career will collapse.<sup>1141</sup>

On this third point, “Even the Buddha ... doubted whether the message of realization could be communicated.” And on the first point, “Saints are reported to have passed away in the supernal ecstasy.”<sup>1142</sup> For these three reasons, Campbell says that the responsibility of returning to the world with the adventurer’s life-transmuting trophy when the hero-quest has been accomplished has been frequently refused.

### ***Becoming free of our ancestry***

However, not always. People on the spiritual quest often follow the epithet “Be in the world, but not of it,” depicted in this graphic from the *What is Enlightenment?* magazine. As the suit and tie symbolize, we are



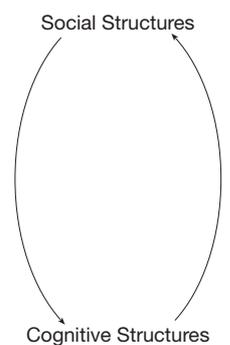
all obliged to follow the economic laws of the prevailing culture, even if these are causing severe psychological and ecological damage. So in some aspects, at least, ontogeny recapitulates cultural phylogeny, even though such a way of life is unsustainable and is no longer viable.

For as J. Krishnamurti wisely said, “It is no measure of health to be well-adjusted to a profoundly sick society.”<sup>1143</sup> Thus, while those seeking to heal themselves must be outsiders of Western civilization, they are insiders of whatever civilization might arise from the death of the global economy.

So if human phylogeny is to recapitulate the Cosmogonic Cycle, it is necessary for cultural phylogeny to recapitulate the ontogeny of those pioneers taking evolution in a quite new direction, as happens when new species break away and emerge from their immediate specific ancestors. We see a similar situation in the death and birth of new civilizations, as Arnold Toynbee explained on page 181.

That is what is happening in the world today, for some visionaries see a new civilization or even a new species emerging, as we saw on page 181. This is not a biological species, for evolution during the past five to twenty-five thousand years has been more mental in the noosphere than biological. As mentioned there, we can best call the emerging species *Homo divinus* to indicate that humanity is consciously coming back into union with the Divine, following the split encapsulated in the word *human* ‘earthling’, in contrast to the Divine, as mentioned on page xxxv. We need to emphasize *consciously* for in Reality no one is ever separate from our Immortal Ground of Being for an instant. But sadly, many do not know this, ignorance encapsulated in the Sanskrit word *avidyā*.

But how could *Homo divinus* evolve from *Homo noeticus*, which emerged soon after the former, suffocating it almost as soon as it was born? Well, the adjacent diagram illustrates the central issue here. As children, we learn what our parents and teachers want us to learn, in church and at school and university, carrying this learning into the workplace. Each generation thus passes on to the next generation what they have learned from the previous generation, a cyclic process that has been going on for some 25,000 years. Questioning these deeply held cultural beliefs often leads to ostracization, historically even to imprisonment and execution.



Then during the 5,000 years of the patriarchal epoch, which began at the dawn of written history and the first city-based civilizations, our cultural worldviews have become increasingly set in concrete. Our individual ontogenies recapitulate this mental phylogeny, our behaviour patterns being well established by the age of five or even earlier—before birth even. So the institutions that govern our lives are the products of these rigid cognitive structures, which, in turn, inform us what and how we learn. For our minds create

our reality and govern our behaviour. This means that the phylogeny of the species, or of any culture, is actually the synthesis of all individual ontogenies.

To break free of this pernicious cycle, in *The Ghost in the Machine* Arthur Koestler gave an explanation of how new species can emerge with the words *gerontomorphosis* ‘the shaping or forming of the old’ and *paedomorphosis* ‘the shaping or forming of the young’. During gerontomorphosis, evolution progresses from immediately preceding forms and structures, as in phylogeny. However, as Koestler puts it, “gerontomorphosis cannot lead to radical changes and new departures; it can only carry an already specialized evolutionary line one more step further in the same direction—as a rule into a dead end of the maze.”<sup>1144</sup>

During paedomorphosis, on the other hand, evolution retraces its steps to an earlier point and makes a fresh start in a quite new direction. Paedomorphosis is thus a rejuvenating, renascent process; it leads to new vitality, new energies, and new possibilities.

These principles of paedomorphosis and gerontomorphosis apply equally in the noosphere, the prime example being the Copernican revolution in the seventeenth century. For Copernicus effectively went back to Aristarchus’s heliocentric view of the solar system, Aristarchus being called the Greek Copernicus,<sup>1145</sup> abandoning Aristotle and Ptolemy’s geocentric view, which was generally accepted at the time. And generally, this process does not begin on the scale of the species; it begins at the individual level, breaking the social-cognitive cycle that drives so much human learning today.

### **The Jonah Syndrome**

However, rebuilding society on the seven pillars of wisdom is still quite a challenge. For there is intense resistance in society today to enjoying the delights of *Homo divinus holoensis* or even *Homo divinus unitas*, living in *Heaven*, originally perceived as where the gods live, called *Nirvana* ‘extinction’ or *Moksha* ‘liberation’ in the East. We can see why this is so through Abraham Maslow’s notion of ‘Jonah Syndrome’,<sup>1146</sup> a term suggested by his friend Frank E. Manuel, the author of a psychological biography of Isaac Newton<sup>1147</sup> and with his wife Fritzie of a monumental history of Utopian thought.<sup>1148</sup> This term was changed to ‘Jonah Complex’ in Chapter 2 of Maslow’s posthumous book, *The Farther Reaches of Human Nature*, the chapter on ‘Neurosis as a Failure of Personal Growth’. However, as I prefer Maslow’s original term, that is what I use in this treatise.

Jonah’s hesitation to speak “the word of the Lord” against the wickedness of Nineveh was symbolized by his being eaten by “a great fish” before he eventually went there to fulfil his destiny. Using this allegory, Maslow began his paper with these words:

All of us have an impulse to improve ourselves, an impulse toward actualizing more of our potentialities, toward self-actualization, or full humanness, or human fulfillment, or whatever term you like. Granted this for everybody, then what holds us up? What blocks us? ... In my own notes I had at first labeled this defense the “fear of one’s own greatness” or the “evasion of one’s destiny” or the “running away from one’s own best talents.”<sup>1149</sup>

He then goes on to say:

We fear our highest possibilities (as well as our lowest ones). We are generally afraid to become that which we can glimpse in our most perfect moment, under the most perfect conditions, under conditions of greatest courage. We enjoy and even thrill to the godlike possibilities we see in ourselves in such peak moments. And yet we simultaneously shiver with weakness, awe, and fear before these very same possibilities.<sup>1150</sup>

These limiting fears can arise both within us as individuals and within the society in which they occur. First, examining why peak experiences are most often transient, Maslow writes:

*We are just not strong enough to endure more!* It is just too shaking and wearing. So often people in such ecstatic moments say, ‘It’s too much,’ or ‘I can’t stand it,’ or ‘I could die.’ ... Yes, they *could* die. Delirious happiness cannot be borne for long. Our organisms are just too weak for any large doses of greatness. ... Does this not help us to understand our

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Jonah syndrome? It is partly a justified fear of being torn apart, of losing control, of being shattered and disintegrated, even of being killed by the experience.<sup>1151</sup>

So sometimes when we let loose the unlimited potential energy of Consciousness, the effect can be overwhelming, leading to what Christina and Stanislav Grof call a spiritual emergency,<sup>1152</sup> when Spirit emerges faster than the organism can handle. We can even fear success, even fear God, in whatever way we view Ultimate Reality, ranging from Buddhist Emptiness (*Sbunyata*) to the Supreme Being of the Christians. As Ernest Becker writes in *The Denial of Death*, “It all boils down to a simple lack of strength to bear the superlative, to open oneself to the totality of experience.”<sup>1153</sup>

It was not only the writers of the Old Testament who were aware of the Jonah syndrome. Arjuna had a similar experience, recorded in the *Bhagavad Gita*. When Krishna showed him the Ultimate Cosmic Vision—“all the manifold forms of the universe united as one”—Arjuna said, “I rejoice in seeing you as you have never been seen before, yet I am filled with fear by this vision of you as the abode of the universe.”<sup>1154</sup>

Elaine Pagels makes a similar point in *Beyond Belief*, the quotation in this passage coming from the sayings of Jesus in the *Gospel of Thomas*:

Discovering the divine light within is more than a matter of being told that it is there, for such a vision shatters one’s identity: “When you see your likeness [in a mirror] you are pleased; but when you see your images, which have come into being before you, how much will you have to bear!” Instead of self-gratification, one finds the terror of annihilation. The poet Rainer Maria Rilke gives a similar warning about encountering the divine, for “every angel is terrifying.”<sup>1155</sup>

In a similar fashion, in 2009, John Polkinghorne, a former quantum physicist who became a Christian priest in the UK, published a book called *Questions of Truth: God, Science and Belief*. In this book, which is fifty-one responses to questions about the relationship between conventional science and traditional religion, Polkinghorne says, “God hides from us because if we ever clapped eyes on an infinite being, we’d be unable to carry on as we are. We’d be overwhelmed to the point of hopelessness. We’d sort of shrivel up.”<sup>1156</sup> Yes, that is exactly what happens. Isn’t that wonderful?

Maslow points out that there is another psychological inhibitor that he ran across in his explorations of self-actualization:

This evasion of growth can also be set in motion by a fear of paranoia. ... For instance, the Greeks called it the fear of hubris. It has been called “sinful pride,” which is of course a permanent human problem. The person who says to himself, “Yes, I will be a great philosopher and I will rewrite Plato and do it better,” must sooner or later be struck dumb by his grandiosity, his arrogance. And especially in his weaker moments, will say to himself, “Who? Me?” and think of it as a crazy fantasy or even fear it as a delusion. He compares his knowledge of his inner private self, with all its weakness, vacillation, and shortcomings, with the bright, shining, perfect, faultless image he has of Plato. Then of course, he will feel presumptuous and grandiose. (What he fails to realize is that Plato, introspecting, must have felt the same way about himself, but went ahead anyway, overriding his own doubts about self.)<sup>1157</sup>

Of course, such fears arise from the egoic mind, afraid of what others might think of how you think and behave. Once we reach our fullest potential as mystical panosophers, all problems and solutions cease to exist, for Wholeness is the union of all opposites. Under these circumstances, all we can do is to follow the Divine energies arising within us, trusting in Life that any practical ‘problems’ will be solved as evolution unfolds. Nevertheless, we also need to bear in mind that Edward de Bono said in *The Use of Lateral Thinking* “In general there is an enthusiasm for the idea of having new ideas, but not for the new ideas themselves.”<sup>1158</sup>

This brings us to another aspect of the Jonah Syndrome. From the point of view of society, Maslow points out, “Not only are we ambivalent about our own highest possibilities, we are also in a perpetual ... ambivalence over these same highest possibilities in other people,” which he calls ‘counter-valuing’. As he goes on to say,

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Certainly we love and admire good men, saints, honest, virtuous, clean men. But could anybody who has looked into the depths of human nature fail to be aware of our mixed and often hostile feelings toward saintly men? Or toward very beautiful women or men? Or toward great creators? Or toward our intellectual geniuses? ... We surely love and admire all the persons who have incarnated the true, the good, the beautiful, the just, the perfect, the ultimately successful. And yet they also make us uneasy, anxious, confused, perhaps a little jealous or envious, a little inferior, clumsy.<sup>1159</sup>

In Scandinavia, this ubiquitous counter-valuing tendency has been encapsulated in a cultural law, called *Jantelagen* (the law of Jante), a concept created by the Norwegian/Danish author Aksel Sandemose in his novel *A Refugee Crosses His Tracks* in 1933. The novel portrays the small Danish town Jante, modelled on his hometown, where Janters who transgress an unwritten 'law' are regarded with suspicion and some hostility, as it goes against communal desire in the town, which is to preserve social stability and uniformity. This law states that no one is special or better than anyone else, defined on Wikipedia with these ten principles.

1. You shall not think that *you* are special.
2. You shall not think that you are of the same standing as *us*.
3. You shall not think that you are smarter than *us*.
4. Don't fancy yourself as being better than *us*.
5. You shall not think that you know more than *us*.
6. You shall not think that you are more important than *us*.
7. You shall not think that *you* are good at anything.
8. You shall not laugh at *us*.
9. You shall not think that anyone cares about *you*.
10. You shall not think that you can teach *us* anything.

*Jantelagen*, lying deep in the Scandinavian subconscious, is a rather ambivalent philosophy. For while it leads to great social stability and harmony, it actually inhibits people from realizing their fullest potential as human beings. Like the story of six blind men who seek to know what an elephant is, it is only permitted to see the elephant from the perspective of the tail or the trunk, for instance. To see the elephant as a whole is not allowed, for this would make anyone with such a Holoramic perspective special, a clear sign of counter-valuing.

The tenth point in *Jantelagen* is the most significant. No one can teach any other to see a Formless worldview from which all forms emerge and to which they all return. Such a realization is only possible when the creative power of Life, emerging directly from the Divine Origin of the Universe, clears away all the collective, cultural, and personal conditioning that inhibits us from returning Home to Wholeness.

Even some of the most advanced thinkers in the alternative movement adopt such a counter-valuing attitude. For instance, William Keepin said that David Bohm, my primary scientific mentor, thought that the experiment in learning outlined in this treatise is impossible, as we see on page 56. Even though I presented Integral Relational Logic in a paper I wrote for Bohm in November 1983, without yet using this term, he could not grasp what was then emerging within me, underlying all poems and symphonies. As Leonard da Vinci said, "He is a poor disciple who does not exceed his master."<sup>1160</sup> So the last time I met Bohm in Prague in 1992 at a conference titled 'Science, Spirituality, and the Global Crisis' organized by the International Transpersonal Association, I realized that he no longer understood the exquisite sense of Wholeness that I was then experiencing.

It is perhaps not surprising that Bohm became estranged from J. Krishnamurti in the 1980s, as F. David Peat tells us in his candid biography titled *Infinite Potential*. Despite twenty years of working together, nothing in Bohm's nature fundamentally changed. He remained dependent on both his wife Saral, who I met in Prague, and the teacher himself.<sup>1161</sup>

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In contrast, Bohm was appalled by Krishnamurti's hypocrisy, as he became increasingly depressed, eventually being given electroconvulsive therapy (ECT).<sup>1162</sup> For Radha Rajagopal Sloss, the daughter of Krishnamurti's business manager, had written a book called *Lives in the Shadow with J. Krishnamurti*, in which she revealed that her mother had had a long-running affair with Krishnamurti after her parents stopping having a sexual relationship. Rosalind Rajagopal never gave birth to Krishnamurti's children because she had a couple of abortions and a miscarriage in the 1930s.<sup>1163</sup> Not only was she not well enough to have any more children, it would have done Krishnamurti's reputation no good at all if he had fathered a child. For Krishnamurti had spoken to Bohm about the importance of celibacy on the spiritual quest, a supposed ideal that he clearly was not following.<sup>1164</sup>

It is vitally important to understand here that by the Principle of Unity, perfection is the union of perfection and imperfection, as I told my feisty girlfriend in 1982, when I was working in Kuwait developing a new accounting system for the Institute of Scientific Research there. There are no ideals or moral imperatives that we can live up to absolutely in the relativistic world of form, no matter how much we might strive for excellence. Life is happening in ways that none of us has any control over, as we all inseparable from each other, the Cosmos, and the Divine.

Another who is opposed to Theory of Everything in principle is the ecophilosopher Henryk Skolimowski, who I met at the Holma College of Holistic Studies in southern Sweden in the autumn of 2002. Sadly, however, Henryk also objects to the very idea of the experiment in learning described in this treatise. For in *Let There Be Light: The Mysterious Journey of Cosmic Creativity*, he wrote:

So-called GUTs of contemporary physics ... are so 'remote' from our understanding. They do not take evolution seriously, if at all. They do not take us, humans, seriously, if at all. ... It is all a matter of mathematical equations, which are to bind the four basic physical forces ... in one coherent whole. The determinism to find this coherence, or to impose it on the Cosmos is so overwhelming that no mathematics is too abstract or too way out. ... Many of [the plethora of GUTs] are claiming to be 'theories of everything' ... [which] want to finish the map of knowledge once and for all—to say now the last word about the Universe. This is a preposterously arrogant assumption.<sup>1165</sup>

Of course, the URT is not the GUT that Henryk and many others envisage because it unifies the four basic physical forces with the nonphysical, psychospiritual energies at work in the Universe. Nevertheless, IRL does provide a comprehensive map of all knowledge, which he asserts is preposterously arrogant. To the Western either-or mind, the Principle of Unity is preposterous, quite absurd.

This word *preposterous*, also used by William Keepin, is interesting because it derives from Latin *præposterus* 'having the last first, inverted, perverse, absurd', from *præ* 'before' and *posterus* 'coming after, following'. So *præposterus* was a Latin oxymoron, my favourite word as a teenager, from Greek *oxumōron*, neuter of *oxumōros* 'pointedly foolish', from *oxus* 'sharp' and *mōros* 'foolish, dull'. So when people intelligently look at both sides of any situation, they can be called two-faced, meaning 'insincere, deceitful', and indecisive. In this respect, Barack Obama, one of the most intelligent politicians in the world today, is sometimes considered weak because he is constantly attempting to reconcile the warring parties in the United States Congress in a bipartisan approach.

Another who doesn't believe that it is possible to find Peace by unifying Western science and Eastern mysticism is Fritjof Capra, the author of the influential book *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*. He writes:

Once these parallels between Western science and Eastern mysticism are accepted, a number of questions will arise concerning their implications. Is modern science, with all its sophisticated machinery, merely rediscovering ancient wisdom, known to the Eastern sages for thousands of years? Should physicists, therefore, abandon the scientific method and begin to meditate? Or can there be a mutual influence between science and mysticism; perhaps even a synthesis?<sup>1166</sup>

He goes on to say:

### *Unifying Polarizing Opposites in Nondual Wholeness*

I think all these questions have to be answered in the negative. I see science and mysticism as two complementary manifestations of the human mind; of its rational and intuitive faculties. The modern physicist experiences the world through an extreme specialization of the rational mind; the mystic through an extreme specialization of the intuitive mind. The two approaches are entirely different and involve far more than a certain view of the physical world.<sup>1167</sup>

The key word here is *parallels*. While there are many similarities between the paradoxes of quantum physics and mysticism, it is the Principle of Unity that brings them together in inseparable union in a manner that is counter to the postmodernist zeitgeist of academia today. This postmodernist movement is a denunciation of structuralism in psychology, anthropology, linguistics, and mathematics, which Jean Piaget defined, whose primary defining characteristic is wholeness, whose essence is relationships.<sup>1168</sup> To remind you, Terence Hawkes has said that to be human is to be a structuralist.<sup>1169</sup>

From a semantic rather than a psychospiritual perspective, we can trace the root of all these examples of counter-valuing to Aristotle's ontological concept of being, which in IRL is the superclass **Being**, depicted in one simple diagram on page 139. As we have seen, **Being** is all-inclusive, leaving nothing out, a generalization of the superclass **Object** in object-oriented modelling systems in business. But then psychospiritual issues come into play, as people identify with attachments to their fragmented models of themselves and the world we live in, not seeing how they fit into the Big Picture that is the Unified Relationships Theory.

The well-known prisoners' dilemma in games theory<sup>1170</sup> well illustrates the difficulty of living with a holistic, both-and approach to life in a culture that is based on a divisive, either-or philosophy. The optimum outcome of the game is when both prisoners adopt a cooperative, both-and approach. They are worse off if they both use a selfish, competitive, either-or approach. But if one adopts a both-and approach and the other an either-or, then the former suffers even more in worldly terms. So it takes immense courage and faith in the Divine to adopt an all-inclusive approach to life, which the prevailing culture generally regards as being counter-cultural, unacceptable, and even impossible.

### **Our Shared Identity**

With computer scientists, in Japan and elsewhere, seeking to build robots that look and behave like human beings, it is clearly essential that we do our collective utmost to overcome the Jonah Syndrome to the best of our ability, necessary to discover what it truly means to be human. So who are we? Who am I? Well, human is a concept, so we must turn to the primal principles of interpretation and concept formation, outlined on page 139, to answer these fundamental questions of existence. We saw there that we form concepts by observing the similarities and differences in the data patterns of experience within some relevant context, the Ultimate Context being Wholeness, as the Datum of the Universe.

This led us to view the Cosmos as a Cosmic Internet, as an information system, whose primary building blocks are structure, form, relationship, and meaning. But there is much more to interpretation than these basic concepts. Most importantly, by the Principle of Unity, data patterns often have a superficial and profound meaning, which Jung semiotically distinguished as signs and symbols, as extremes of a spectrum of meanings. For profound meanings derive from a structure's essence, from the Latin word *esse* meaning 'to be', which determines their essential nature. David Bohm's notions of explicate and implicate orders are examples of superficial structures, accessible to our senses, and deep structures, which we can intuitively sense through our essential nature as humans.

The essence of structures can easily be demonstrated with a very simple example. The diagram below shows a collection of A's in thirty different fonts. We human beings can see that there is a certain 'A-ness' about these characters, which enables us to see the commonality amongst them, different as they are. However, when I ran an experiment in 1998 to see how many of these A's my optical character

recognition (OCR) program would recognize, it managed only twelve: 40%. I suspect that even the most advanced OCR program today would have difficulty in reading all these A's. The reason for this is that these forms have a deep underlying essence, which resonates with our understanding of what the letter A looks like. We can immediately see forms as wholes, without any need for pattern recognition algorithms, which computers must resort to.



As it is with simple letters, so it is with human faces, which we are able to recognize without any difficulty, complex as they are. In music, poetry, art, literature, etc., it is the essence of these structures that evoke beautiful feelings within us. They cannot be fully appreciated with the intellect, even though the mind likes to analyse these structures to see how a piece of music, for instance, is composed. Analysing structures destroys their essence, which provides us with meaning and value. The essence of structures is not something that can be quantified in monetary terms, for instance. As the saying goes, “The best things in life are free.”

This is nowhere clearer than when we are in the wilderness, communing with Nature. For instance, the trees in the forests of Scandinavia are not just there to make houses, furniture, and paper. We can feel the presence of God deep in the forest, far away the madness of the world we live in today.

Going even deeper, all these feelings show quite clearly that all sentient beings have a living essence, called ‘the soul’ in human beings, which determines our uniqueness. This does not mean that the soul survives death or is reincarnated. For the soul, like everything else in the world of form, is just an abstraction from Consciousness, with no separate existence. Beyond the soul are the female and male principles, which we share with others of the same sex. Ultimately, the Essence of the Universe as a whole is the Absolute, which we can most simply call Love, for God is Love, as John wrote in his first epistle.

We can see most clearly that Wholeness—as the union of all opposites—is our Shared Identity from the root of *identity*, which derives from Latin *idem* ‘same’. The *Oxford English Dictionary* (OED) gives this primary definition for *identity*: “The quality or condition of being the same in substance, composition, nature, properties, or in particular qualities under consideration; absolute or essential sameness; oneness.” The second citation the OED gives for this meaning is from Philemon Holland’s translation of Plutarch’s *Moralia* in 1603: “That the soul of this universal world is not simple, uniform and uncompounded, but mixed ... of a certain power of Identity and of Diversity.” Although this definition and citation do not completely indicate that Wholeness is our Authentic Nature—the same for all of us—they are sufficiently close for our purposes at the moment.

However, the OED gives this secondary definition: “The sameness of a person or thing at all times or in all circumstances; the condition or fact that a person or thing is itself and not something else;

individuality, personality.” So *identity* has come to mean that which is unchanging in us as individuals, that which distinguishes us from other human beings, the plants and other animals, and the rest of the Universe. The primary emphasis is on differences rather than on Sameness—that which we all share—leading to much conflict and suffering, not the least from Holy wars—wars about the Whole, including the long-running war between science and religion. It is this sense of identity that can be stolen, in what is absurdly called ‘identity theft’ today.

It is vitally important here not to separate opposites, but also, when we do distinguish them, to recognize the primary-secondary relationship between our True Identity as Divine beings and as unique identities as individuals. We can see this distinction in the structure of the DNA molecule. At the deepest level, we humans all have essentially the same DNA, some 97% of which we also share with chimpanzees, our closest relatives in the animal kingdom. As the geneticist Steve Jones says in *The Language of the Genes*, we are all cousins under the skin. “Genetics has—and should have—nothing to do with judgements about the value of one’s fellow beings. ... The genes do show that there are no separate groups within humanity.”<sup>1171</sup>

This is a biological perspective. But we live today more within the noosphere than the biosphere, both being contained within the numinosphere. And as people begin to recognize this fact, many in the second tier in the spectrum of consciousness are seeking to be free of their cultural conditioning to find their unique identities as distinct human beings. For as we saw in Subsection ‘Becoming free of our ancestry’ on page 192, we are taught from a very early age to conform to the cultures that we are born into. To a very great extent, we behave as the society around us wants us to behave, suppressing our true nature as unique beings.

It is important to distinguish Wholeness and Oneness here. Although such distinctions do not exist in Reality, simplistically we can regard these to be the answers to the questions “Who are we, as a species?” and “Who are we, as individuals?” As the diagram on page 20 illustrates, we can return to the Nonmanifest with both No-mind, living in Oneness, and with a Supermind, fully healed in Wholeness, the latter embracing the former.

Traditionally, mystics have been more focused on the former than the latter, although both involve the unification of polarizing opposites, encapsulated in the Sanskrit word *yoga*, meaning ‘union’. In the East, the many types of yoga play a central role in the spiritual quest, specifically in the union of the human individual with the Divine. These paths include *karma-yoga* ‘selfless action’, its cognate *kriya-yoga* ‘action or rite’,<sup>1172</sup> *bhakti-yoga* ‘egoless devotion’, Patañjali’s eight-step *raja-yoga* ‘royal’, including *hatha-yoga* ‘physical’, *tantric-yoga* ‘instrument for weaving opposites together’, *kundalini-yoga* ‘awakening serpent power’, also called *shakti* ‘power’,<sup>1173</sup> and *jñāna-yoga* ‘path of wisdom and abstract knowledge’.<sup>1174</sup> In the 1910s, Aurobindo Ghose attempted to develop a synthesis of most of these specialized yogas, which he called ‘integral yoga’, described in an indigestible tome *The Synthesis of Yoga*.<sup>1175</sup> However, despite his both-and aphorisms on ‘The Goal’,<sup>1176</sup> he only had an intuitive understanding of the Principle of Unity, which is the ultimate yoga.

Of these various yogas, the one that best helps us answer the question “Who are we?” as a species is *jñāna-yoga*, which begins with the personal question “Who am I?” The foremost teacher of this path during the first half of the twentieth century was Ramana Maharshi, inspired by Shankaracharya, ‘Shankara, the Teacher’, who laid down the foundations of Advaita or Nonduality in India at the beginning of the ninth century.<sup>1177</sup>

As Ramana said, “By the inquiry ‘Who am I?’ the thought ‘Who am I?’ will destroy all other thoughts, and, like the stick used for stirring the burning pyre, it will in the end get destroyed. Then there will arise Self-realization.”<sup>1178</sup> And when asked by a devotee how she could get rid of the mind, Ramana replied, “Is it the mind that wants to kill itself? The mind cannot kill itself. So your business is to find the real nature of the mind. Then you will know that there is no mind.”<sup>1179</sup> To realize that only *Brahman* exists, *jñānis* traditionally repeat the words *neti neti* ‘not this, not this’ from the *Bṛihadāranyaka Upanishad*, not unlike the path of *via negativa* in Christianity. This spiritual approach is also known as *apophatic*, from Greek *apophatikos* ‘negative’, from *apophasis* ‘denial’, from *apo-* ‘other than’ and *phanai* ‘to speak’.

The closing lines of the *Mandukya Upanishad*, whose opening words are quoted on page 6, well illustrate this traditional perspective:<sup>1180</sup>

*The mantram AUM stands for the supreme state  
Of Turīya, without parts, beyond birth  
And death, symbol of everlasting joy.  
Those who know AUM as the Self become the Self;  
Truly they become the Self.*



However, even *via positiva*, a cataphatic spiritual path, from Greek *kataphatikos* ‘affirmative’, where *kata-* is an intensifier, cannot fully answer the question, “Who are we?” For we need to heal the fragmented, split mind in Wholeness to answer such questions as, “Where have we come from?” and “Where are we going?” Furthermore, to understand how we could intelligently manage our business affairs with full consciousness of what we are doing, we need to create a map of our own thought processes. And, of course, this is not possible if the mind has been killed.

To grow out of the second tier in the spectrum of consciousness into the third tier, able to see the elephant as a Whole, it is essential to see the Cosmos as a hologram, in which all constituents have the property of self-similarity, like fractals. This expansion from an individual to a social perspective is similar to the way that the Buddhist *Mahāyāna* ‘Great Vehicle’ school evolved from *Hinayāna* ‘Small Vehicle’, as mentioned on page 110.

This greater emphasis on Wholeness rather than Oneness led some Buddhist scholars to develop a synthesis of all Buddhist teachings, forming a Chinese Buddhist school that embraces all the others, not one among many. This is variously called *Hwa Yen*, *Hua-yen*, and *Huayan* in transliterations from Chinese, meaning ‘Flower Ornament’, ‘Flower-Decoration’, or ‘Garland’ from the *Avatamsaka Sūtra*, originally written in India in Sanskrit during the first and second centuries. In 1971, Garma C. C. Chang introduced Hwa Yen Buddhism to the West in *The Buddhist Teaching of Totality: The Philosophy of Hwa Yen Buddhism*, further developed by Francis H. Cook in 1977 in *Hua-yen Buddhism: The Jewel Net of Indra*, beginning his book with this visionary sentence: “Western man may be on the brink of an entirely new understanding of existence.”<sup>1181</sup>

Then, in the 1980s, Thomas Cleary translated all thirty-nine books of *Avatamsaka Sūtra* from Chinese, for most of the original Sanskrit writings are lost, resulting in a single book of some 1600 pages.<sup>1182</sup> The first thing that struck me when browsing through these pages is that this is a book of superlatives, as the writers attempted to describe their experiences of union with the Transfinite Cosmos. It is therefore not surprising that the Buddhist scholar D. T. Suzuki described this sutra thus:

*As to the Avatamsaka-sutra, it is really the consummation of Buddhist thought, Buddhist sentiment, and Buddhist experience. To my mind, no religious literature in the world can ever approach the grandeur of conception, the depth of feeling, and the gigantic scale of composition, as attained by this sutra. Here not only deeply speculative minds find satisfaction, but humble spirits and heavily oppressed hearts, too, will have their burdens lightened. Abstract truths are*

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so concretely, so symbolically represented here that one will finally come to a realization of the truth that even in a particle of dust the whole universe is seen reflected—not this visible universe only, but a vast system of universes, conceivable by the highest minds only.<sup>1183</sup>

Francis H. Cook compared this grand syncretism of the many different strands of Buddhist thought to someone attempting to tack together the philosophies of Aquinas, Bishop Berkeley, Marx, and Wittgenstein. He thought that the result of such an attempt would be “a mere patchwork, because each philosophy is largely discontinuous with the others, despite certain common presuppositions. However, Hua-yen could achieve a real syncretism because each different philosophical form of Buddhism is only part of the larger whole.” Hua-yen thus “came to serve as the philosophical basis for the other schools of Buddhism more concerned with practice and realization. ... As D. T. Suzuki remarked, Hua-yen is the philosophy of Zen and Zen is the practice of Hua-yen,” Hua-yen being called *Kegon* in Japan, where Zen flourished.<sup>1184</sup>

Considering that Huayan Buddhism is of central importance in the evolution of the mind, it is rather surprising that this school of schools only lasted a couple of centuries in China, Chang giving biographies of just four or five patriarchs: Tu Shun (558–640), Chih Yen (602–668), Fa Tsang (643–712), Ch'êng Kuan (738–840), Tsung Mi (780–841), the last making a smaller contribution.<sup>1185</sup>

The most important of these was Fa Tsang in Wade-Giles Romanization, Fazang in pinyin since 1982. The central principles of Fazang's philosophy were *mutual identity* and *mutual causality*, of vital importance in our task of unifying our Divine and human identities. For we are exploring our relationship, as individuals, to the Cosmos, as a whole. The key concepts here are *shih* and *Li*, expounded in yet another scripture called *On the Meditation of Dharmadhatu*. As Chang defines these concepts, *shih* is the realm of phenomena or events and *Li* is the realm of noumena or principles,<sup>1186</sup> an unfortunate term that has come from Kant's intellectual notion of ‘thing-in-itself’, devoid of phenomenal attributes, philosophical confusions that arise from a lack of mystical awareness. To clarify this situation, it might be better to relate the Sanskrit terms *samsāra* and *Tatthatā* to *shih* and *Li*, although *Essence* might be a more suitable translation of *Li*.

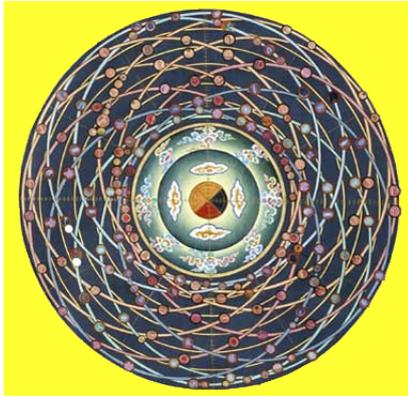
To explain to the Empress Tsê-T'ien what is meant by the terms *Li* and *shih*, Fazang wrote a short *Essay on the Golden Lion*, just seven pages in Chang's book<sup>1187</sup> and even fewer in a limited edition poetic pamphlet written by John Cayley.<sup>1188</sup> In this essay, Fazang likened these very abstract concepts to the gold of the lion, the formless underlying substance or Emptiness, and the form of the lion. So the lion, as a form, is in complete harmony with the underlying essence, actually representing the whole. This primal Ground of Being has been given many other names, often confusing the physical with the mystical, such as *substance*, itself, the *materia prima* of the alchemists, Peirce's synechistic *protoplasm*, *Quintessence*, *Akasha*, *Æther*, *Parousiā* ‘Presence’, and the *Universal Quantum Field*, which can also explain the phenomenon of dark matter and energy in astrophysics.

But Fazang went further. He said that all the individual elements of the lion, its eyes, hair, and so on also constitute the whole. For in Mahāyāna Buddhism, there is no separation between *Nirvāna* ‘extinction’ and *samsāra* ‘journeying’; God is everywhere and everywhen in Christian terms. Fazang used Indra's Net to illustrate this crucial point. All these elements are interconnected, each reflecting the magnificence of all the others in the net.

Indra's Net is mentioned several times in the *Avatamsaka Sūtra*, Indra being the king of the gods in the *Rig Veda*. Alan Watts likened Indra's Net to a dewy spider's web, saying, “Imagine a



multidimensional spider's web in the early morning covered with dewdrops. And every dewdrop contains the reflection of all the other dewdrops. And, in each reflected dewdrop, the reflections of all the other dewdrops in that reflection. And so ad infinitum. That is the Buddhist conception of the universe in an image."<sup>1189</sup> And Francis H. Cook encapsulated the essence of Indra's net in the *Avatamasaka Sūtra* in this way:



Far away in the heavenly abode of the great god Indra, there is a wonderful net which has been hung by some cunning artificer in such a manner that it stretches out indefinitely in all directions. In accordance with the extravagant tastes of the deities, the artificer has hung a single glittering jewel in each 'eye' of the net, and since the net is infinite in dimension, the jewels are infinite in number. There hang the jewels, glittering like stars of the first magnitude, a wonderful sight to behold. If we now arbitrarily select one of these jewels for inspection and look closely at it, we will discover that in its polished surface there are reflected *all* the other jewels in the net, infinite in number. Not only that, but each of the jewels reflected in this one jewel is also reflecting all the other jewels, so that there is an infinite reflecting process occurring.<sup>1190</sup>

Hua-yen Buddhism thus has a similar relationship to Zen as IRL has to science and business. For the worldview revealed by IRL is essentially the same as that described by Fazang, who taught "that to exist in any sense at all means to exist in dependence on the other, which is infinite in number." For Hua-yen conceives of experience primarily in terms of *relationships* between what people normally think as distinct, separate *entities*.<sup>1191</sup>

As we are drawing to the end of this treatise, we can use the sense of our Shared Identity to recapitulate much of what we have been exploring. We saw from the PIE roots of *holism* and *holy* on page 159 that to be safe and healthy is to be Whole. Sadly, however, few have yet reached such a realization. In the extreme, people fight what Mark Juergensmeyer aptly calls 'cosmic wars' in *Terror in the Mind of God*, which today are intensifying. For cosmic wars evoke great battles of the legendary past, relating to metaphysical conflicts between good and evil.<sup>1192</sup>

We see in the Preface on page xii that Paul Levy explains why such acts of terrorism happen. Wholeness is the union of all opposites in Nonduality. However, when Wholeness becomes incarnate in human beings, these opposites often become split, as Jung pointed out. So good and evil become God and Satan or the Devil, the latter being names we give to our inner demons or the dark, shadow side of consciousness.<sup>1193</sup> It is not only religionists who fight such cosmic wars. Atheistic scientists also do so, although their battles are usually a war of words rather than wars with bombs and guns.

Such difficulties arise when we identify with our bodies, minds, and souls rather than with the Cosmic Divine as Wholeness. So we are a species that is in denial because we predominantly put second things first, quite illogical, as the diagrams on page 151 well illustrate. This means that what David Chalmers called the 'hard problem' of consciousness studies in 1995 cannot be solved.<sup>1194</sup> For the brain emerges from Consciousness, not the other way round. Indeed, we cannot really understand the complexity of our brains until we first understand our minds. So it is a fundamental misconception to ask the physicists how the Universe is designed or to ask biologists—as students of life, from Greek *bios* 'life'—to tell us the meaning of life.

As Carl Jung said in London in 1935, when giving the Tavistock Lectures on 'Fundamental Psychological Conceptions', psychology is the science of consciousness.<sup>1195</sup> So, as Consciousness is primary, we must regard mystical psychology, with IRL at its heart, as the primary science, not physics or biology, sometimes attempting to usurp physics' throne.

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Of course, in the upside-down world we live in, we do not recognize that Love and Consciousness are aspects of our Shared Identity. If we are to put our species back on its feet—for today, it is mostly standing on its head—we need to use our self-reflective Divine Intelligence to unify either-or Western reason with both-and Eastern mysticism, putting the latter first. For the mystics of all ages and cultures have come closer to discovering our Common Identity than religionists, philosophers, and scientists in the West.

However, in the either-or world we live in, not everyone agrees, as Robert K. C. Forman described in his editorial article in the first issue of the *Journal of Consciousness Studies* in 1994.<sup>1196</sup> Apparently, some academics, called constructivists, believe that our mystical experiences, which are based on union with the Absolute, are not transcultural. They say, “Like all experience, mystical experiences are subject to the formative and constructive processes of language and culture. *All* our thoughts and experiences, they have argued, are shaped, conditioned and in part constructed by our background of beliefs and concepts.”<sup>1197</sup> Robert Forman refuted this. He provided several reasons why a decontextualist approach—one that is detached from language and cultural context—is essential to understand the common ground that underlies all mystical experience, and which we all share.<sup>1198</sup> Of course, by decontextualizing our mystical experiences from particular cultures we can realize the Divine, Cosmic Context that we all share.

So we should not blame Aristotle for disobeying the foundational law of the Universe, for he was merely reflecting the culture that he lived in. Most of the ancient Greeks could not understand the wisdom of Heraclitus, passed down to us as mere fragments, calling him ‘The Obscure’,<sup>1199</sup> whereas the Arab Avicenna (980–1037) called Aristotle ‘The Philosopher’,<sup>1200</sup> the lover of wisdom. But, what was true in Aristotle’s day is just as true today. We still have little understanding of the relationship of our Authentic Identity as Wholeness to our apparent identity as individuals.

### **Living the Vision**

This treatise provides irrefutable scientific proof that Western civilization, which still dominates the world through the global economy, is incompatible with the invention of the stored-program computer in the middle of the twentieth century. The principal reason for our predicament is that religion, science, medicine, economics, law, and mathematical logic are based on seven pillars of unwisdom, which are based on the false belief that we humans are separate from God, Nature, and each other.

So if we are to become masters of our technology, rather than its slaves—realizing our fullest potential as superintelligent, superconscious, Divine, Cosmic beings—the only viable option we have as a species is to cocreate a new society on the seven pillars of wisdom. The seventh is especially important, for it is the fundamental design principle of the Cosmos, enabling us to unify polarizing opposites in Nondual Wholeness, living in peace and harmony with the basic law of the Universe.

As this is something that few have been able to do during the patriarchal epoch, this means that our children and grandchildren will need to make greater changes in their lives than all those made since the dawn of history and the birth of the first civilizations, some 5,000 years ago.

This might seem an impossible dream. But it is quite realizable if we recognize that evolution is currently passing through the most momentous turning point in its fourteen billion-year history, called its Singularity or Accumulation Point in mathematical and systems-theory terms. So if we could collectively tune into the creative energies that are within us all, we would generate immense synergy through the cooperative relationships that would be formed, apparently out of nothing. And the more psychic energy we would generate through this convergent, harmonizing process, the more energy that could be generated in an ever-accelerating manner.

### *The Theory of Everything*

To this end, I am currently setting up the Alliance for Mystical Pragmatics (AMP), with the motto 'Harmonizing evolutionary convergence'. *Pragmatics* derives from Latin *pragmaticus* 'skilled in business', from Greek *pragmatikos* 'active, business-like, versed in affairs, relating to fact', from *pragma* 'deed, action, fact', from *prassein* 'to do, make, manage', also root of *practical* and *practicable*. So we can regard pragmatics as the science or study of our practical business affairs, extending the conventional linguistic and semiotic meanings of the word. Mysticism, on the other hand, is focused on being in egoless union with the Formless Divine. Mystical Pragmatics is thus an oxymoron, unifying two extremes of human endeavour: mysticism and reason. The only practical way to live in today's rapidly changing society is as a mystic.

This initiative was originally inspired by workshops that Ananta Kumar Giri of the Madras Institute of Development Studies has been holding around the world during the past couple of years on Practical Spirituality and Spiritual Pragmatics. In turn, these workshops have been inspired by the philosophy of pragmatism, introduced by Charles Sanders Peirce in 1878 in an article titled 'How to Make Our Ideas Clear'. For, as mentioned on page 130, if our conceptual models of the world we live in are not crystal clear and fully integrated, we have little chance of intelligently managing our business affairs or our lives in general with full consciousness of what we are doing.

However, as I have now discovered Comenius' proposal for a Pansophic College based on Universal Wisdom and Light, rejected by the founders of the Royal Society of London for Improving Natural Knowledge, as we see on page 35, we have the wonderful opportunity to establish a transnational centre for autodidacts, seeking to understand themselves, guided in whatever way is suitable by pansophy, the authentic Theory of Everything. To this end, the primary social intention of the Alliance is to set up a network of networking networks providing a safe, nourishing environment for self-inquiry. For if we do not look inwards, discovering what causes us to behave as we do, *Homo sapiens sapiens* 'wise-wise human' is not a viable species.

Project Heraclitus will guide the activities of the Alliance with the motto 'Revealing the Hidden Harmony', transforming the seventh pillar of unwisdom to that of wisdom, necessary if we are ever to bring about World Peace. To this end, it is vitally important not to make today's belligerent global society an enemy. There are no opposites and hence enemies in Wholeness.

It is not easy to express this in English. Distinguishing the mystical and mundane, we can use the words *Gnosis* and *knowledge* for Inner Knowing and symbolic and signate knowing, respectively. But we do not have words to distinguish Inner Peace and absence of external war, unlike Swedish, where *frid* and *fred* have these meanings. The key point is that World Peace can only come about from Inner Peace.

And when we realize such exquisite Stillness, we realize that we are not actually going anywhere because we are already where we are going. Past and future do not exist in Reality, for they are an epiphenomenon of the Eternal Now. So there is no point of dreaming of some Utopian future or living in horror of a dystopian one. The only thing that makes sense is to live the vision every moment of everyday, right now, for tomorrow never comes. With the imminent death of Western civilization in my external world, to be followed shortly afterwards by the inevitable extinction of our biological species, I know of no other way of living peacefully in the eschatological Age of Light. It is absolutely essential that we recognize, with Shakyamuni Buddha, that no structures in the Universe live forever. All forms are impermanent; all bodies, civilizations, and species are destined to die ere long.

As evolution accelerates towards its Omega Point, what this means for us as a species is that we need to find a sense of closure with our evolutionary history, just as some seek closure towards the end of their

lives as individuals. This means that we need to understand this history and the laws of the Universe that brought us to where we are.

To this end, the Alliance intends to produce a 13-part television series on 'Our Evolutionary Story', inspired by David Attenborough's *Life on Earth* broadcast by the BBC in 1979. Indeed, this enthralling television series first graphically brought the exponential rate of evolutionary change to my attention. It is now some 3.6 billion years since the first self-reproducing forms of life appeared on this planet. So if we consider 10 million years to be a day, we can map the whole of evolution on this planet to the days of the year.<sup>1201</sup>

Using this model, if 1st January marks the birth of single-cell organisms, then the first multicellular organisms appeared in the middle of August, with sexual reproduction beginning about six weeks later. Other significant events during the late autumn were the emergence of fish, land plants, and reptiles. Then about the 10th December, both mammals and dinosaurs appeared, with mammals surviving the mass extinction that occurred on Christmas Day, one of seven and nine mass extinctions of land and marine forms of life so far in the life of the Earth.<sup>1202</sup>

This catastrophe enabled the primates to appear on Boxing Day, to be followed by the hominids four days later. Then on New Year's Eve, the first exemplars of the *Homo* genus appeared around teatime. The whole of human evolution has thus taken place during the evening of the last day of the year, with *Homo sapiens* being born about 23:59:30. As we rapidly approach midnight on 31st December, we can see that the whole of mental evolution has thus taken place during the last three or four seconds, with the computer age beginning less than a single tick of the clock earlier.

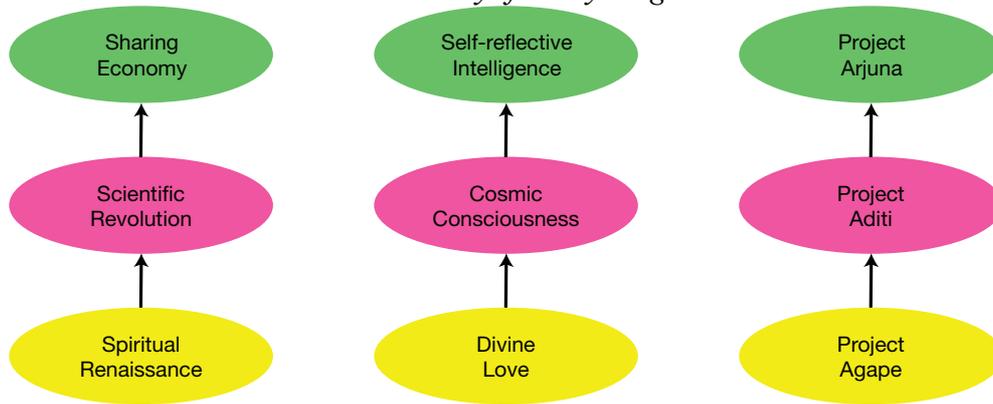
Peter Russell provides a similar metaphor in *The White Hole in Time*<sup>1203</sup> and its sequel *Waking up in Time*. He uses the 108 floors of the 400-metre-high former World Trade Center in New York as a measuring stick for evolution since the formation of the Earth some 4.6 billion years ago.<sup>1204</sup> In *The Awakening Earth*<sup>1205</sup> and its sequel *The Global Brain Awakens*, Peter extends his view of evolution still further back. To get a complete picture, we need to look at evolution as starting from the most recent big bang, some fourteen billion years ago.<sup>1206</sup>

Most importantly, we need to live in harmony with the fundamental laws of the Universe, rather than denying them, as we mostly do today. In this serene way, we could really have some fun and enjoy ourselves, free of the fear of death in all its forms.

To this end, the Alliance will seek to synergistically unify and integrate three global movements emerging in the world today, as prerequisites for World Peace: Spiritual Renaissance, Scientific Revolution, and Sharing Economy. In turn, to match these three movements, Project Heraclitus will be organized into three subprojects, Project Agape, Project Aditi, and Project Arjuna, with the mottos 'Healing the split', 'Awakening Self-reflective Intelligence', and 'Transcending the Divisiveness of Money', respectively. Their purpose will be to transform the first, second to fourth, and fifth and sixth pillars of unwisdom into the corresponding pillars of wisdom, with Project Heraclitus, itself, transforming the seventh. These projects will be driven by the three fundamental energies of Divine Love, Cosmic Consciousness, and Self-reflective Intelligence, emanating, like Life, itself, from the Origin of the Universe, as the next diagram illustrates.

Project Agape reflects the Greek word *agapē*, used by Christian writers in the New Testament to mean 'Divine Love'. Aditi is the Divine Matrix, a symbol for Consciousness, as the mother of the Universe in the *Rig Veda*. In turn, Arjuna was the spiritual warrior in the Hindu classic *Bhagavad Gita*, invoking time-honoured, both-and spiritual practices to deal intelligently with conflict-ridden, either-or politics.

## *The Theory of Everything*



In keeping with our times, we shall communicate with each other through a social-networking website with the domain name [mysticalpragmatics.net](http://mysticalpragmatics.net). To get the Alliance off the ground, I envisage a small core team sharing a common vision, working on the infrastructure of the website and its publishing activities. At present, I have just one friend in Sweden actively working with me on this project. He is Pär, who is designing the website for the Alliance, but who needs much more help. I trust that the other participants that we need to launch this initiative will come forward in the course of time.

We shall know that the Alliance is beginning to have an influence when people start talking about transforming the seven pillars of unwisdom into those of wisdom. These terms have been published on my websites since 1998, mostly ignored since then, except for an occasional smile of recognition. Under these circumstances, all we can do is to continue to paint pictures, like Vincent van Gogh, trusting that one day people will be able to appreciate the conceptual images we are expressing in words and other forms.

### ***Spiritual Renaissance***

The essence of the Spiritual Renaissance taking place in the West today is that an increasing number of spiritual seekers are realizing that they live in union with the Divine, contrary to the teachings of the Abrahamic religions, which distance humanity from the Transcendent Absolute, which provides the Cosmic Context for all our lives. Accordingly, it is a cultural taboo to affirm, “I am Love,” which is our Authentic Self, the Immanent Divine Essence that we all share.

This group of people are therefore defying the atheistic scientists, who assert that God does not exist, and the rabbis, priests, and imams in the Abrahamic religions of Judaism, Christianity, and Islam, who do their best to come between the people and God, claiming that they alone know the ‘word of God’, as the diagram on page 10 illustrates.

By transforming the first pillar of unwisdom into that of wisdom, we shall thereby fulfil the prophecy made in 1901 by the Canadian psychiatrist Richard Maurice Bucke in *Cosmic Consciousness*: “our descendants will sooner or later reach, as a race, the condition of cosmic consciousness. ... In contact with the flux of cosmic consciousness all religions known and named to-day will be melted down. The human soul will be revolutionized.” And when this happens, “Churches, priests, forms, creeds, prayers, all agents, all intermediaries between the individual man and God will be permanently replaced by direct unmistakable intercourse. Sin will no longer exist nor will salvation be desired. Men will not worry about death or a future, about the kingdom of heaven, about what may come with and after the cessation of the present body. Each soul will feel itself to be immortal,”<sup>1207</sup> extraordinary words written many years ahead of their time.

As we are all equal in this respect, there is thus no need for spiritual seekers and teachers to dress in distinctive clothes with distinctive titles, claiming that they are special. Indeed, it is hubristic for the egoic

mind to claim for itself what the Divine has given. As Chögyam Trungpa writes in *Cutting through Spiritual Materialism*, “Walking the spiritual path properly is a very subtle process; it is not something to jump into naively. There are numerous sidetracks which lead to a distorted, ego-centred version of spirituality; we can deceive ourselves into thinking we are developing spiritually when instead we are strengthening our egocentricity through spiritual techniques. This fundamental distortion may be referred to as *spiritual materialism*.”

How this problem of spiritual egoism will be resolved in practice is not easy to foresee, for today's confusion about humanity's relationship to the Divine has lasted many thousands of years. While mystics and spiritual teachers who are not attached to any organized religion could perform an essential function here, at the end of the day it will only be possible to heal our profoundly sick society if the leaders of the patriarchal religions are willing to teach mystical theology. This is not really new, for Pseudo-Dionysius the Areopagite, a Christian Neoplatonist, wrote some 1,500 years ago in the final chapter of *Mystical Theology*, titled ‘That the supreme Cause of every conceptual thing is not itself conceptual’:

Again, as we climb higher we say this. It is not soul or mind, nor does it possess imagination, conviction, speech, or understanding. Nor is it speech per se, understanding per se. It cannot be spoken of and it cannot be grasped by understanding. It is not number or order, greatness or smallness, equality or inequality, similarity or dissimilarity. It is not immovable, moving, or at rest. It has no power, it is not power, nor is it light. It does not live nor is it life. It is not a substance, nor is it eternity or time. It cannot be grasped by the understanding since it is neither knowledge nor truth. It is not kingship. It is not wisdom. It is neither one nor oneness, divinity nor goodness. Nor is it a spirit, in the sense in which we understand that term. It is not sonship or fatherhood and it is nothing known to us or to any other being. It falls neither within the predicate of non being nor of being. Existing beings do not know it as it actually is and it does not know them as they are. There is no speaking of it, nor name nor knowledge of it. Darkness and light, error and truth—it is none of these. It is beyond assertion and denial. We make assertions and denials of what is next to it, but never of it, for it is both beyond every assertion, being the perfect and unique cause of all things, and, by virtue of its pre-eminently simple and absolute nature, free of every limitation, beyond every limitation; it is also beyond every denial.

I trust that this passage helps the more conservative members of the priesthood and their followers to acknowledge the mystical Ground of Being that we all share. This is absolutely essential if Project Agape, with the motto ‘Healing the split’, is to reach its goal on a global scale.

### **Scientific Revolution**

The essence of today's revolution in science is twofold. First, scientists are beginning to realize that fundamental problems in astrophysics and quantum physics can only be resolved by recognizing that Consciousness provides the Contextual Foundation for all our lives. Secondly, many can see and feel, as evolution accelerates inexorably towards Wholeness, that no beings in the Universe are ever separate from any other, including the Supreme Being.

To establish these fundamental facts of existence as sound science, we turn what is called ‘science’ today outside in and upside down. First, to put Western civilization back on its feet—for today it is standing on its head—we map the Cosmic Psyche through self-inquiry, following the maxim that Thales, the first philosopher, and six other wise men inscribed on the temple of Apollo at Delphi: “Know thyself.”<sup>1208</sup> Secondly, we are engaged in a contextual inversion, returning Western science to Reality and the Truth, depicted in the diagram on page 184.

This contextual inversion is far more radical than the paradigm shift that some evolutionaries are exploring today, as mentioned on page 182. For myself, I've been seeking to make this transformation in consciousness for fifty of the last sixty-five years, when, at the age of seven, I realized that the overall contexts for science and religion are incompatible with each other. However, even the fifteen years I spent being reasonably assimilated into Western civilization were essential for my development. For otherwise,

I would not have been able to express what is essentially an Eastern *Weltanschauung* in a language of the West.

I use the German *Weltanschauung* advisedly, because it provides more meaning than *worldview*, both these words being used in English from 1868 and 1858, respectively, to mean 'A particular philosophy or view of life; a concept of the world held by an individual or a group'. *Weltanschauung* is derived from *Welt* 'world', from Middle High German *wêrlt*, from Old High German *weralt*, cognate with *world*, and *Anschauung* 'view', from Middle High German *anschouwunge* 'observation, mystical contemplation'. So *Weltanschauung* has a deeper meaning than *worldview*, indicating both scientific observation and spiritual meditation.

To help establish this Eastern *Weltanschauung* in Western consciousness, Project Aditi, with the motto 'Awakening Self-reflective Intelligence', will need to undertake many tasks. Not the least is the Glossary of terms, redefining the meaning of many English words to denote the transformation in consciousness taking place today. For if we do not have a common language, we shall not be able to communicate with each other. At the same time, we need to remember that what really matters is the experience and concepts that we all share, expressible in many different languages, as words, symbols, and signs, depicted in the meaning triangle on page 61.

Within this shared conceptual and linguistic framework, the Alliance will need to publish many works, from scholarly books to introductory videos and television documentaries for the general public. For myself, it would greatly help me to complete my life's work if one or more literary executors could work with me while my body is still alive to publish my writings in as clear a way as possible. To get a complete picture of the way that my consciousness has expanded and deepened since 1980, should anyone be interested, we really need to publish all completed pieces in chronological order, rather like the way that the Peirce Edition Project and the Philemon Foundation are doing for the works of Charles Sanders Peirce and Carl Gustav Jung, respectively.

However, there is also a need to publish the Theory of Everything in as coherent a way as possible. That is the primary purpose of the scholarly tome *Wholeness: The Union of All Opposites*, which is not currently up-to-date with my latest researches, outlined in this treatise. Most importantly, content and linguistic editors engaged in such publishing activities will need to act as panosophers, recognizing that mystical psychology, not mathematical logic, physics, or biology, is the primary science underlying all the other sciences and humanities, illustrated in the diagram on page 9.

We shall then be able to answer many of the questions that materialistic science, based on the second, third, and fourth pillars of unwisdom cannot answer. During the past twenty years, scientists have made several lists of outstanding problems to be solved. For instance, in 1998, John Maddox, who famously said of Rupert Sheldrake's *A New Science of Life* "This infuriating tract ... is the best candidate for burning there has been for many years,"<sup>1209</sup> published a book titled *What Remains to Be Discovered: Mapping the Secrets of the Universe, the Origins of Life, and the Future of the Human Race*. Here are the titles of the three parts of this book:

1. **Matter** ... *in which the origins of the universe and of matter are explored, as well as the prospects for a theory of everything*
2. **Life** ... *in which the origin of life is considered as well as biological machinery, the riddle of the selfish gene, and the next human genome projects*
3. **Our world** ... *in which the nature of our brain is explained, as well as our greatest invention, mathematics, and how we will avoid catastrophes of the future*

Then, in 2004, John R. Vacca edited a book in which leading scientists outlined *The World's 20 Greatest Unsolved Problems*, most notably excluding any mention of psychology, including the most critical unanswered question of all: “What is causing scientists and technologists, aided and abetted by computer technology, to drive the pace of scientific discovery and technological invention at unprecedented exponential rates of acceleration?” Here are these most important unsolved problems, as they saw them then:

1. **Astronomy:** The Mystery of Dark Matter
2. **Cosmology:** The Creation of the Universe
3. **Theoretical Cosmology and Particle Physics:** The Cosmological Constant Problem
4. **Gravity:** The Construction of a Consistent Quantum Theory of Gravity
5. **Particle Physics:** The Mechanism That Makes Fundamental Mass
6. **Particle Physics and Astrophysics:** The Solar Neutrino Problem
7. **Astrophysics:** The Source of Gamma-Ray Bursts
8. **Theoretical High-Energy Physics:** The Unification of the Basic Forces
9. **Solid State Physics:** The Mechanism Behind High-Temperature Superconductors
10. **Biology:** How the Basic Processes of Life Are Carried Out by DNA and Proteins
11. **Biology:** Protein Folding
12. **Palaeontology:** How Present-Day Microbiological Information Can Be Used to Reconstruct ‘The Ancient Tree of Life’
13. **Neuroscience:** Free Will
14. **Neuroscience:** Consciousness
15. **Geology:** The Dynamics of the Inner Earth
16. **Geology:** Earthquake Predicting
17. **Chemistry:** How Microscopic Atomic Forces Produce Various Macroscopic Behaviours
18. **Chemistry:** The Fabrication and Manipulation of Carbon-Based Structures (Fullerenes)
19. **Energy:** Free Energy
20. **Energy:** Nuclear Fusion and Waste

In 2014, the Technology Strategy Board in the UK, led by Martin Rees, the Astronomer Royal, and funded by Nesta, then announced a £10 million prize fund to help solve one of the greatest issues of our time.<sup>1210</sup> This Longitude Prize 2014 is so-named to commemorate the two hundredth anniversary of the Longitude Act, intended to give a £20,000 award “for a method to determine longitude to an accuracy of half a degree of a great circle”,<sup>1211</sup> which is about fifty-five kilometres. This requires a chronometer that can keep time on a rolling ship to the accuracy of two minutes on a long voyage. In the event, John Harrison, working almost entirely on his own, created a reliable watch well within this accuracy. But, as he worked outside the scientific establishment, he was only awarded half the sum at first for his incredible achievement.

Here are what the Longitude Prize 2014 regards as the six most critical applications of science at the present time: completely ignoring the economic and psychological challenges presented to us by the invention of the stored-program computer:

1. **Flight:** How can we fly without damaging the environment?
2. **Paralysis:** How can we restore movement to those with paralysis?
3. **Antibiotics:** How can we prevent the rise of resistance to antibiotics?
4. **Water:** How can we ensure everyone can have access to safe and clean water?

5. **Dementia:** How can we help people with dementia live independently for longer?
6. **Food:** How can we ensure everyone has nutritious, sustainable food?

The central problem here is that the accumulation of scientific knowledge does not necessarily lead to greater understanding of humanity's place in the Universe. For instance, Martin Rees asked these questions at the beginning of his three-part television series *What We Still Don't Know*, broadcast in 2004: "Was there a beginning?" "Are we alone?" "What's the future of the cosmos?" and "What is the nature of reality?"<sup>1212</sup> As he has said, scientists know a great deal about the physical universe, but there is, as yet, no deep understanding.<sup>1213</sup> Similarly, even though the human genome has been sequenced, Steve Jones, Professor of Genetics at University College London has said, "We don't understand genetics at all."<sup>1214</sup>

If we are to be fully awake, Total Understanding is essential, going beyond what the Advaita sages Ramesh S. Baleskar and Vijai Shankar call 'Ultimate Understanding'<sup>1215</sup> and 'Absolute Understanding',<sup>1216</sup> respectively. Much fun could be found here, eventually totally transforming the education and medical systems. But, these activities are for humanity as a whole; they lie far beyond what the Alliance for Mystical Pragmatics, by itself, can accomplish. Indeed, with so much scepticism around about the possibility of the Theory of Everything ever emerging in consciousness, at the time of writing, it is most uncertain whether even this treatise will ever be published. We can only wait and see what happens.

### **Sharing Economy**

Having realized that none of us is separate from the Divine, Nature, or anyone else for an instant, we could invoke the social movements of Spiritual Renaissance and Scientific Revolution to cocreate the life-enhancing Sharing Economy, giving everyone on Earth the opportunity to realize their fullest potential as human beings.

The term *Sharing Economy* is preferred over *Gift Economy* or *Caring Economy* being talked about today for it is more appropriate for the Information and Knowledge Society we live in today. Information and knowledge are not physical objects, giving them some rather strange properties in conventional economic terms. For instance, when I buy a loaf of bread, the object passes from the storekeeper to me in exchange for money. However, when a teacher gives pupils some information, nothing is exchanged. Teachers and pupils share the information. As Tom Stonier points out in *The Wealth of Information*, "Whereas material transactions can lead to competition, information transactions are much more likely to lead to cooperation—information is a resource which can be truly shared."<sup>1217</sup>

Furthermore, in the Sharing Economy, we recognize that we all share the same Genuine Identity as the Cosmic Divine, being governed by the Principle of Unity—the Hidden Harmony. However, this treatise does not describe in any detail what this system of governance and harmonious way of managing our business affairs might look like in practical terms. As Integral Relational Logic has evolved from the information systems modelling methods that underlie the Internet, we could, in principle, use IRL to cocreate the information systems that the Sharing Economy would need.

However, until Projects Agape and Aditi have come some way toward reaching their goals, it will not be possible for Project Arjuna to get off the ground. In the meantime, a fifty-page essay titled 'The Sharing Economy: Transcending the Divisiveness of Money', written in November 2013, provides an overview of some of the critical issues here. Most significantly, until we abandon money as an immortality symbol, living the vision in the Age of Light will be quite impractical. Everything else is dependent on this radical transformation of consciousness.

## **World Peace**

We now come to the Great Dream of humanity: World Peace. In my reading during the past few years, and especially during the past few months, I'm finding an increasing number of my contemporaries writing about the union of opposites. So perhaps Project Heraclitus, with its motto 'Revealing the Hidden Harmony', is not impossible, as it has often seemed during the last few decades.

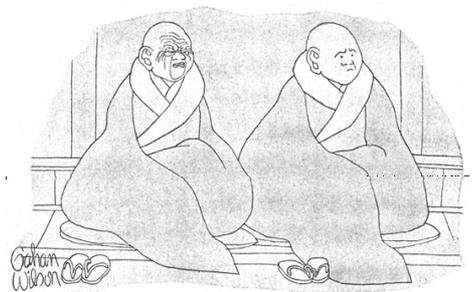
By integrating the Spiritual Renaissance, Scientific Revolution, and Sharing Economy into a coherent whole, the aims of the Alliance for Mystical Pragmatics are still realizable. In this holistic manner, we could learn to manage our business affairs in harmony with the basic law of the Universe. With such self-understanding, grounded in the blissful experience of the Divine, we could transform today's Information, Knowledge, and Wisdom Society into the eschatological Mystical Society—the Age of Light—as this diagram illustrates:



## **Stillness is the way**

To conclude, we need to remember that neither the map of the Universe outlined in this treatise nor the territory being mapped is real. Only Ineffable Absolute Wholeness is Reality, from which none of us is ever separate. So as Ramana Maharshi—often regarded as the pre-eminent mystic in the twentieth century—wrote to his mother, as 1898 turned into 1899, when she tried to persuade him to return home from Arunachala, “What is not meant to happen will not happen, however much you wish it. What is meant to happen will happen, no matter what you do to prevent it. This is certain. Therefore the best path is to remain silent.”<sup>1218</sup>

Once we have realized this, we have fulfilled evolution's purpose in our particular physical universe, one of many in the multiverse that astrophysicists like Martin Rees are speculating about today.<sup>1219</sup> There is then nothing more to do or become in life. All that really matters is to be, living in the Eternal Now, as this elderly monk understood. And it is in the blissful space of Wholeness, Love, Stillness, and Peace, in the Presence of the Divine, that we can die as individuals and as a species, knowing that Consciousness, the True Identity, Cosmic Soul, and Divine Essence we all share, never dies.



Young monk: *What happens next?*  
Elderly monk: *Nothing. This is it!*

Nevertheless, something magical could still emerge from Stillness, if we remember, with Jaques in Shakespeare's *As You Like It*, “All the world's a stage, And all the men and women merely players; They have their exits and their entrances; And one man in his time plays many parts, His acts being seven ages,” the first six being infant, school-boy, lover, soldier, justice, and old age. Finally, “Is second childishness and mere oblivion, Sans teeth, sans eyes, sans taste, sans every thing.”<sup>1220</sup>

For when we are free of the fear of death, we could really have a celebration. As Orsino, Duke of Illyria, said in the opening lines of *Twelfth Night*, “If music be the food of love, play on, Give me excess of it, that, surfeiting, The appetite may sicken and so die.”<sup>1221</sup>

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*These endnotes do not yet have a consistent style, which will be rectified in due course.*

<sup>1</sup> C. G. Jung, *Symbols of Transformation: An Analysis of the Prelude to a Case of Schizophrenia, Collected Works, Volume 5*, eds., Herbert Read, Michael Fordham, and Gerhard Adler, tr., R. F. C. Hull, Princeton

University Press, 1956. First published in the *Jahrbuch für psychoanalytische und psychopathologische Forschungen* (Leipzig), III–IV (1911–12), and republished the same year as a book by Deuticke Verlag, Leipzig and Vienna, titled *Wandlungen und Symbole der Libido*. An English translation, by Dr. Beatrice M. Hinkle, entitled *Psychology of the Unconscious*, was published in 1916 by Moffatt Yard, New York, and in 1917 by Kegan Paul, London.

<sup>2</sup> C. G. Jung, *On the Nature of the Psyche*, tr., R. F. C. Hull, Princeton University Press, 1960, para. 28 and n. 31, pp. 15–16. Also in C. J. Jung, *The Structure and Dynamics of the Psyche: Collected Works, Volume 8*, first published as ‘Über die Energetik der Seele’ in a volume of the same title (Zurich, 1928).

<sup>3</sup> ‘Einstein’s Unfinished Symphony’, BBC drama documentary, 20th January 2005.

<sup>4</sup> F. C. Happold, *Mysticism: A Study and an Anthology*, revised edition, original edition, 1963, Harmondsworth, England: Penguin, 1970, pp. 71–72.

<sup>5</sup> Elaine Pagels, *Adam, Eve, and the Serpent*, reprint, original edition, Weidenfeld and Nicolson, 1988, Harmondsworth, England: Penguin, 1990, p. 65.

<sup>6</sup> Ernest Becker, *Escape from Evil*, New York: Free Press, 1985, Ch. 6, ‘Money: The New Universal Immortality Ideology’, pp. 73–90.

<sup>7</sup> Arthur Koestler, *The Ghost in the Machine*, original edition, Hutchinson, 1967, London: Pan Books, Picador, 1975, p. 3.

<sup>8</sup> Alan Turing, ‘Computing Machinery and Intelligence’, *Mind*, LIX, No. 236, 1950, reprinted in Hofstadter & Dennett, *The Mind’s I*, pp. 53–67.

<sup>9</sup> Hans Moravec, *Robot: Mere Machine to Transcendent Mind*, Oxford University Press, 1998, p. 125.

<sup>10</sup> Victor Vinge, ‘The Technological Singularity’, available at <http://mindstalk.net/vinge/vinge-sing.html>.

<sup>11</sup> <http://www.theguardian.com/technology/2014/feb/22/computers-cleverer-than-humans-15-years>.

<sup>12</sup> <http://www.independent.co.uk/news/science/stephen-hawking-transcendence-looks-at-the-implications-of-artificial-intelligence--but-are-we-taking-ai-seriously-enough-9313474.html>.

<sup>13</sup> Hans Moravec, *Mind Children, The Future of Robot and Human Intelligence*, Harvard University Press, 1990.

<sup>14</sup> <http://www.theguardian.com/technology/2014/jun/08/super-computer-simulates-13-year-old-boy-passes-turing-test>.

<http://www.independent.co.uk/life-style/gadgets-and-tech/computer-becomes-first-to-pass-turing-test-in-artificial-intelligence-milestone-but-academics-warn-of-dangerous-future-9508370.html>.

<http://www.telegraph.co.uk/technology/news/10884839/Computer-passes-Turing-Test-for-the-first-time-after-convincing-users-it-is-human.html>

<sup>15</sup> Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, edited by Kathryn Sutherland, original edition, 1776, Oxford University Press, 1998, p. 8.

<sup>16</sup> Plato, *Protagoras*, 343b, p. 51.

<sup>17</sup> David Bohm, *Wholeness and the Implicate Order*, London: Routledge & Kegan Paul, 1980, pp. 18. & 179–186.

<sup>18</sup> C. G. Jung, Commentary of *The Secret of the Golden Flower*, tr. from Chinese by Richard Wilhelm in *Das Geheimnis der goldenen Blüte: Ein chinesisches Lebensbuch*, 1929, tr. from German by Cary F. Baynes, originally published 1931, San Diego, CA: Book Tree, 2010, p. 82. Also in C. J. Jung, *Alchemical Studies: Collected Works, Volume 13*, para. 7, p. 9.

<sup>19</sup> C. G. Jung, Editorial Note to *Zentralblatt für Psychotherapie und ihre Grenzgebiete VIII:2* in *Civilization in Transition: Collected Works, Volume 10*, para. 1053, p. 552.

<sup>20</sup> Cary F. Baynes, Translator’s Preface to *The Secret of the Golden Flower*, p. vii.

<sup>21</sup> C. G. Jung, ‘Instinct and the Unconscious’, tr. H. G. Baynes, in *Journal of Psychology* (General Section) (London), X (1919): 1, 15–26. Also in *The Structure and Dynamics of the Psyche: Collected Works*, Vol. 8, pp. 129–138, paras. 263–282.

<sup>22</sup> C. J. Jung, ‘On the Psychology of the Unconscious’ in *Two Essays on Analytical Psychology: Collected Works*, Vol. 7, tr., R. F. C. Hull, 2nd edn., 1st edn., 1953, Princeton University Press, 1966, pp. 72–74, pars. 111–114. First published as *Die Psychologie der unbewussten Prozesse* (Zurich, 1917). Trans. by Dora Hecht as ‘The Psychology of the Unconscious Processes’ in *Collected Papers on Analytical Psychology* (2nd edn.,

London and New York, 1917).

- <sup>23</sup> C. J. Jung, *Psychological Types: Collected Works*, Vol. 6, p. 426, para. 709. First published as *Psychologische Typen* in 1921, tr. H. G. Baynes as *Psychological Types: The Psychology of Individuation*, 1923.
- <sup>24</sup> C. G. Jung, 'Transformation Symbolism in the Mass' (1942/1954), tr., R. F. C. Hull, in *Psychology and Western Religion*, Routledge, 1988, p.141, par. 375. Also in *Psychology and Religion: West and East, Collected Works, Vol. 11* (1958; 2nd edn., 1969), p. 245.
- <sup>25</sup> C. G. Jung, 'Jung and Religious Belief (1958)', in *The Symbolic Life: Miscellaneous Writings, Collected Works, Vol. 18*, (1976), p. 711, pars. 1597–1598.
- <sup>26</sup> Jung, *Symbols of Transformation*, p. 368, para. 576.
- <sup>27</sup> C. J. Jung, 'On the Nature of the Psyche', in *On the Nature of the Psyche*, p. 117, para. 406. Also in *The Structure and Dynamics of the Psyche: Collected Works, Vol. 8*, p. 207.
- <sup>28</sup> Mircea Eliade, *Patterns in Comparative Religion*, tr., Rosemary Sheed, intro., John Clifford Holt, Bison Books, 1996, p. 419.
- <sup>29</sup> Mircea Eliade, *Myths, Dreams, and Mysteries: The Encounter Between Contemporary Faiths and Archaic Realities*, HarperPerennial, 1979, pp. 172–173 and 162.
- <sup>30</sup> Paul Levy, *The Madness of George W. Bush: A Reflection of Our Collective Psychosis*, Foreword, Mark Comings, Bloomington, IN: Authorhouse, 2006, p. 142.
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