



# Humankind

*Who are we? Where do we come from?  
Where are we heading?*

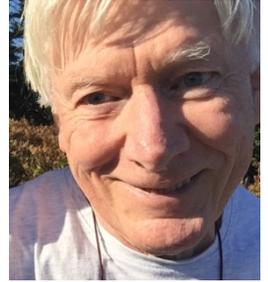


**Paul Hague**  
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The image on the front cover is a symbol of Indra's Net of Jewels or Pearls in Huayan Buddhism, visualized as a dewy spider's web in which every dewdrop contains the reflection of the light emanating from all the other dewdrops, like nodes in a mathematical graph. This picture is thus a metaphor for the interconnectedness of the whole of humanity, not only within our species, but also with all other beings, sentient or not.

## Author's note

As I approach the eightieth anniversary of my birth as a human being, I have written this monograph on 'Humankind' to describe how the creative power of Life, emanating directly from the Divine Origin of the Universe, like an effervescent fountain, has enabled me to answer the fundamental questions of human existence: Who are we? Where do we come from? Where are we heading?



This memoir is rather free flowing, without a rigid structure, nonchronologically weaving episodes in my life with the insights that emerged as a result, as an expression of the timelessness of Consciousness, as I experience the Totality of Existence in the Eternal Now. For it was not until I was in my sixties that I was sufficiently self-aware to begin to understand my life story and hence that of humankind, an understanding that is still evolving.

So, in the first instance, I have written these reflections on the origin, destiny, and essential nature of our species for myself, to celebrate returning Home to Wholeness after an incredible adventure on the stormy high seas of life, following what Joseph Campbell called the 'cosmogonic cycle', as the universal spiritual journey. It is intended as a prelude to the last of a dozen books titled *Unifying Mysticism and Mathematics: To Reveal Love, Peace, Wholeness, and the Truth*.

This book and its evolutionary predecessors illustrate the great paradox of what it means to be human. As none of us is ever separate from any other being, including the Supreme Being, we cannot realize our True Nature as humans from an anthropocentric perspective. We can only do so by invoking our innate Self-reflective Intelligence to stand outside ourselves, free of any prejudices that we might have about what it means to be human, in contrast to the other animals and machines with so-called artificial intelligence.

This is what has happened to me since April 1980, when I experienced an apocalyptic awakening as an antidote to a cataclysmic prenatal trauma I suffered in October 1941. This exceptional ontogeny, not explicable within the scientific, economic, and religious institutional framework that governs our lives, has healed my fragmented mind and split psyche in Wholeness, transcending the categories. For *Wholeness is the union of all opposites*, the fundamental law of the Universe, known as the *Principle of Unity*, which is an irrefutable, universal truth.

And what applies to me applies to us all. For Wholeness is our True Nature. We cannot actually return Home to Wholeness, for none of us has ever left Home. Furthermore, in the depth and breadth of the psyche, there is much that we share in common, no matter what our unique paths in life might be.

However, while we all might agree what the Moon is and recognize roses in our gardens, as such a profound understanding is not common knowledge, there is no agreement on what the innate character of *Homo sapiens* 'wise human' might be. We are nearly eight billion people on Earth today, including children, each with our own particular perspectives on what it means to be human, based on our personal experiences, specialist occupations, and cultures we live in, much influenced by around one hundred and ten billion humans who have already lived and died.

Yet, as luminaries like J. Krishnamurti and David Bohm have pointed out, humankind will not be a viable species until we are free of our mechanistic conditioning, questioning all the beliefs and assumptions that provide many with a precarious sense of security and identity in life. Not the least of these is attachment to money, the primary immortality symbol and cause of conflict. For while we have infinite potential, the authorities instruct us to fight each other for a slice of the finite monetary pie.

As a freethinking autodidact, questioning our cultural preconceptions is a liberating approach to learning that I have been following since I was seven years of age, not very popular. For, having been born in a world at war with itself, my deepest longing has been to find Peace by resolving the incompatibilities between science and spirituality.

However, it was only after I had spent some sixteen years in the data-processing industry, mostly in sales and marketing for IBM in London, that I was able to dedicate my life to pursue my dream. To this end, I have adopted the most radical change in the work ethic since the invention of money some 4,000 years ago, sacrificing everything, including relationships with my two children, from whom I have been estranged for over thirty-five years. For *sacrifice* etymologically means ‘to make sacred and whole’, revealing Love, Peace, and the Truth that sets us free.

Realizing that nonphysical, synergistic data energies are causing scientists and technologists to drive the pace of change in society at unprecedented exponential rates of acceleration, in 1980 I set out to develop the transcultural, transdisciplinary art and science of humanity that Erich Fromm called for if we were to avoid psychological and economic catastrophe.

The universal, holotropic art and science of reason that has thereby emerged in consciousness, called *Integral Relational Logic*, shows me that we are all interconnected in the utmost depths of being, as the image on the front cover illustrates. As mathematics is the art and science of patterns and relationships, these hidden relationships dwell within the Cosmic Psyche, the vast domain beyond our superficial physical senses, lying outside science, as it has been practiced since the first scientific revolution in the 1600s.

Although Gnostics and *Jñānins* experientially know that humans are never separate from the Immortal Ground of Being, to heal the cognitive split between humanity and Divinity, opened up thousands of years ago, we also need to recognize that the Cosmic Psyche contains all mathematical objects, as well as the commonsensical system of thought that enables us all to form concepts and organize our ideas. As the Cosmic Psyche, powered by Life, is energetic, this explains the mystery of why mathematics has been so successful in mapping the world we live in.

This psychospiritual understanding has been key to my mental health, accepting that *Homo sapiens* is not immortal. In conformity with the fundamental law of the Universe, one day a generation of children will be born who will not grow old enough to have children of their own. Nevertheless, for many years, I hoped that the spiritual renaissance and revolution in science that has been emerging for several decades would enable our descendants to live harmoniously in the eschatological Age of Light for a few more generations, free of the one-sidedness of linear mathematical logic, materialistic, mechanistic science, organized religions, and divisive monetary economies.

However, as we can see from the recent COP26 summit in Glasgow, traditional patterns of thought and the fear of death are so deeply engrained in the collective sub- and unconscious that there is now little prospect that humanity as a whole will be liberated from our mind-forged manacles before our imminent demise. This is an inevitability that we cannot avoid, no matter how awakened we might become or what our hopes and wishes might be.

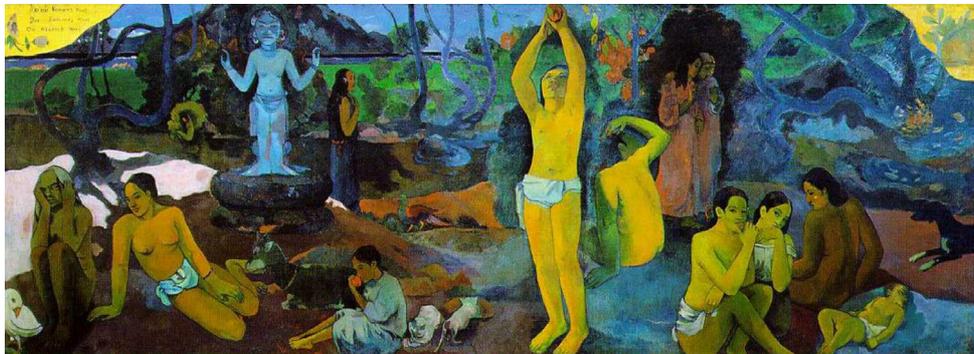
Nevertheless, as humanity and Divinity are never separate in Reality, it is still possible that in community we could collectively deepen our understanding of our species and that the divergent streams of evolution could thereby converge a little further, along the lines that Pierre Teilhard de Chardin foresaw in *The Human Phenomenon*. So, my inner guru, called *Daimon* and *Genius* in Greek and Latin, respectively, is continuing to guide me to be creative, with no one outside me. Even though I have nothing to teach anyone—as what I have learnt about humanity is a gift of the Divine—I trust that this piece on ‘Humankind’ could help those who might read it with their own self-inquiries.

# Humankind

## Who are we? Where do we come from? Where are we heading?

When Carl Linnaeus named the human race *Homo sapiens* ‘wise human’ in the tenth edition of *Systema Naturæ* in 1758,<sup>1</sup> he did not define the essential characteristics of humankind in contrast to the other species. To understand what it means to be human, he simply wrote, *Homo nosce Te ipsum* ‘Human, know thyself.’<sup>2</sup>

It is thus through self-inquiry that we can discover humankind’s place within the overall scheme of things, answering the fundamental questions of human existence: Who are we? Where do we come from? Where are we heading? These elusive questions also fascinated Paul Gauguin, for in 1897, he depicted this enigma with his painting from Tahiti, *D’où venons-nous? Que sommes-nous? Où allons-nous?*

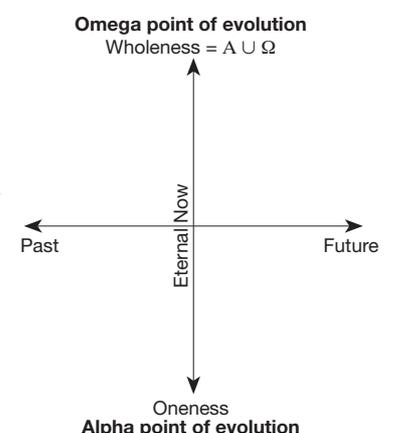


For myself, the origin and destiny of our species has been revealed to me because at 11:30 on Sunday 27th April 1980 evolution took an unprecedented change of direction within me, as I was strolling across Wimbledon Common to the pub for lunch. At the time, I was working in marketing for IBM in London, and had little understanding of what had happened, other than it was most exciting moment in my life.

As I understand this apocalyptic awakening today, a big bang erupted in the utmost depths of my psyche, at the Divine Origin of the Universe, leading me to answer the most critical unanswered question in science: *What is causing scientists and technologists, aided and abetted by computer technology, to drive the pace of scientific discovery and technological development at unprecedented exponential rates of acceleration?*

To answer this question, free of the one-sidedness of Western thought, the fundamental law of the Universe, which I call the *Principle of Unity*, then guided me on the greatest adventure possibly imaginable. First, two years later, when helping to design and implement a management accounting system for the Kuwait Institute for Scientific Research in the middle of the Falklands war, I realized that the Divine power of Life had carried me from the Alpha to the Omega Point of evolution in a stupendous burst of creativity.

This simple diagram illustrates the change of direction that evolution was taking within me. I was experiencing a radical transformation of consciousness in the vertical dimension of time, in the Eternal Now, not in the horizontal, with a past and a future. Most significantly, there is a primary-secondary relationship between the vertical and horizontal dimensions of time, in conformity with the Principle of Unity, which states *Wholeness is the union of all opposites*.



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With this irrefutable, universal truth in my kit bag, the Logos or inner guru, as the ‘dispeller of darkness’,<sup>3</sup> then led me to develop the Method needed to integrate all knowledge in all cultures and disciplines at all times into a coherent whole. My inner guide, also called *Daimon* or *Genius* in Greek and Latin, respectively, has thereby carried me Home to Wholeness, from which I have never left. As an autodidactic rationalist, I have been taught to take the abstractions of mathematics, computer science, and information systems modelling methods underlying the Internet to the utmost level of generality.

While I was being led to evolution’s glorious culmination in the upwards direction of the Eternal Now, the Principle of Unity, which Heraclitus of Ephesus aptly called the *Hidden Harmony*, was also leading me downwards to Oneness, in union with the Divine, free of the sense of a separate self. There is thus a primary-secondary relationship between my identity as a Divine, Cosmic being and that of a man with a name, derived from Latin and Old Norse, and unique social security numbers in Sweden and the UK.

As these two identities are never separate, what this megasynthesis of everything tells me is that the essential character of *Homo sapiens* transcends the categories. So, we cannot answer the question “Who are we?” by making comparisons. As the True Nature of humanity is Wholeness, what it truly means to be human is beyond compare. Furthermore, as mystics of all ages have discovered, this means that the origin and destiny of our species, and of all other beings in the entire world of form, is the Formless, Nondual Absolute, as the Immortal Ground of Being.



That is all I need to say about my understanding of humankind. Most of what else I write in this memoir describes what has led me to this realization, having been extracted from many unread books and essays I have written since 2012, mostly in solitude. 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>4</sup>

That is the great irony of my life. Even though none of us is ever separate from any other being, including the Supreme Being, I have lived as an outsider to society since the moment of my birth in 1942. I did become assimilated into the prevailing culture at the ages of 11, 16, 18, and from 22 to 34. But this primarily happened so that I could learn the skills I would need in the second half of my life to heal a cataclysmic prenatal trauma I suffered eighty years ago, as a two-centimetre embryo, depicted here somewhat larger when printed. For, on that fateful day, my three-year-old brother, feeling free for the first time in his life, ran in front of an army lorry on the day that my mother’s pregnancy was confirmed and was killed instantly.



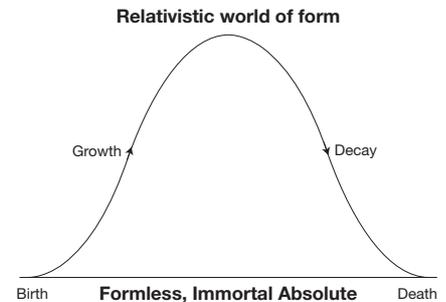
This was an utterly shattering experience, which Stanislov Grof’s book *The Holotropic Mind* has helped me to understand. In this insightful book, Stan says that our early experiences in the womb “have strong mystical overtones; they feel sacred or holy. ... In this state of cosmic unity, we feel that we have direct, immediate, and unlimited access to knowledge and wisdom of universal significance.” This rapturous period in our lives, a reminder of “Gardens of Paradise in the mythologies of a variety of the world’s cultures”, can be referred to as ‘oceanic ecstasy’.<sup>5</sup> In contrast, those whose gestation is disturbed in some manner experience a ‘bad womb’, which can affect behaviour in the course of a person’s life until such painful memories are brought up from the sub- and unconscious shadow and intelligently examined in the brilliant light of Consciousness.

My entire journey in life has thus been to return to oceanic ecstasy, along the lines that Julian Huxley, author of *Evolution: The Modern Synthesis*, outlined in a visionary 1700-word essay published in 1957: by

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“destroying the ideas and the institutions that stand in the way of our realizing our possibilities”, we could understand human nature, what it truly means to be a human being. When evolution thus becomes fully conscious of itself, we would transcend our limitations, fulfilling our highest potential as spiritual beings, living in mystical ecstasy, free from the suffering that has plagued humanity through the millennia. Huxley called this mystical evolutionary process of humanity transcending itself ‘transhumanism’,<sup>6</sup> with a quite different meaning from what technocratic transhumanists mean by the word today.<sup>7</sup>

So, although my exceptional ontogeny is unprecedented in the entire history of evolution and human learning, I have actually been following the universal spiritual journey, which the mythologist Joseph Campbell defined in seventeen steps in three phases—Departure, Initiation, and Return—in his popular book *The Hero with a Thousand Faces*. To set the context for our journeys in life, he points out that in conformity with the fundamental law of the Universe, all beings are born to die. This, he calls the Cosmogonic Cycle, depicted in this simple schema, saying, “Redemption consists in the return to super-consciousness 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>8</sup>



Being able to see the underlying patterns and generalities of the myths and fairytales of multiple cultures through the ages, Campbell calls the universal spiritual journey the ‘monomyth’, in which “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>9</sup>

An archetypal example is the story of Halvor in the Norwegian fairytale ‘*Soria Moria Slott*’ (castle, palace), telling us how Halvor left his parents to find his Authentic Self. Guided by fate, he had to kill three-, six-, and nine-headed trolls and overcome other trials in order to marry the princess in the palace,<sup>10</sup> as a symbol for union with the Divine. Theodor Kittelsen illustrated Halvor’s quest in a painting titled ‘Far, far away he saw something glowing and shimmering’.<sup>11</sup>



The golden glow in the distance marks the glorious culmination of our spiritual journeys, so near, yet so far away. It is a metaphor for the Cosmic Light of Consciousness, which many are aware of in the depths of being, but which is generally occluded by what an anonymous fourteenth-century English mystic called

the ‘cloud of unknowing’,<sup>12</sup> as a metaphor for our collective, cultural, and personal conditioning, mostly lying in the sub- and unconscious.



The existence of this universal spiritual journey is clear evidence that humans have been intuitively aware of our True Nature ever since we were given the wonderful gift of Self-reflective Intelligence some 60,000 years ago or more, at what Yuval Noah Harari calls the ‘cognitive revolution’ in *Sapiens*.<sup>13</sup> Comparing cognitive phylogeny to ontogeny, our forebears were like infants in adult bodies, unaware that they were setting out on a learning journey that has led us to where society is today—in total confusion.

But it doesn’t really help anyone to explain why the world is disintegrating into chaos at the moment, despite the widespread endeavours to create coherent order by turning evolutionary divergence into convergence. As none of us is an autonomous being, with the free will to act in any way that we might choose, all any of us can actually do in life is to learn to accept ‘what is’ by standing outside ourselves.

Such a vantage point is a little like that of astronauts viewing the Earth from the Moon. For instance, Edgar Mitchell co-founded the Institute of Noetic Sciences (IONS) after sensing ‘an instant global consciousness’.



Today, IONS, along with many similar associations, is seeking to develop a ‘scientific view of our inner experiences’.<sup>14</sup> However, we cannot understand what is happening to us all as a species within the logical, mathematical, materialistic, and mechanistic paradigm of modern science. Rather, to do so, we need to tap into our innate sense of Wholeness, which Mitchell clearly experienced on the Moon, having “a people orientation, an intense dissatisfaction with the state of the world, and a compulsion to do something about it”, beyond the pettiness of international politics.<sup>15</sup>

We can regard such a holistic perspective as a metaphor for our spiritual journeys, for Meister Eckhart, the pre-eminent Christian mystic, said, “The eye with which I see God is the same as that with which he sees me.”<sup>16</sup> Many people already sense the experience that is necessary to honestly speak such words, in the spirit of John of Patmos, who said in *Revelation*, “I am Alpha and Omega, the beginning and the end, the first and the last.”<sup>17</sup>

Similarly, presumably another John wrote in his first Epistle, “God is Love; and he that dwelleth in Love dwelleth in God, and God in him,”<sup>18</sup> words that Pope Benedict XVI took as the text for his first encyclical ‘*Caritas Deus Est*’ in 2006.<sup>19</sup> But Love is the Divine Essence we all share, no matter what our religious background might be. As the Sufi poet Rumi beautifully put it, “Love is the sea of not-being and there intellect drowns.”<sup>20</sup>

So, if we all experienced the Divine in the depths of our hearts, there would no longer be any need for organized religions. For, by healing the experiential and cognitive split between humanity and Divinity, we would thereby fulfil the prophesy 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 unshakeable 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>21</sup> extraordinary words written many years ahead of their time.

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Similarly, 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>22</sup>

The Inner Peace that is thus revealed is a potential in each and every one of us. There is no need to wear distinctive clothes or adopt venerational honorifics, denoting those who claim to have exclusive access to the word of God. God speaks through all of us, as we can realize through spiritual practices, such as meditation, yoga, and self-inquiry. Thus, World Peace is only achievable when we are all living in Peace, a Utopian dream, perhaps never to be realized.

For while living in union with the Divine is necessary to reveal the Truth that sets us free, such a realization is not sufficient to develop a scientific view of our inner experiences which IONS and Thomas Hübl’s Academy of Inner Science<sup>23</sup> are endeavouring to do, among many other institutions. As a society, we are still a very long way from establishing the rational science of humanity that Erich Fromm called for in 1976 in *To Have or To Be?*<sup>24</sup> Inspired by Meister Eckhart and Shakyamuni Buddha, he said that such a total transformation of consciousness is absolutely essential if humanity is to avoid psychological and economic catastrophe, to which we can add ecological today.



Fromm called for a systemic approach to psychology—giving our business affairs a life-enhancing structure—after pointing out in 1956 in *The Sane Society*, as a follow-on to his wartime *Fear of Freedom (Escape from Freedom in the USA)*, that the normal behaviour of society is pathological. Likening the Buddha’s Four Noble Truths to medical diagnosis,<sup>25</sup> he said that if we do not acknowledge the symptoms of our suffering, we cannot find the cause or the cure, necessary to apply the remedy.

But, how is such a therapeutic science to come about? When Johannes Kepler developed the three laws of motion of planetary bodies in *New Astronomy*<sup>26</sup> and *The Harmony of the World*<sup>27</sup> in 1609 and 1619, respectively, the territory he was mapping mathematically can be seen by everyone looking upwards at the night sky. But, what is the territory we first need to map cognitively, as the basis for any mathematical model, if we are to answer the three questions in the subtitle of this monograph?

We can obtain a clue to what this might be from Yehuda Berg, who tells us in *The Power of Kabbalah*—as the mystical core of Judaism—that 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>28</sup>

Of course, these are not precise percentages. But they do illustrate the way that we focus 99% of our attention on our external world, which is the superficial 1% of the Totality of Existence, but just 1% of our activities studying the profound 99% that is inaccessible to our physical senses of sight, hearing, smell, taste, and touch. But, what should we call this hidden 99%? While physicists have recently created the largest ever map of dark matter,<sup>29</sup> there is no generally accepted name for or cognitive map of the inner world that we all share. Despite some 60,000 years of human learning, there is little understanding of what this vast expanse actually is, of what it contains, and therefore how it can best be named.

In *Autobiography of a Yogi*, Paramahansa Yogananda, known as ‘Father of Yoga in the West’ and a major influence on the life and work of Steve Jobs,<sup>30</sup> called that which is beyond the senses the ‘astral world, universe, cosmos, or body’. As his guru Sri Yukteswar told him, “The astral universe, made of various subtle vibrations of light and colour, is hundreds of times larger than the material cosmos.”<sup>31</sup>

Another term for what Helena Petrovna Blavatsky also called the ‘astral body’,<sup>32</sup> when cofounding the Theosophical Society in 1875, is Greek *aither* ‘pure, fresh air’, in Latin *æther*, “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, while Albert Michelson and Edward Morley showed in 1887 in a famous experiment that an ‘æther wind’ could not be physically detected as the Earth passed through the supposed æther,<sup>33</sup> such a substrate does exist in the nonphysical, or better to say beyond the physical and nonphysical realms and all other opposites.

The Sanskrit word corresponding to *Æther* is *Ākāśha*, which the systems philosopher Ervin Laszlo uses to refer to the Universal Quantum Field in his ‘Akashic paradigm’.<sup>34</sup> 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>35</sup>

A few other terms that refer to the occult ‘that which is hidden’ are *Anima Mundi* ‘World Soul’, *Prima Materia* in esoteric alchemy,<sup>36</sup> *Parousiā* ‘Presence’, as the essential quality of Plato’s eternal Forms and Ideas,<sup>37</sup> and *Presence*, from Latin *præsentia* ‘presence’, etymologically ‘before being’ or ‘prior to existence’, from participle of *præesse* ‘to be before’, from *præ* ‘before’ and *esse* ‘to be’.

Turning to philosophy, which Bertrand Russell called the ‘No Man’s Land’ between the warring factions of science and theology,<sup>38</sup> Immanuel Kant recognized the transcendental nature of our ideas, making a distinction between *phaenomena*, appearances accessible to our physical senses, and *noumena*, from Greek *nous* ‘mind’, as the unknowable essence or ‘thing-in-itself’ (German *Ding an sich*).<sup>39</sup>

Pierre Teilhard de Chardin used the same Greek root when pointing out that biogenesis became noogenesis in the noosphere when *Homo sapiens* became self-reflective.<sup>40</sup> As he saw in the 1920s, we can only understand evolution as a whole by studying the human phenomenon,<sup>41</sup> at the leading edge of evolution, although it would perhaps have been preferable to talk about the human *noumenon*.

Yet, as Teilhard showed in *Le Milieu Divin: An Essay on the Interior Life*, *mind* is not sufficiently profound and broad enough to embrace the Totality that is beyond the physical senses, not the least because there is no unambiguous equivalent word in some other languages, such as German and Swedish. So Carl Gustav 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. The German words *Geist* ‘spirit’ and *Seele* ‘soul’ can both be translated as ‘mind’, and Jung used these words interchangeably in the 1920s, as R. F. C. Hull, the principal translator of Jung’s *Collected Works* pointed out.

However, by 1933, in an essay titled ‘The Real and the Surreal’, Jung 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>42</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>43</sup>

To indicate the profundity of the world we live in, I feel that *psyche* is the most appropriate word, also the subject of Aristotle’s *On the Soul* (*Peri Psuchēs*), often referred to as *De Anima*, the first “systematic investigation in what is now known as the science of mind and behaviour”.<sup>44</sup> But this is not enough. To indicate that the psyche is far more extensive than the physical universe of matter, space, and time, I prefer to use the term *Cosmic Psyche*, not the least because it is not so heavily loaded with the past as other terms.



We can best demonstrate the existence of the Cosmic Psyche to sceptical physicists with a letter that Albert Einstein wrote to Jaques Hadamard in 1945, who was then studying mathematicians' creative experiences:

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 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>45</sup>

By describing his inner creative processes as well as he was able from his background as a mathematical physicist, Einstein showed us that scientific theories begin as a form of insight before we are able to express them in natural and mathematical languages. Similarly, David Bohm, a friend and colleague of both Einstein and J. Krishnamurti, pointed out in *Wholeness and the Implicate Order*, "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>46</sup>

This insight is far more significant than anything that scientists might tell us about the material universe. It shows us clearly that our creative activities begin in the Cosmic Psyche before we are able to apply our unique reflective abilities to express what we see within externally as works of art. For it is not only scientific theories that originate in the Cosmic Psyche. More generally, all books, paintings, musical pieces, buildings, artefacts, computer programs, etc. are expressions of what we see within, going back tens of thousands of years to the artistic expressions of our inner worlds that have been found across Europe and Asia.

For instance, the first cave drawings provide clear evidence of our unique human qualities, such as those at Chauvet in Ardèche in south-central France, some thirty to thirty-two thousand years old,<sup>47</sup> when two or three kilometres of ice were covering the land where I live today in Sweden.



Other examples are the images of goddesses appearing across a vast expanse of land stretching from the Pyrenees to Lake Baikal in Siberia, at the time of the Great Mother Goddess, which Ken Wilber, for instance, studied in *Up from Eden: A Transpersonal View of Human Evolution*.<sup>48</sup> A famous example is this limestone figurine of a fertility goddess that was found in Willendorf in Austria, estimated to be between 18 and 20,000 years old.<sup>49</sup>



In Volume I, Part 1 of *Historical Atlas of World Mythology*, Joseph Campbell provides maps of the locations of the painted caves found in south-west Europe and of the distribution of Venus figurines across

Europe and Asia, to Lake Baikal.<sup>50</sup> So long before humans settled in villages to cultivate the land and domesticate animals and before the birth of written history, our forebears were able to express in symbolic form in their outer worlds what they could see in their inner worlds.

Most significantly, these artistic images are clear evidence that the Cosmic Psyche contains everything that humans have ever learnt during many millennia of noetic evolution. It is a vast domain, for the Population Reference Bureau tells us that around one hundred and ten billion humans have lived and died during the past 50,000 years,<sup>51</sup> in addition to the nearly eight billion alive today.<sup>52</sup>

Although this knowledge has been mostly developed to help us understand our external world—about the one percent of the Totality of Existence—it also naturally includes what humans have learnt about the ninety-nine percent hidden beyond the senses. We need to integrate this mystical understanding of ancient wisdom with conventional scientific discoveries if we are to reveal the features and faculties that all humans share, no matter what our background might be. Gottfried Leibniz and Isaac Newton—co-discoverers of the infinitesimal calculus in the 1600s—made an initial attempt at such a synthesis with their notions of *philosophia perennis* (eternal wisdom)<sup>53</sup> and *prisca sapientia* (pristine wisdom),<sup>54</sup> the latter secretly dabbling in alchemy.<sup>55</sup>

But, the Cosmic Psyche did not suddenly appear in our species when our forebears became self-reflective and began to form concepts, externally expressed symbolically in language. The Cosmic Psyche underlies all species and, indeed, all physical universes in the multiverse of all such structures.<sup>56</sup> So, what is called *supernatural* is entirely natural and the natural sciences study the *effects* of Nature, not Nature itself.

We can see this most clearly from the root of 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 Proto-Indo-European (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.

The *Apple Dictionary*, based on the *Oxford Dictionary of English*, defines *supernatural* as '(of a manifestation or event) attributed to some force beyond scientific understanding or the laws of nature'. Yet, these so-called laws of nature are only concerned with the superficial, with that which lies on the surface of things. So, how can physicists, who are "interested in discovering the laws of inanimate nature",<sup>57</sup> tell us anything about the creative power of Life? which counteracts the entropic laws of physics.<sup>58</sup> Or, indeed, about the essential character of humankind, about what causes us humans to behave as we do.



The conception of life has had a pretty confused history over the ages, with a strong anthropocentric bias, as we see in the relationships between *breath*, *life*, *soul*, and *spirit* in many different languages. 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* 'to breathe'. So the roots of our language clearly indicate that the ancients were well aware of the role that Spirit, arising from the Soul of the Cosmos, plays in breathing animals, such as humans.

We 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 *pnuema* 'wind, breath' are also translated as 'soul' and 'spirit',

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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>59</sup>

And in the East, *Atman*, "the real immortal self of human beings, known in the West as the soul",<sup>60</sup> derives from Sanskrit *ātman* 'breath, spirit; soul, essence, self'. 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'. And, in Huayan Buddhism, *shih* is the realm of phenomena or events and *Li* is the realm of noumena or principles, helping us to distinguish Fa Tsang (Fazang)'s central principles of *mutual identity* and *mutual causality*,<sup>61</sup> of vital importance in unifying our Divine and human identities. In Sanskrit again, *prana* means 'breath, vital life', from verbal root *prā* 'to fill', from PIE base *\*pelā-* 'to fill', also root of *fill*, *plenty*, and *plus*.

The nonphysical energy of Life 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>62</sup> Yet this vital force is "the energy or spirit which animates living creatures", as one of my dictionaries 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,<sup>63</sup> 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>64</sup>

Heraclitus, the mystical philosopher of change, called this ultimate energy *Logos*, which Richard Tarnas defined as the "immanent conception of divine intelligence" signifying "the rational principle governing the cosmos".<sup>65</sup> This is the mystical meaning of *Logos*, in contrast to the many mundane meanings, such as 'account' or 'word', as we see in the opening words of the English translation of the *Gospel of John*. It is the *Logos* that has naturally created logic, as the science of reason, in the Cosmic Psyche. However, to keep things as simple as possible, I generally say that Life is the creative power that has brought this monograph, as a symbolic expression of both intuition and reason, and everything else into existence.

Despite such wise insights, biologists—so-called scientists of life, from Greek *bios* 'life; course, way, or mode of living; livelihood'—regard life as a property of the DNA molecule, which needs water to survive and procreate. So, mechanistic scientists searching for life and intelligent beings on other planets in the physical universe do not know that these creative human qualities are to be found within us, in the Cosmic Psyche. Without bringing Life into science,<sup>66</sup> how can we possibly explain what caused Mozart to write his last three magnificent symphonies in just six weeks in the summer of 1788?

What is happening here is that the conception of life, as it has been understood in the West through the ages, is based on a projection from living organisms on Earth, consisting principally of the elements of carbon, hydrogen, oxygen, and nitrogen, as the supposed chemistry of life. These four elements compose about 96% of the weight of the human body, ignoring the fact that 99% of human beings—as psyche (mind, spirit, and soul)—lies beyond the senses. As recently as 2021, David Pogue, best known for his *Missing Manual* books on operating systems in computers, was confusing the general public with such scientific delusions in a three-part television series.<sup>67</sup>



One other central issue that we need to look at before describing the Method that maps the Cosmic Psyche is the relationship between the map and the territory. The conventional scientific view is that the

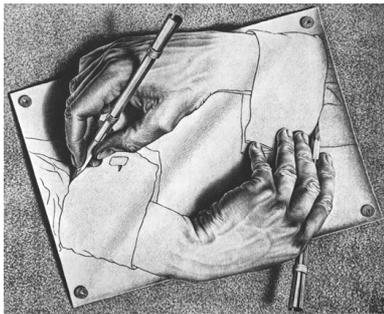
## Humankind

territory pre-exists our maps, which merely represent what we observe through our physical senses. For instance, in 1931, when commemorating the centenary of James Clerk Maxwell's birth, Einstein wrote, "The belief in an external world independent of the perceiving subject is the basis of all natural science."<sup>68</sup> Similarly, at about the same time, Alfred Korzybski made the 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>69</sup>

Rather, when we study how humans actually behave in society, we observe that our minds, including their shadows as the un- and subconscious, create our reality, including all the institutions that govern our lives. So, we can only understand what we have cocreated by looking at the tens of billions of conceptual models that humans have developed over the millennia. These constitute what can best be described as the Theory of Everything, as an atlas of maps that together map the Totality of Existence.

But these maps are highly fragmented, not providing us with a clear picture of how to navigate our way through the stormy seas so many of us experience in life. Each conceptual model is like a map of the locality where we live, based on the assumption that the Earth is flat. But, when we try to connect all these maps, we discover that they don't fit, for the Earth we all share is spherical. So, if we are to bring universal order to the chaos the world is in today, it is essential to abandon our mechanistic flat-earth views of the Universe and integrate all these fragmented and specialist conceptual models—many of which are sub- or unconscious—into a coherent map of the Totality of Existence.

Now, such a mapmaking exercise presents us with an interesting challenge. As the Totality of Existence



includes all beings, it must include the Theory of Everything in the Cosmic Psyche. This transcultural and transdisciplinary megasynthesis is thus a being, which we need to include in the territory being mapped. Furthermore, the mapmaker and the process of developing such a self-inclusive map are contained within the territory. This might seem a little strange. For such an activity is like a television camera filming itself filming, brilliantly illustrated by M. C. Escher's lithograph 'Drawing Hands'.

So, by being free of any preconceptions of what we might see—with such hidden shadows brought into the brilliant light of day—we see that both the Theory of Everything and the mapmaker *are* the Totality of Existence, with no separation between them in Wholeness. This also means that the observer and observed are one, an integral principle that brought Bohm and Krishnamurti together about 1960.<sup>70</sup> So, in my holistic reasoning, I follow E. F. Schumacher's maxim for cognitive mapmaking in *A Guide for the Perplexed*: "Accept everything; reject nothing." As he wisely said, "Our task is to look at the world and see it whole."<sup>71</sup>



Having painted a broad picture of how humans have experienced and viewed the way that the creative power of Life emerges through the Cosmic Psyche directly from the Source over the years, it is now time to look in a little more detail at why evolution took a radical change of direction within me in the spring of 1980. In essence, Life needed to demonstrate to an intelligent human being that fourteen billion years of divergent evolution could converge at its Omega Point, its glorious culmination. And, for this to happen, Life needed to heal my fragmented mind in Wholeness, the other side of the coin from Oneness, where the split psyche is healed. But, it has taken me eighty years since my conception to fully understand what has been happening to me and to accept my destiny as a human, in relationship to others.

So, as I can see today, this total transformation of consciousness did not appear from nowhere. Both my social environment and every event in my life since my conception has led me to where I am today. If I had been born a few years earlier or later, with different parents, or in another country, I could not have written

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this piece on 'Humankind', describing what many intuitively know in the depths of being, beyond their conditioning, which grossly distorts our understanding of what it means to be human.

For, as Osho said in *The Book of Secrets*, the first of his many books of transcribed discourses, anyone can become a Buddha, for you are already a Buddha, only unaware. But "You are not already an Einstein." To be like him, "First you will have to find the same parents, because the training begins in the womb," which is impossible. "How can you find the same parents, the same date of birth, the same home, the same associates, the same friends?" So, as individuals, we are all unique. As Osho said, "whatsoever you do, your past will be in it," a past that cannot be repeated by anyone else in exactly the same way. On the other hand, anyone can become a Buddha, because all you need to do is uncover what is already there.<sup>72</sup>

Regarding the events that led to my apocalyptic awakening in 1980, I had been living a fairly conventional life from 1964 to 1976, getting married, having children, and pursuing a managerial career in an IBM sales office, leading teams of systems engineers. But, by following custom in this manner, I was living a lie, which Life, having other plans for me, could not tolerate. It needed to arrange for me to have a total breakdown before it could lead me to the irrefutable, universal truth that governs the Universe.

What happened is that external events in my life triggered unconscious behaviour patterns that had been laid down in my psyche following the devastating prenatal trauma in October 1941. So, even before I was born, Life had prepared me to take evolution in a quite new direction during the second half of my life.

Specifically, I did not get promoted into a branch systems engineering manager in January 1977, as my career manager had intimated to me a few weeks earlier. Rather, IBM executive management reconstructed the sales, engineering, and administration divisions that interfaced with customers, involving some 2,000 employees, if I remember rightly. As a result, I found myself in a much less interesting job than I had had for the previous three years, as a manager of some prestigious national accounts.

I then fell into a midlife crisis, becoming deeply depressed, unable to do my job and bringing my first marriage to an end. Reluctantly, I consulted my doctor about my psychological disturbances and was referred to St Thomas's Hospital, where the consultant psychiatrist told me that I was suffering from manic depression, a biological bipolar disorder, which needed to be treated with medication. I did not believe my doctors, and so took myself off the drugs as soon as I dared. For I do not debug a computer program by attaching an oscilloscope to the circuitry of the machine. There must be a nonphysical, psychological explanation for my breakdown, which I set out to discover.

The first step in this process was to have six sessions with a Jungian psychotherapist in the winter of 1979, which was quite revealing. For instance, Betty asked me what I could remember about the first seven years of my life. I told her that I could not remember anything, for my infancy had been too painful, not feeling welcome in my own home. As I can see today, I was constantly being compared unfavourably with my brother John, who had been beatified, with his photo hanging on the living room wall.

Consequently, I did not bond with my mother, as my primary caregiver, as an infant, which John Bowlby says in his monumental trilogy *Attachment and Loss* is essential for the development of healthy human relationships later in life.<sup>73</sup> While my parents provided me with my basic needs of food, shelter, and clothing, required for a sense of security, they were unable to meet my psychospiritual needs, unlike some of my friends today, born in India, with a much deeper spiritual tradition, based on the *Upanishads* and *Bhagavad Gita*, for instance.

Feeling unaccepted as I am, I began attempting to fulfil these needs as a seven-year-old, when I started to think for myself, realizing that I had been born in a world at war with itself. Specifically, the opening



words of the Lord's Prayer, which I was told to recite by rote before going to bed, did not make sense: "Our Father which art in heaven". I understood *heaven* as outer space and *Father* as the first figure in the Christian Trinity of 'God, the Father, Son, and Holy Spirit'. But how could this be? How could God, as the Supreme Being, live out there in the sky?

Furthermore, space, as the universe, and God provide the overall context for science and religion, respectively. But, without an overall context for my learning, how could I know whether what I was being taught was true or not? Accordingly, seeking to unify the concepts of God and Universe in order to find Peace by ending the war between science and religion, I began questioning everything, not very popular. Well, not quite. Life had to be very clever here, arranging for me to learn just enough to go to university so that I could obtain satisfying work, as an adult, but not too much, not to become thoroughly enculturated, like my contemporaries.

So, at the ages of 11 and 16, I won prizes at school, and at 18, I was in line for a good honours degree in mathematics at university. But, to avoid learning too much, a behaviour pattern that had become established in my psyche when my brother was killed came into play. I later learned from David Wasdell that between the fourth and eighth weeks after conception, the embryonic brain goes through a rapid period of development. But, on the day that my mother's pregnancy was confirmed, she went instantaneously from ecstasy to excruciating agony. This event set up a pattern in my psyche of rapid growth followed by catastrophic breakdown. Life could not allow me to be too successful in conventional, social terms. This is why my development broke down at the ages of 12, 17, 19, and 34, when I became very depressed.

This was very painful at the time, but it was absolutely essential so that I could fulfill my destiny. Most significantly, I realized that what I was being taught in religion, science, economics, mathematics, and logic did not make sense as a coherent whole. So, when I came to rebuild the entire world of learning from scratch during the second half of my life, I had comparatively little to unlearn.

However, this insight led to another intrauterine behaviour pattern playing out later in life. After my brother's death, I felt that I was living in a most uncomfortable environment, far from oceanic ecstasy. This became a hostile social environment after I was born, being most evident when I questioned the religious, scientific, and economic belief systems of the authorities in my life as a rebellious teenager. As a result, I became afraid of people, not just some, but everyone, as Betty could see when I met her in 1979. This was quite a shock, for how could I fall in love, care deeply for humanity, and pursue a reasonably successful business career while burdened with such fears?



Not knowing the answers to these questions at the time, Life showed me that the way to be free of my fears was through creative writing, which I began in the autumn of 1978 with a report on the watershed in the data-processing industry then taking place at the dawn of the Information Society, a term that Daniel Bell had coined in 1973.<sup>74</sup> For we were then entering a post-industrial era, as different from the industrial age as that was from the agrarian, land-based economy that preceded it. Specifically, using examples of several innovative installations in the UK, I showed that the potential for interactive computing, giving managers and professionals access to enterprise databases, had immense potential.

This report was well received by product and marketing managers in IBM head office in Armonk, New York, for they had been struggling to show their rather conservative executive management that software and services were becoming far more important than the machines that ran the software. There was thus a direct parallel here with my quest to discover why I and all other humans behave as we do.

I met these managers in the spring of 1979 at a conference in Toronto on Decision Support Systems

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(DSS) organized by IBM Canada, which was playing a leading role in this radically new way of developing information systems. But this was more conceptual marketing at the time, for IBM lacked the products that customers needed to effectively use the full power of the synergy of information, a term I learned at the conference. In the event, computer scientists took the power into their own hands, establishing the Jupyter programming environment in 2014,<sup>75</sup> along with many other powerful interactive tools.

Back in Europe in the late 1970s, it was the retail industry that was most directly affected by the introduction of point-of-sale terminals in supermarkets and department stores, radically changing the skills profiles of buyers in these organizations. This I learned when giving presentations at IBM's European Education Centre in Belgium, being simultaneously translated into other European languages. So, I was beginning to recover from my depression by establishing an international reputation as a visionary and authority on personal computing, supported by technicians in information centres. At the time, we likened these developments to the early years of the car industry, when people were learning to drive their own cars instead of being driven by chauffeurs.

Having moved from a sales office into marketing in January 1979, I also set out to write a comprehensive management guide covering all the main aspects of managing and developing decision support systems and personal computing. These ranged from the financial justification and management of such systems, through organizational and staffing concerns, to technological and data management issues.

Writing this guide, called *Decision Support Systems: A Systems Perspective*, was the effective start of my writing career. To my surprise, I discovered from the feedback that I was receiving from my colleagues that I could write, even though I had barely passed my English language exam as a sixteen-year-old. Apparently, I had the ability to take a highly complex subject and present it in relatively simple terms.



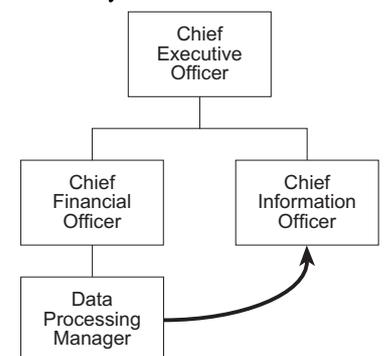
However, all was not well. I still had far too many unanswered questions. Most significantly, I was developing a marketing programme for Decision Support Systems within the auspices of IBM's marketing slogan 'Manage data as a corporate resource,' without understanding what the long-term psychological and economic consequences of IBM's marketing strategy might be. For instance, Daniel Bell said in 1979, "Yet we have no economic theory of information, and the character of information, as distinct from the character of goods, poses some novel problems for economic theorists."<sup>76</sup>

In recent years, the economics of data and information has become an even greater hot topic with technological titans like Alphabet (Google's parent company), Amazon, Apple, Facebook, and Microsoft taking over the world, with what Yanis Varoufakis aptly calls 'technofeudalism'.<sup>77</sup> This critical issue much concerned *The Economist* magazine in a leader and briefing on 6th May 2017 titled 'The world's most valuable resource is no longer oil, but data'<sup>78</sup> and 'Data is giving rise to a new economy.'<sup>79</sup>

We can see why this is so from this diagram. In the late 1970s and early 1980s, many companies appointed a Chief Information Officer (CIO) on a par with the Chief Financial Officer (CFO), both reporting to the Chief Executive Officer (CEO), as this diagram illustrates. Information systems architects, in both their micro and macro capacities, naturally report to what is sometimes called the information director.

But what is the relationship of the CIO, managing information, and the CFO, managing money? Well, money is a type of information and so can be

represented in the semantic models developed by information systems architects. But this is not possible the other way round. The meaning of information, and hence its value, cannot be satisfactorily represented



in the quantitative financial models of accountants, bankers, and economists.

Regarding the psychological issues, I could see that the global economy was becoming more authoritarian and that humans were increasingly becoming just cogs in a gigantic economic machine. This was brought home to me in 1979, when I visited IBM's head office near Portsmouth to learn how technicians developing decision support systems were using A Programming Language (APL) to develop an all-encompassing, multidimensional operating plan, really scary. Kenneth Iverson at Harvard University initially developed APL in the late 1950s as a concise mathematical notation to assist students in analysing various topics in data processing.<sup>80</sup> Although APL later became something of a cult, the language was IBM's principal management information tool in the 1970s after Iverson joined IBM.

To demonstrate the interactive power of APL, it could be used as a gigantic calculator. If a user entered '2 + 2' at an APL terminal, the computer would reply '4'. Many other interactive languages, like Guido van Rossum's Python, have this capacity today. However, what most concerned me at the time was APL's concise matrix operators, which could enable programmers to develop new systems very quickly. It was such facilities that enabled IBM management to reorganize the UK company in 1977, sending my life (and evolution, as a whole) in quite a new direction.

This situation put me into a critical dilemma. We were just a few years away from 1984, the year in which George Orwell had set his dystopian novel *Nineteen Eighty-Four* in 1949. So, by developing a marketing programme for decision support systems, I was helping business executives in IBM and its customers to be even more authoritarian, inhibiting people from realizing their fullest potential as human beings. Surely, a species that has called itself *Homo sapiens* 'wise human' could find a more life-enhancing way of managing our business affairs.

I felt that the key to such a liberating global economy would be to make a clear distinction between the respective skills of humans and machines. After I wrote my first program in FORTRAN in September 1964, to calculate the roots of a quadratic equation, I could see that computers are very good at arithmetic but rather poor at pattern recognition, while with humans the situation is the other way round. But, to what extent could machines improve their skills at recognizing patterns in data?

Peter G. W. Keen and Michael S. Scott Morton made an attempt to answer this question in their 1978 book *Decision Support Systems: An Organizational Perspective*, which was our standard textbook at the time. They classified all business operations into three major groups as structured, semi-structured, and unstructured tasks. In turn, these tasks are repetitive and routine, involve interaction between the human being and the computer, and require intelligence and intuition.<sup>81</sup>

By defining some tasks as 'unstructured', Keen and Scott Morton acknowledged that there must be some cognitive tasks that are nonmechanical, contradicting Marvin Minsky and John McCarthy, who, among others, laid down the foundations of artificial intelligence (AI) at the Dartmouth Conference in 1956. 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>82</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>83</sup>

But, is this true? If it is, this would mean that the cycle of humans as both workers and consumers in the economy would one day be broken, the fundamental principle of both capitalism and communism. For as Adam Smith wrote in 1776 in the opening words of *The Wealth of Nations*: "The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniences of life which it

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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>84</sup>

On the other hand, if there are cognitive tasks that require intelligence and intuition beyond mechanistic rationality, then this would mean that technological development could not drive economic growth indefinitely. So, whether artificial intelligence is possible or not, it was clear to me back in 1979 that the global economy holds the seeds of its own destruction within it and that, as a consequence, my children were not being educated to live in the world that would exist when they came to be bringing up children of their own.



But how should they be educated? This question raised painful memories of my own formal education, which had been suppressed in order to start a family and earn a livelihood to provide for them. But now this critical issue came to the forefront of my thinking once again. Yet, at the same time, I was seeking to rebuild my business career, obtaining the promotion as an innovative technologist, on the same level as a branch systems engineering manager, which I did not become in 1977.

To this end, in January 1980, I transferred to the 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. There, I discovered that some of my colleagues were using a business-modelling tool called Business Systems Planning (BSP), on which to base their strategic marketing activities. One told me that BSP had evolved from 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.

It was this third book that first taught me to distinguish data and information: *information is data with meaning*, quite different from Claude Shannon’s conception of information.<sup>85</sup> In Blumenthal’s terms:

A **datum** is an uninterpreted raw statement of fact.

**Information** is data recorded, classified, organized, related, or interpreted within context to convey meaning.<sup>86</sup>

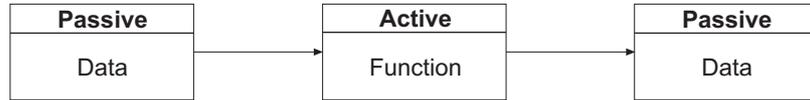
Now, while BSP was rather primitive compared with the business-modelling methods that have evolved since, it gave me the idea about how we could manage our business affairs following the collapse of industrial society. For we would then be able to focus on the meaningful information that we can all share, a win-win situation, in contrast to the zero-sum approach, where we are instructed to fight our fellow humans for a slice of the finite monetary pie. Furthermore, I thought that BSP could help me to distinguish human cognitive faculties from algorithmic computers.

The process-entity matrix at the heart of a BSP enterprise model was key to this understanding, showing the relationships between dynamic business procedures, such as designing, manufacturing, marketing, ordering, and invoicing, and the static data structures that they operate on, such as employees, customers, products, locations, and deliveries. The business functions and processes that take place in organizations are often systematized and documented in a procedure manual, accredited through the ISO 9000/1 quality management system of the International Organization for Standardization, with over a million organizations in 175 countries being so certified.<sup>87</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 in a rather mechanistic manner.

In computers, business procedures are implemented as programs, like mathematical functions, which Leonard Euler formalized in 1748 in *Introductio in analysin infinitorum* (*Introduction to Analysis of the Infinite*),<sup>88</sup> regarded by many as the greatest mathematics book ever written.<sup>89</sup> In stored-program

computers, these functions, containing sequences of instructions to the central processing unit (CPU), are data, just like the ‘raw’ data that they process, like numbers and strings of characters. Such electronic computers were first built in the late 1940s at the universities of Manchester and Cambridge to a draft design of John von Neumann, although IBM’s Selective Sequence Electronic Calculator (SSEC) from 1948 was an electromechanical computer that had some features of stored-program computers.<sup>90</sup>

This means that computers contain two basic types of data—active and passive—illustrated in this input-process-output diagram, as the fundamental data-processing structure of all machines:



In terms of computer hardware, the distinction between active and passive data is implemented in the CPU and in random-access memory (RAM), corresponding to what Charles Babbage called the Mill and Store in his Analytical Engine in 1837, terms he borrowed from the textile industry.<sup>91</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, the daughter of Lord Byron and his mathematician wife Annabella,<sup>92</sup> delightfully wrote, “We may say, most aptly, that the Analytical Engine weaves algebraic patterns just as the Jacquard-loom weaves flowers and leaves.”<sup>93</sup>

But in modern computers, programs stored in the ‘memory’ of the machine 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 René Descartes’ determination to separate body and mind in his *Meditations* in 1641, 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>94</sup>



So, if IBM and its customers were to manage data as a corporate resource, they would need to include both active and passive data in computers, as well as the corresponding cognitive faculties in humans. In *The Concept of Mind*, Gilbert Ryle described these as facts we know and the skills we know how to perform; we ‘know that’ and we ‘know how’.<sup>95</sup>

This presented me with a particularly tricky problem during the winter of 1980. How could interactive computing be represented in a process-entity matrix? For instance, I noticed in APL Data Interface (ADI), IBM’s principal information-retrieval product at the time, that when a user entered a query, a function would dynamically create another function, execute it, return the results to the user, and then delete the function, so that its execution path could not be traced. In such an environment, processes and entities are not distinct, with passive data being transformed into active in nanoseconds and vice versa. This is much faster than the hourly and daily dynamics of other business processes and entities, which are distinct.

By implementing queries in this way, ADI’s developer was using a systems function in APL that could dynamically convert passive data, as a string of characters in canonical form, into active data, as an executable function. Such a string of characters is what a human would normally enter into an APL interpreter to be converted into a function. But here was a computer effectively programming itself. It was doing so because another function, written by a human, already existed. But could a computer write such a function without human intervention?

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To answer this question, I also noted that interpreters, like APL, are not the only programs that can generate executable programs from strings of characters. Compilers, like those for C, can also do so. Indeed, I could see that every executable program that had ever existed during the entire history of the data-processing industry had been generated from another program.

Nor was this all. Although business modelling methods, like Ted Codd's Relational Model of Data,<sup>96</sup> had yet to become semi-automated as computer-assisted systems engineering (CASE) tools,<sup>97</sup> mapping the territory of all business processes that information systems architects were modelling was, itself, a process that needed to be included in the territory being mapped, a tricky situation that I have already described. Furthermore, CASE tools are even more fundamental than compilers and interpreters, leading James Martin, a fellow IBM alumnus, to believe that software development could be automatically generated from such strategic business models, known as Information Engineering.<sup>98</sup>

These ponderings led me to make a clear distinction between generated programs and program generators, which correspond, respectively, to developed and learning skills in humans. Once a program is generated, it executes its instructions mechanically, albeit in a manner that cannot always be predicted. Examples are IBM's chess-playing computer Deep Blue and Richard Dawkins' Blind Watchmaker program, running on a now obsolete version of Mac OS.

In contrast, I felt that creating executable functions in computers must be analogous to what humans call 'thinking', enabling me to answer a question that Alan Turing, the founder of the theory of automata, had asked in 1950: "Can machines think?" Although he had one or two reservations about his reasoning, he eventually asserted, "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>99</sup>

Well, this didn't happen, for reasons that Ada Lovelace gave 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>100</sup>

Ada, here, is asserting that humans are not machines and nothing but machines, contradicting the widespread scientific belief that the Universe is a just machine, like a clock, wound up at the beginning of time, and that all its components, such as humans and other self-reproducing forms of life, are also machines. But how can we prove Ada's intuition rationally? If all functions in computers have been generated by other functions, where did the first program come from?

As I later discovered, this question was like one that Aristotle had asked some 2,300 years earlier. In Book VIII, Section 4 of *Physics*, he 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>101</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>102</sup> In *Summa Theologiae*, Thomas Aquinas then took Aristotle's mechanistic cause-and-effect chain as the basis for his five proofs for the existence of God, as the Unmoved Mover.<sup>103</sup>

Clearly, then, I could only determine the essential difference between humans and machines by looking at what we were all doing within the data-processing industry within the context of evolution, as a whole. Most significantly, 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,

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.*

David Attenborough's *Life on Earth* broadcast by the BBC in 1979 greatly helped me to develop such an evolutionary perspective, explaining what is causing the pace of scientific discovery and technological invention to accelerate exponentially. In the first episode of this enthralling television series, Attenborough graphically illustrated the exponential rate of evolutionary change. 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>104</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>105</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 hominins appeared around two in the afternoon, with exemplars of the *Homo* genus following a few hours later. The whole of human evolution has thus taken place during the evening of the last day of the year, with *Homo sapiens* being born between 23:15 and 23:30. As we rapidly approach midnight on 31st December, we can see that the whole of mental evolution has thus taken place during the last eight or nine minutes, with the first civilizations appearing about 45 seconds ago, at the dawn of history. The Computer Age began less than a single tick before the present moment, which is midnight. So, what will happen during the next fifty years, when the duration of the Computer Age will expand to over a second in Attenborough's evolutionary model?



Well, before I could answer this question, I still felt the need to re-establish my business career as an IBM employee. After all, by exploring a quite new way of understanding creative thought and intelligence in humans, compared with computers, I was following IBM's motto THINK, once displayed around IBM offices, like this sign,<sup>106</sup> which was also the title of IBM's in-house magazine. Thomas J. Watson Sr. had introduced this slogan in 1914, when he was appointed the general manager of Computing-Tabulating-Recording Company (CTR), having previously used it as the national sales manager at the National Cash Register Company.<sup>107</sup> Asked later what he meant by the slogan, Watson replied, "By THINK I mean take everything into consideration,"<sup>108</sup> which is exactly what I was doing.

The challenge that Watson faced at CTR was that the company had been formed in 1911 from three companies (Computing Scale Company of America, International Time Recording Company, and Tabulating Machine Company) at different locations, manufacturing butcher scales, meat slicers, coffee grinders, time clocks (based on an invention of Willard Legrand Bundy in 1888),<sup>109</sup> and punched-card tabulating machines,<sup>110</sup> which Herman Hollerith had patented in 1884, inspired by cards in Jacquard looms.<sup>111</sup>

As Watson's son, Thomas J. Watson Jr., said at the Columbia Graduate School of Business in 1962, CTR was a demoralized organization when he took it over<sup>112</sup> and his father needed to find a way to integrate these companies with quite different product lines into a coherent whole. To this end, Watson Sr. realized that he needed to develop a corporate culture around a shared value and belief system, which he based on

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the slogan THINK. But he needed to go further to realize his aspirations. Watson did like the clumsy hyphenated title of CTR and decided to rename it International Business Machines Corporation (IBM) in 1924, “*International* to represent his big ambitions and *Business Machines* to evade the confines of the office appliance industry”.<sup>113</sup>

This was the company that I joined in 1968 as a systems engineer, which I regarded as the most interesting and challenging job in the industry at the time, covering a spectrum of everything from assembler programming to information systems design. For, with IBM’s Culture of Think, I had the wonderful opportunity to be creative in various specialisms, seeking to integrate them into a coherent whole. As IBM, itself, wrote when celebrating the centenary of the company in 2011 with 100 Icons of Progress, “With THINK as the mantra, Watson created a culture of independent thinkers and impassioned sellers, empowering a large, dispersed workforce.”<sup>114</sup>

Watson Sr.’s emphasis on corporate culture led to a set of Basic Beliefs, which were designed to guide employee behaviour, which Watson Jr. formalized in 1962, when he, himself, was CEO of the company.<sup>115</sup> Today, these are simply stated as:

- Respect for the individual
- The best customer service in the world
- Excellence<sup>116</sup>

This is fine superficially. However, with IBM becoming increasingly authoritarian, I did not feel that even my immediate managers were respecting the contribution that I was seeking to make, not only to the company, but also to humanity. While frequently relocated employees (known as IBMers) joked that IBM stood for ‘I’ve Been Moved,’ I was aware that such disruptions in people’s lives could cause much suffering, not the least to children. Beneath the surface, IBM’s Basic Beliefs were subservient to the almighty power of money.

To learn more about how IBM had risen to near the top of the Fortune 100 list of companies, arguably the most powerful company in the world, at the time, I read William H. Rodgers’ 1969 book *THINK: A Biography of the Watsons and IBM*. It was quite a shock. Not only did I discover that Watson Sr. had been convicted of illegal monopolistic business practices when working as an executive for NCR, Rogers also pointed out that Watson had turned THINK “into a corporate crucifix, the graphic symbol of a business that was an evangelical religion”. As the blurb to the book says, “IBM was organized like a religion, which, like most religions, was created and dominated by one man.”<sup>117</sup>

As Thomas and Marva Belden tell us in the first official biography of the Watsons and history of IBM in 1962, Watson’s ideas gave the IBM spirit a religious tone, like at revival meetings. As they said, “The personality of the man and the personality of the corporation are so closely identified as to be practically one and the same.”<sup>118</sup> Similarly, Watson Sr. was “an executive so formidable and charismatic that his leadership evolved into a personality cult”, although Watson Jr. could not acknowledge this openly for “It would have caused an ungodly explosion,” as he said in his autobiography.<sup>119</sup>

I was not the only one to be concerned about IBM’s dominant position in the world. In January 1978, Simon Nora and Alain Minc submitted a report on *The Computerization of Society* to Valéry Giscard d’Estaing, then the President of France, saying, ‘IBM, ... as controller of networks, ... would participate, whether it wanted to do or not, in the government of the planet.’ They continued, “IBM has a calling to become ... one of the great actors on the world stage,” not unlike the Catholic Church or the Communist International.<sup>120</sup>

## *Humankind*

Since then, many others have raised concerns about the dominance of high-tech companies in today's little understood Information and Knowledge Society. Just a couple of months ago, Robert Reich, the United States Secretary of Labor under President Bill Clinton, said that CEOs' declarations of 'corporate social responsibility' are not the answer to the multiple failings of capitalism. For, "Ninety-eight percent of this is rubbish. CEOs won't do anything that hurts their bottom lines. They're in the business of making as much money as possible, not solving social problems."<sup>121</sup>

As an example, last year IBM produced a glossy 'Corporate Responsibility Report' patting itself on the back for the worthy contribution that it is making to society, continuing to propagate the delusions of the founding fathers of IBM and Western civilization in general.

Back in 1980, I was not as awake as I am today on what is going on in the world and why I behave as I do. Still seeking to re-establish my business career, I had been invited to speak in October that year in Oslo on the management and development of decision support systems at the annual conference of European GUIDE (Guidance for Users of Integrated Data-Processing Equipment), a group for users of IBM computer systems. More immediately, I was scheduled to speak in May on the radical changes then taking place in the industry at two one-week conferences at IBM's European Education Centre, one for IBMers and the other for customer managers.

Yet, I felt that my immediate manager was hostile to even this business contribution that I was seeking to make. Having criticized IBM's product strategy, like some of my colleagues, he was aware that I was now questioning IBM's cultural ethos, just as I had questioned my father's fundamentalist Christian beliefs in my early teens. My father had become enraged, sometimes exploding in violent anger, making me deeply depressed, unable to learn anything at school other than mathematics.

In April 1980, I thus found myself in another desperate situation, angry with the way that IBM was treating me and with its unwillingness to take responsibility for the psychological and economic consequences of its myopic business practices, out of touch with Reality. I had no wish to belong to a fundamentalist cult, whose god is money, with an identity as an IBMer, which I had never adopted. I valued my liberty as a visionary freethinker too much, beginning to see a way through the catastrophe that humanity was blindly accelerating towards.

Psychologists might say that I was projecting my own propensity for catastrophic breakdown onto society. Nevertheless, as more and more have become aware over the years, we cannot continue to manage our business affairs in the way that we have since the Renaissance and hope to thrive and survive, as a species. For this was when the Italians invented double-entry bookkeeping, which treats humans as a cost, along with travel, heating, and paper clips. In a world in which data is the primary resource, it is essential to look anew at the way we all live together.



This is a brief description of some of the tensions that were troubling me when I strolled across Wimbledon Common in April 1980, pondering what was causing us technologists to drive the pace of change in society at exponential rates of acceleration. Then, just as I was passing 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), I had the idea that active and passive data in computers and humans are like kinetic and potential energies in physics and hence are causal and synergistically energetic. As such a notion is more fundamental than Einstein's association between mass and energy, represented in his famous equation  $E = mc^2$ , I knew at once that I had been given the key that would unlock the innermost secrets of the Universe, which I had been unable to find within the culture I was living in as an adolescent.

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I don't remember much about what happened during the three weeks following this momentous eureka moment. I was in a state of very great excitement, telling my friends that a dam had burst in my psyche, releasing stupendous creative energies that had been held back during the first half of my life by my familial and cultural environment. This epiphany was like an irresistible force meeting an immovable object. Eventually, even though IBM was providing me with a livelihood, I resigned from the company without any funding, not knowing where this would lead.

My friends, colleagues, and family thought that I had gone a little crazy, which in a way, I had. Having learnt very little during my formal education, I did not yet know that what was happening to me was unprecedented in the entire fourteen billion years of evolution since what physicists call the big bang. All I knew is that if we could cocreate a revolution in science, even more radical than those that Newton, Darwin, and Einstein had introduced, then we might be able to use the modelling methods of information systems architects to transcend the divisiveness of money, giving everyone the opportunity to realize their fullest potential as intelligent humans, beyond the mechanism of computers.

Well, over forty years later, this hasn't happened, despite the spiritual renaissance and revolution in science that has been unfolding during the past few decades. The principal reason is that 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>122</sup> to be protected at all costs. We can see why this has happened from the root of *human*, which is Latin *humus* 'ground, earth', from the PIE base *\*dhghem-* 'earth'. This etymology shows that our forebears some 5,500 years ago conceived of humans as earthlings in contrast to the divine residents of the heavens, as Calvert Watkins explains in *The American Dictionary of Indo-European Roots*.<sup>123</sup>

But maybe this doesn't matter any longer. The collapse of industrial society and the birth of a life-enhancing, post-industrial society, which I long hoped would lead humanity into the eschatological Age of Light, will actually accelerate global warming, as Guy McPherson told me in December 2017, when I met him for lunch in Oslo.<sup>124</sup> For reducing the pollution of industrial society would bring abrupt climate change ever closer because global-dimming and aerosol-masking are slowing down the effects of greenhouse gases.

If we are to face humanity's greatest existential crisis with equanimity, it is thus absolutely essential to heal the split between humanity and Divinity through a psychological death, as we pass through the eighth mass extinction of land animals on Earth. For, the ice sheets in both the Arctic and Antarctic are melting with increasing rapidity from both beneath, with 'heat bombs',<sup>125</sup> and above, with multiple self-reinforcing feedback loops,<sup>126</sup> such as the release of methane gas. As peer-reviewed papers indicate, we are heading for a 'Blue-Ocean Event' in the Arctic,<sup>127</sup> maybe as soon as next year, which will rapidly destroy the habitat that humans and other vertebrates need to survive. As the S-shape of the ubiquitous growth curve indicates, rates of change in accumulative processes under constraint, like learning, evolution, and positive feedback loops, can change rapidly and unexpectedly.

Faced with this critical situation, I now feel that my life's work is done, at least inwardly. Most significantly, the paradoxical situations I have found myself in throughout my life vis-à-vis society have been resolved in Nondual Wholeness, where there is nothing and no one outside me. Yes, I do have a few friends who appreciate me as an ordinary human being, albeit with extra-ordinary visionary intelligence. But, as I have spent a lifetime questioning the cultural belief systems that give most a precarious sense of security and identity in life in order to reveal Love and Peace, the Divine Essence we all share, few understand what I am offering and so most avoid my company.

## Humankind



Even my children do not want to know me, educated in the conventional manner in fee-paying schools. My daughter, who I last met when she was fifteen in 1985, is the mother of twin daughters and a lawyer specializing in data and information, with highly complex psychological and economic implications. As such laws as data protection and intellectual property cannot really be understood within the context of the prevailing culture, I wonder how she and her clients and students deal with these sensitive issues. For in an open, healthy society that knows that we are all interconnected, we could share information and knowledge without loss, as Tom Stonier pointed out in *The Wealth of Information* in 1983.<sup>128</sup> No more secrets or lies—or demagogic popularists, conspiracy theorists, or social-media trolls!

I last saw my son when he was ten in 1983, now the chief financial officer for a European warehousing company based in London, also responsible for information technology. So, here is one company that has not taken even the basic step into the Information Society, apparently not knowing that you cannot represent the meaning and value of information in quantitative monetary terms.



It is sad to sense how much unresolved pain he and his sister must be carrying within them because of the turmoil I went through in the 1980s, as fourteen billion years of divergent evolution converged within me. Most especially, I also know that it is highly unlikely that their children will grow old enough to have children of their own. So, I don't know what I would say to my granddaughters, now eleven, if they were ever curious enough to know who their maternal grandfather is.



Despite the imminent extinction of our species, Life is continuing to guide me to express what I see within, which perhaps some could enjoy and benefit from. Having written ten evolutionary books and many essays during the past ten years explaining what is happening to us all as a species, I now find myself writing a monograph on 'Humankind', generally regarded as a biological species, ignoring the vast Cosmic Psyche revealed with Self-reflective Intelligence, the Divine human quality that distinguishes humans from the other animals and machines like computers.

When Linnaeus introduced his system of binomial nomenclature, he did not explicitly designate a typical specimen of *Homo sapiens* (other than himself), which is done whenever possible,<sup>129</sup> depositing type species in museums.<sup>130</sup> Yet, when naming our species as 'wise human', he was implicitly acknowledging that humans are not just flesh and bones. We are intelligent.

From this perspective, each of us is a type specimen of what it means to be human, an understanding that evolves over time as we grow both as individuals and as a species. So intelligence, as the 'ability to read between the lines', is a capacity that is as much a potential as an actuality. For our cultural and personal conditioning tends to inhibit the awakening of intelligence, as Krishnamurti pointed out.<sup>131</sup>

Most significantly, evolution has been more mental than biological for tens of thousands of years, as Teilhard observed. So, we could perhaps better name our species *Homo noeticus* to denote this nonphysical change in emphasis. Yet, as Eckhart Tolle pointed out in his best-selling book *A New Earth: Awakening to Your Life's Purpose*, promoted by Oprah Winfrey, "We are a species that has lost its way." Because our fragmented minds have carried us far from Reality, we are still a long way from realizing our fullest potential as wise humans. For, to do so, we need to transcend the intellect through spiritual experience, an awakening that has been spreading rapidly around the world since the 1960s. To give encouragement to this movement,

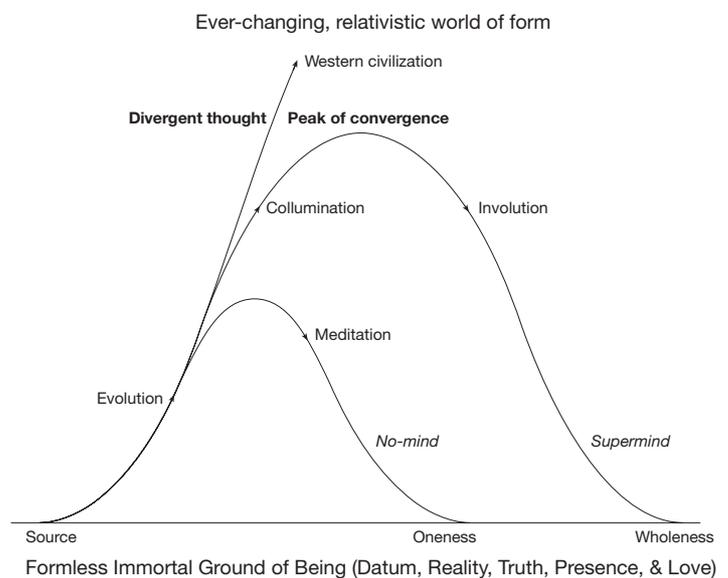
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Eckhart ended this inspirational book with these sentences: “A new species is arising on the planet. It is arising now, and you are it!”<sup>132</sup>

But what should we call this species? *Homo sapiens* would be appropriate if we were actually living up to the name we have given ourselves. But this is too much associated with the body and with humanity’s lack of understanding of what it means to be human. To give this superintelligent, superconscious species a name, Osho called it simply *Homo novus* or Zorba the Buddha, representing a new synthesis of East and West, the meeting of all polarities.<sup>133</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>134</sup> And Barbara Marx Hubbard, a leading evolutionary in her time, has suggested these names for our emerging species: *Homo universalis*, *Homo noeticus*, *Homo spiritus*, and *Homo sapiens sapiens sapiens*,<sup>135</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 none of us is ever separate from the Absolute for an instant, healing the experiential split between humanity and Divinity that opened up several thousand years ago. However, there are two ways of returning Home to the Nonmanifest, as this diagram indicates. I drew it in 2008, when on retreat in the Altai Mountains in Russia, the original home of the shamans.

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>136</sup>

This diagram shows that we can distinguish two subspecies of *Homo divinus*, returning Home to Oneness and Wholeness, respectively: *Homo divinus unitas* and *Homo divinus holoensis*, from Greek *ὅλε* ‘whole’ and *-ensis* ‘belonging to’. So exemplars of *Homo divinus holoensis* do not belong to any group, whether this be national, religious, cultural, occupational, recreational, racial, sexual, or whatever, for they belong to the Ineffable, Nondual Whole, having reached evolution’s glorious culmination, with a Holoramic ‘Whole-seeing’ perspective of what is happening to us all as a species.



To explain what this means, I begin with Linnaeus’s directive to understand ourselves, applying our innate Self-reflective Intelligence to follow in the footsteps of seven wise men, who inscribed this maxim on the temple of Apollo at Delphi, Plato tells us: *γνώθι σεαυτόν* (*gnothi seauton*) “Know thyself.”<sup>137</sup> In a

similar fashion, when Neo visited the Oracle in the popular allegorical movie *The Matrix*, hanging on her kitchen wall was a sign saying *Temet Nosce*, Latin for 'Know yourself'.

But how are we to answer Fromm's call to develop a systemic and rational science of humanity by knowing ourselves, or better understanding ourselves? When scientists observe our outer world, they do not do so as objectively as they claim. As A. F. Chalmers wrote in *What is this thing called Science?*, a standard textbook on scientific method for students at the Open University in the UK, all observation statements are theory dependent.<sup>138</sup> It is not possible to observe anything without some preconceptions of what is being observed. So the three scientific methods of deduction, induction, and abduction, introduced by Aristotle,<sup>139</sup> Francis Bacon,<sup>140</sup> and Charles Sanders Peirce,<sup>141</sup> respectively, are limited, even when studying our outer worlds, never mind our inner ones.<sup>142</sup>

So, to map the Cosmic Psyche, free of all preconceptions of what I might observe, I can only do so by starting afresh at the very beginning, as Osho advised. Another whose life's journey followed a path of total liberation was Vimala Thakar, the most liberated being I have ever met through my reading. She described the way she awakened to Wholeness in her thirties in her monograph *On an Eternal Voyage*, greatly helped by conversations with J. Krishnamurti between January 1956 and December 1961, when she was forty. As she said at the time,

The development of human personality consists in liberating it from all bondages. Thus, for me, freedom is the only way of collaborating with this universal phenomenon of evolution.

No more peace and contentment. But a profound human revolution. A human revolution which consists in freeing oneself from every kind of personal, national, racial, and ideological pre-occupation. As the source of all evil is the very substance of our consciousness, we will have to deal with it.

Everything that has been transmitted to our mind through centuries will have to be completely discarded. We will have to deal with it in a total way. I have dealt with it. It has dropped away. I have discarded it.<sup>143</sup>

This, essentially, is what happened to me after the death-and-rebirth process I went through in the spring of 1980. I can best explain this as a thought experiment, not unlike those that Einstein used to formulate the special and general theories of relativity.<sup>144</sup> To determine whether computers could ever develop artificial intelligence, exceeding any level of intelligence that humans might aspire to attain, I imagined that I was a computer that switched itself off and on again so that it had no programs within it, not even a bootstrap program to load the operating system.

In other words, at the very beginning of this experiment in learning, the Cosmic Psyche was Emptiness, which the Buddha called *Shūnyatā*, corresponding to the Void in the first chapter of the book of *Genesis* in the Bible. This means that not only was the Cosmic Psyche completely empty, nothing in the Totality of Existence had yet emerged in the manifest world of form.

Well, this is not actually true. Even though I had learnt little at school and university, my psyche was cluttered with years of experience, much of which was still unconscious. My mind was nowhere near being a *tabula rasa* 'blank slate', a notion that a number of philosophers have proposed through the ages, particularly John Locke, who asserted that there are no innate principles in the mind.<sup>145</sup>

To fully understand what it means to be human, in contrast to machines, evolution effectively took a backward step, which Arthur Koestler explains in *The Ghost in the Machine*. In this book, he gave an explanation of how new species 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. Ontogeny recapitulates phylogeny. However, as Koestler puts it, "gerontomorphosis cannot lead to radical changes and new departures; it can only carry an already

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specialized evolutionary line one more step further in the same direction—as a rule into a dead end of the maze.”<sup>146</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. If individuals breaking free of the parent species become established, then phylogeny recapitulates ontogeny, as a new species.

These principles of paedomorphosis and gerontomorphosis apply equally in the noosphere, the prime example being the Copernican revolution in the sixteenth century. For Copernicus effectively went back to Aristarchus’s heliocentric view of the solar system, Aristarchus being called the Greek Copernicus,<sup>147</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. It is by learning what our parents and teachers want us to learn, as children, that cultures maintain the status quo, not able to adapt to our rapidly changing world, threatening the very survival of our species. On the other hand, it is by breaking free of our families that new cultures and worldviews emerge, and we can ultimately find God, as the universal spiritual journey indicates.

However, in my case, evolution did not awarely (intelligently and consciously) backtrack all at once, returning to when “the whole earth was of one language, and of one speech,” as the story of the Tower of Babel begins in the Bible. This parable tells us that the cacophony of languages that subsequently emerged through evolutionary divergence inhibited people from building a tower reaching into the heavens,<sup>148</sup> as a metaphor for the search for Love, Peace, and the Truth.



Today, the Tower of Babel represents the utter confusion of the world of learning, as I realized as a teenager. However, it was to take over thirty years of destroying and rebuilding before I had a clear enough image to realize that I had reached evolution’s glorious culmination by being returned to the Source. I first enjoyed what Zen Buddhists call *satoris* or *kenshōs*<sup>149</sup> in the early noughties in the mountains of Norway and forests of Sweden, when on spiritual retreats. I liken this entire process to Shiva the destroyer and Brahman the creator acting in turn, quite a turbulent period in my life.

But what is the Source, from which the entire manifest world of form emerges? As it is Ineffable, transcending all categories of thought, it cannot be described in words. Nevertheless, 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 the 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>150</sup>

Here is another finger pointing at the moon, denoting the Divine Origin of the Universe, which 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

## Humankind

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.<sup>151</sup>

Although the Absolute lies outside science, as it has been practiced at least since the first scientific revolution, it is essential to include it in our reasoning if we are to overcome the most basic limitation of Charles Darwin's *On the Origin of Species*. For, as Lynn Margulis and her son Dorion Sagan point out, "in 500 pages of closely spaced type the title question—on the origin of species—[was] entirely circumvented—abandoned, ignored, or coyly forgotten." Quoting the Australian biologist George Miklos, "The 'struggle for existence' has been accepted uncritically for generations by evolutionary biologists with the *Origin of Species* quoted like so much Holy Writ, yet the origin of species was precisely what Darwin's book was *not* about."<sup>152</sup>

Resting in the Source, we are now in the Presence of the Divine, for *Presence* means 'before being' or 'prior to existence', as we have seen. So the word *Presence* indicates that the Absolute is the Supreme Cause of Everything there is, both immanent and transcendent.



Having revealed the Source in direct experience, the first step into the dualistic world of form is encapsulated in the fundamental law of the Universe, which I call the *Principle of Unity*, as I have already mentioned. It takes the abstractions of mathematics, computer science, and information systems modelling methods in business to the utmost level of abstraction. Although this universal truth can be expressed in words as *Wholeness is the union of all opposites*, I also express it as the primal axiom in the notation of mathematical logic as the *Cosmic Equation*:

$$W = A = A \cup \neg A = \text{陰陽} = \text{ॐ}$$

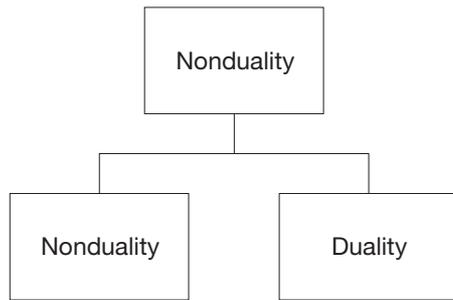
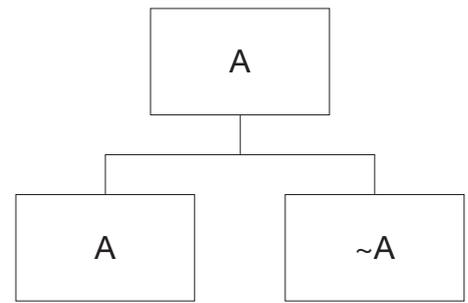
Here  $W$  is any whole, including Wholeness,  $A$  is any being, including the Supreme Being and all human beings,  $\cup$  is union, and  $\neg$  is not. The Chinese characters denote *yin* and *yang*, as inseparable dark and light, moon and sun, female and male, etc., unified in the symbol for OM or AUM, the union of *Brahman* and *Atman* in the *Mandukya Upanishad*.

So, although we live in a bifurcating Universe, as the systems philosopher Ervin Laszlo has pointed out,<sup>153</sup> opposites are never separate from each other in Reality. Sadly however, as we tend to identify with one pole to the exclusion of the other in the dualistic world of form, not being aware of the universal principle that  $A$  and not- $A$  are  $A$ , as my companion expresses it, often leads to conflict and suffering.

The Cosmic Equation lies at the heart of what physicists mistakenly call the Theory of Everything, not realizing that this ultimate goal of human learning cannot be developed within any specialized discipline. For instance, in *The Theory of Everything*, which won Eddie Redmayne an Oscar for Best Actor, Stephen Hawking told his first wife Jane, when he first met her, that he was a cosmologist, worshipping "one, single, unifying equation that explains everything in the universe". A few years later, when being awarded a Ph.D. for his extraordinary theory about a space-time singularity as a black hole at the origin of the universe, Hawking told his professors that he was seeking, "One simple, elegant equation that can explain everything." But "What is the equation?" Jane had asked Stephen when she met him. "That is the question. And a very good question. I'm not quite sure yet. But I intend to find out," was his reply.

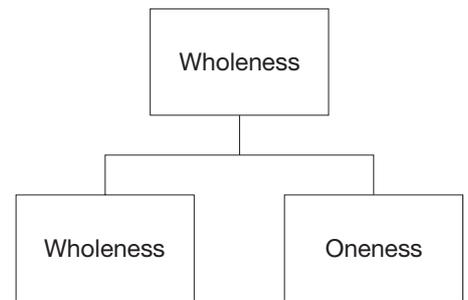
*Who are we? Where do we come from? Where are we heading?*

The key point here is that this premise cannot be proven to be true from any other proposition. This universal truth emerges directly from the Divine Origin of the Universe in the Eternal Now. It is an irrefutable truth, for assertions and denials of its veracity confirm its authenticity. This diagram illustrates the primary-secondary relationship between these polar opposites. Nothing could be simpler. However, the Principle of Unity is not the Absolute Truth, which sets us free, as Jesus said.<sup>154</sup> For the Truth is ineffable, only experienced and understood with the utmost profundity of mystical experience.



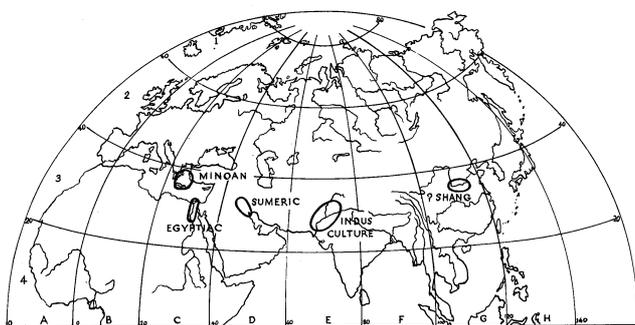
Another special case of this ubiquitous primary-secondary relationship is its application to the Totality of Existence, consisting of all beings, including the Supreme Being. One way of viewing and experiencing Totality is to see it as the union of the Formless Absolute and the relativistic world of form, the latter emerging from the former. This relationship is illustrated in this diagram, using the words *Nonduality* and *duality* to make the distinction.

However, the Absolute provides both the Cosmic Context and Gnostic Foundation for the world of form. So it too can be viewed as the union of transcendent and immanent opposites, which I call *Wholeness* and *Oneness*, respectively, illustrated here. What this means is that we all live in the same Universe, which is synonymous and coterminous with God, whether we know this or not, transcending the categories, beyond all boundaries. Both *God* and *Universe* denote the Totality of Existence. God is everything and nothing and vice versa. No one can return Home to Wholeness because nobody has ever left Home.



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 *suzugia* ‘union’, from *sun-* ‘together’ and *zugon* ‘yoke’. This unifying principle provides a synthesis of all forms of yoga, including Aurobindo’s integral yoga.<sup>155</sup> 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’.

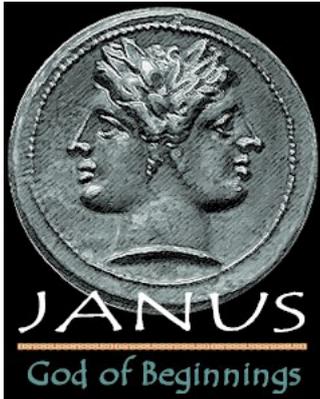
I call the Continuum *Weltanschauung* rather than the English *worldview*, for this German word derives from *Welt* ‘world’ and *Anschauung* ‘view’, from Middle High German *anschouwunge* ‘observation, mystical contemplation’. So *Weltanschauung* has a deeper meaning than *worldview*, indicating both scientific observation and spiritual meditation.



There is thus no longer any split between East and West, as we can see by going back 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, depicted in this diagram from Arnold Toynbee’s monumental *A Study of History*.<sup>156</sup>

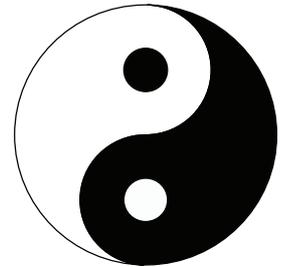
All would have had a pristine view of the night sky, unsullied by the light pollution most of us suffer from today, but they developed quite differently.

On the one hand, the Babylonians and Egyptians gazed at the stars and planets, as ‘wandering 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. Astonishingly, the Babylonians developed the mathematics to enable them to make predictions of solar and lunar eclipses. On the other hand, the Rishis ignored the night sky and looked inwards, discovering an utterly different world, one in which there is no division between humanity and Divinity.



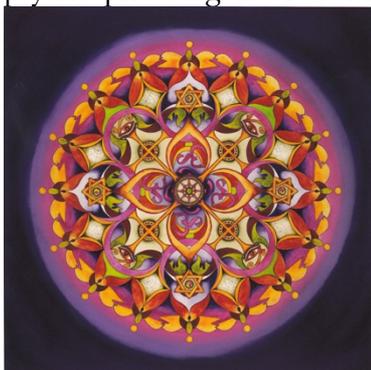
Although the Western mind tends to reject the irrefutable truth of the Cosmic Equation and Principle of Unity for both logical and psychological reasons, it is not entirely unknown. Janus, one of the oldest gods in the Roman pantheon, was depicted with two faces, looking to the past and the future. As 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.

Today, there is much evidence of the awakening of Self-reflective Intelligence due to the popularity of the Chinese concepts of *yin* and *yang*, expressed in the classic *T'ai-chi-t'u* symbol or ‘Diagram of the Supreme Ultimate’. 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.



One who sought to unify East and West was Jung, who wrote 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>157</sup> And as Jung said in 1935 to his fellow psychotherapists, “The greatest danger that threatens psychology is one-sidedness.”<sup>158</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>159</sup>

Much influenced by alchemy’s *coniunctio* (☉ and ☽, ♀ and ♂)<sup>160</sup> and Nicholas of Cusa’s *coincidentia oppositorum* ‘coincidence of opposites’,<sup>161</sup> Jung well understood that unifying opposites is the key to sound mental health,<sup>162</sup> in 1959 calling *syzygy* the androgynous union of *anima* and *animus*,<sup>163</sup> at the centre of his psychospiritual goal of individuation—the development of an undivided being.

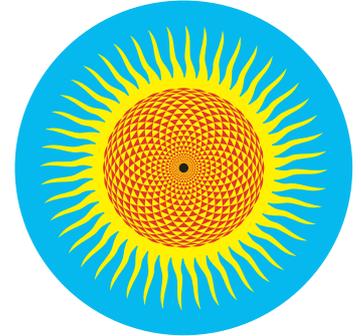


Jung also made extensive use of mandalas in his psychotherapy, as he describes in an extensive case study of the process of individuation first published in 1934.<sup>164</sup> For a mandala, a Sanskrit word meaning ‘disk, circle’, is a circular figure representing Wholeness or the Universe in Hindu 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>165</sup> This mandala also depicts another key concept in Jung’s psychology, that of

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*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>166</sup> first published in German in 1921.

Others who have used mandalas in their psychotherapeutic practice are Christina and Stanislav Grof, as I learned in 1992, when I went to a conference in Prague titled *Science, Spirituality, and the Global Crisis*, organized by the International Transpersonal Association. Before the conference, I attended a stirring one-day session of holotropic breathwork with my Swedish girlfriend at the time. At the end of the session, Christina and Stan asked us to draw a mandala, as an expression of our innermost experiences. I simply sketched the coherent light of Consciousness, for this was all I experienced during this wonderful session. This is how I depict the Sun of Consciousness today,<sup>167</sup> which enables us to view the Totality of Existence holographically, like a laser. For the Universe has the property of self-similarity, like fractals. No matter where we look, we see the same underlying structure.



We can see most clearly that the Divine Light of Cosmic Consciousness radiates from the Darkness of the Source from the root of *Divine*, which is Latin *divinus* 'relating to a deity', from *divus* 'a god', from PIE base *\*dyeu-* 'to shine', also root of *jovial* (of good cheer), *July* (at the peak of summer), *journey* (via Latin *diēs* 'day'), *psychedelic* (via Greek *dēloun* 'make visible, reveal', from *dēlos* 'clear, manifest'), and many other words. Similarly, movement arises from Stillness, forms emanate from the Formless, meaning derives from meaninglessness, and ultimately Fullness emerges from Emptiness. So, when we feel separate from the Divine—as theists, atheists, humanists, or scientists—we shut out the Light that enables us to use our innate Intelligence to see our journeys in life from start to finish, both as individuals and as a species of wise humans.



It was in Prague in 1992 that I last met David Bohm, my principal scientific mentor. It was a very short meeting because Bohm was clearly very tired, for reasons that F. David Peat describes in his candid biography *Infinite Potential*.<sup>168</sup> Bohm was primarily interested in learning what Barry Long thought about space and time, for my Norwegian wife and I had mentioned this singular spiritual teacher to Bohm five years earlier after Long had claimed to be Krishnamurti's successor. There was thus little opportunity to tell Bohm the progress that I was making in developing the universal science of reason that would unify the nonphysical and physical energies at work in the Universe.

I had first met Bohm in November 1980 at Birkbeck College in London, having sent him a rather tentative essay titled 'The Future of Computers and Humanity', when I was still in the embryonic period of my rebirthing development. It was a highly improbable meeting, considering that I had abandoned physics as the primary science in high school because I did not believe in the big bang theory or in the existence of a fundamental building block of matter.

I did not discover an explanation for our meeting until 1996, when a woman friend I met at a conference on 'Spirituality in Business' at the Findhorn Foundation in Scotland kindly sent me a copy of James Hillman's *The Soul's Code*. In this book, Hillman well explains how such a meeting could come about with his 'acorn theory' of human development. As Hillman said, we are all given a unique soul before we are born, which he calls an *acorn*, as a generic term for *image*, *character*, *fate*, *calling*, and *destiny*, corresponding to what the Romans called *genius* and the Greeks *daimon*. But such a unique potential often cannot develop without a helping hand. Using George Berkeley's doctrine of *esse est percipi* 'to be is to be perceived', Hillman gave many examples of the way that the direction of people's lives had been changed because a mentor

could see into the depths of a person's soul and intuitively see what that person was destined to become one day.<sup>169</sup>

So it would seem that Bohm could see something in me that most could not see, most probably because of our shared passion for Wholeness and the healing of our fragmented, split minds. Indeed, as I can now see, the business management and modelling problem that I was struggling to solve in the winter of 1980 was essentially the same problem that physicists face in unifying quantum and relativity theories. Bohm, like me, solved this problem by recognizing that we cannot separate the observer and observed, as already mentioned. This is how Bohm described this healing process in *Wholeness and the Implicate Order*, published in 1980:

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>170</sup>

For myself, my top priority at this first meeting was to find a property that would unify the psycho-spiritual energies within us, which I was associating with data, and the four fundamental energies recognized by physicists: electromagnetic and gravitational fields and the weak and strong nucleic forces. Accordingly, I asked Bohm, "What is the origin of all the energy in the Universe?" He replied that energy does not have a source; it is contained within structure.

I now know that the first part of this answer is not true. The entire world of form emerges from the Source, as the Divine Origin of the Universe. However, associating causality with structure—including both local and nonlocal relationships in space-time—was just the answer that I needed. For the business modelling methods that I had been exploring at IBM the previous winter were all about structure-forming relationships, a more general concept than fields, like electromagnetic fields in physics and morphogenetic fields in biology, which Rupert Sheldrake was to introduce the following year in *A New Science of Life: The Hypothesis of Formative Causation*. As relationships are all there is, we can thus see that relationships make the world go round.

At this first meeting, Bohm also introduced me to what he called 'proprioception of thought',<sup>171</sup> as a suitable approach to self-awareness, from Latin *proprius* 'one's own, special, particular'. However, this word is used primarily in a somatic context, indicating signals received from the body. I did not feel that this physiological approach would help me heal my fragmented mind with Self-reflective Intelligence. Some years later I found a more appropriate word in Jean Gebser's splendidly titled *The Ever-Present Origin*: "The aperspective consciousness structure is a consciousness of the whole, an integral consciousness encompassing all time and embracing both man's distant past and his approaching future as a living present."<sup>172</sup>



However, I faced a major dilemma here between the individual and the collective, which Bohm brilliantly summarized in the opening paragraphs of his seminal book:

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.

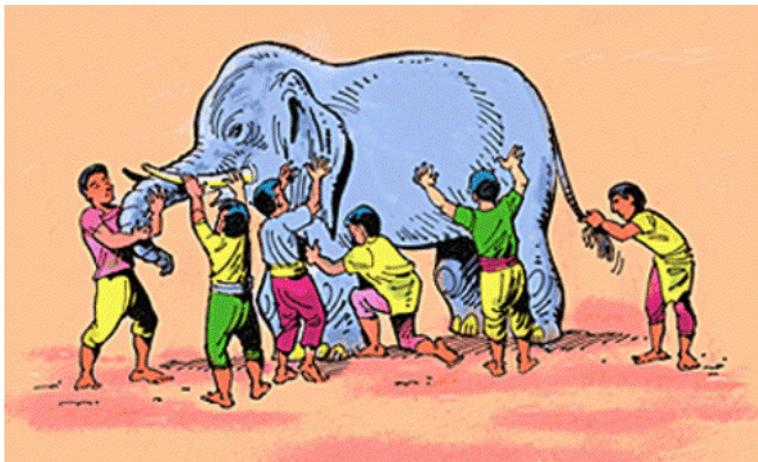
Thus art, science, technology, and human work in general, are divided up into specialities, each considered to be separate in essence from the others. Becoming dissatisfied with this state of affairs, men have set up further interdisciplinary subjects, which were intended to unite these specialities, 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

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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>173</sup>

Little has changed since these words were first written in 1976. But no one is to blame for the chaos the world is in today. We are all the products of some 13.8 billion years of evolution since the most recent big bang. And, during all these aeons of development, evolution has been more divergent than convergent, as we see in the atoms and galaxies in the hylosphere (from Greek *úle* 'matter, wood'), the diversity of plants and animals in the biosphere, and in religious demarcations, academic specialisms, and the division of labour in the workplace in the noosphere.

This problem of fragmentation is not new, as the ancient Indian story of six blind men and an 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 the following 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 what the elephant actually is, as a metaphor for the whole of human-kind. 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>174</sup>

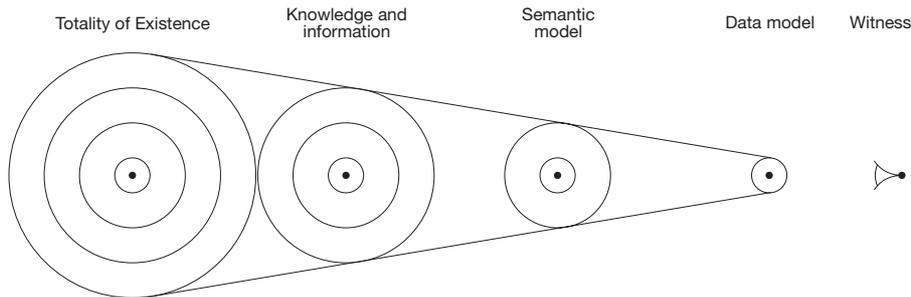
So, are there any specialists working in the world who are actually generalists, taking a broader perspective than experts in particular fields? Well, one example is my local doctor, who calls herself a specialist in general medicine, referring patients to consultants in regional hospitals when the need arises. Another example is the job of information systems architect in business, working with specialists in user departments to develop integrated business systems for the benefit of the enterprise, as a whole. 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'.

Information systems architects employing Model-Driven Architecture (MDA) are rather like architects who design houses and office blocks, beginning with blueprints as models of what the completed building could look like and function. So software developers do not generally start programming with no idea of the system that they are to design. It is therefore not surprising that information systems architects in

business<sup>175</sup> have been turning to Christopher Alexander’s *A Pattern Language*, incorporating ‘the quality that has no name’: egoless, alive, free, eternal wholeness.<sup>176</sup>

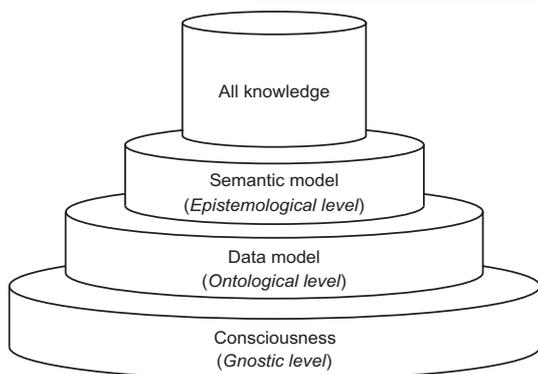
Similarly, as I have been engaging in a thought experiment in which I imagine that I am a computer that has no programs within it, I cannot begin by ‘programming’ myself, whatever that might mean. Rather, I have needed to generalize business modelling methods, like the CASE tools briefly mentioned on page 17, to develop the universal science of reason at the heart of an all-embracing science of humanity.

To explain what I mean here, the models that information systems architects build do not have just one level; they actually have three, each contained within the next level, all viewed with Self-reflective Intelligence, sometimes called the Witness in spiritual circles. These relationships are illustrated in this diagram:



The largest circle on the left represents the all-embracing Numinosphere, from Latin *nūmen* ‘a nodding of the head; Divine will, Divinity’, denoting the Totality of Existence. The circle tangential to this, but also contained within it, is all the knowledge and information that we humans have developed or will develop during the tens of thousands of years of our existence as a species, much of which is contained in symbolic form on the Internet today. In other words, this circle represents the noosphere as a whole, in its entirety, mapping the territory, everything that exists in the Universe. In terms of the relational model of data, the attribute values in this table, called a relation, represent a tiny portion of all this information.

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



However, this is not sufficient for evolution to become fully conscious of itself. For this purpose, we need to map the noosphere, not just the Numinosphere. First, we develop knowledge about knowledge, which corresponds to the semantic models that information systems architects develop and Aristotle’s epistemology ‘study of knowledge’, illustrated in this second diagram. For *epistemology* derives from Greek *epistēmē* ‘knowledge’. Again, in terms of the relational model of

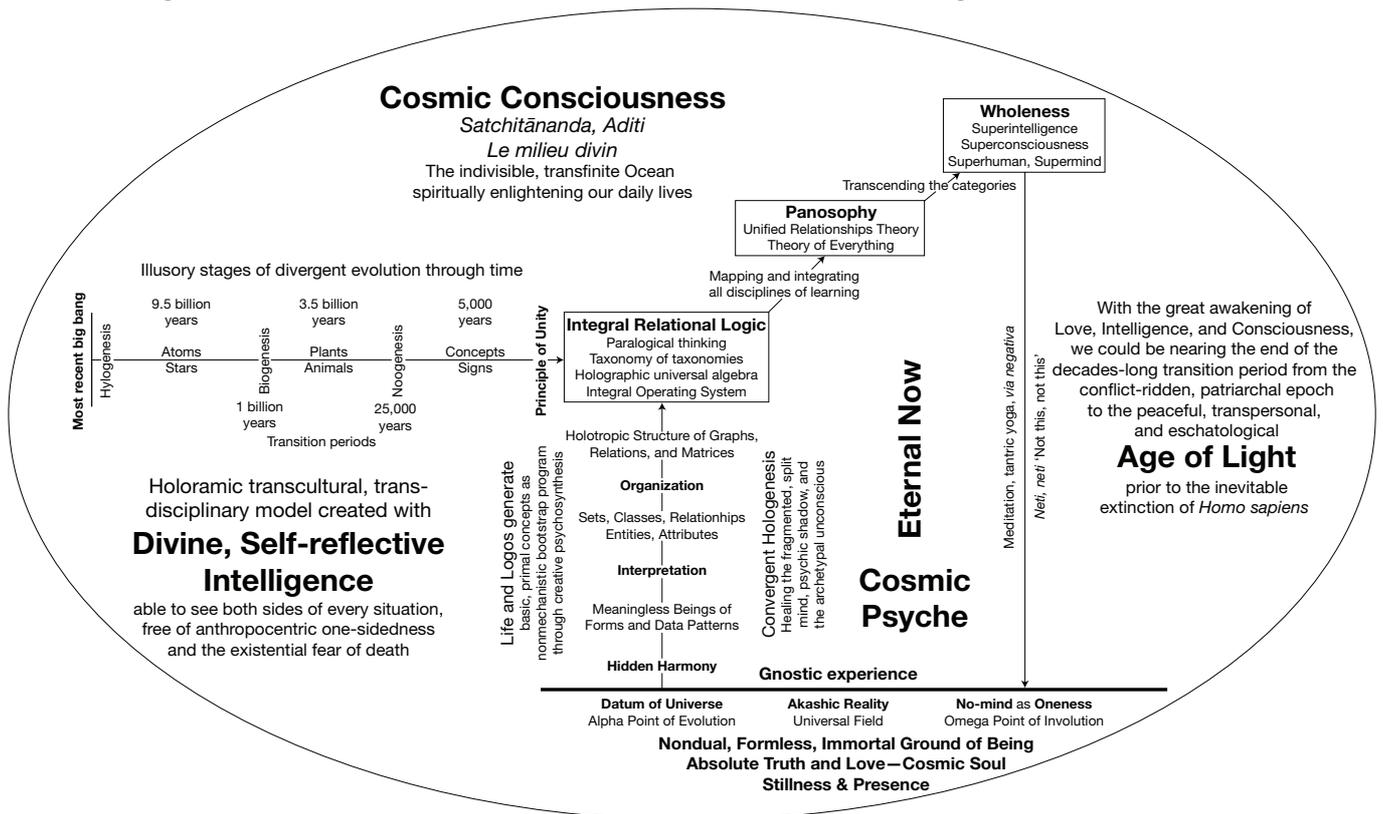
data, the class and attribute names in italics in the above table are a tiny portion of all this information

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about information, represented as relations in the systems catalogue of relational database management systems, neatly avoiding infinite recursion.

Beneath this semantic metamodel is a model of the meaningless data patterns of existence, prior to interpretation by an intelligent being, contrary to the one-sided views of some ecologists.<sup>177</sup> This ontological model shows that the underlying structure of the Universe is an infinitely dimensional network of hierarchical relationships, which emerge from Consciousness, as the Numinosphere. And at the mezzanine level, between the Gnostic and ontological levels, lies the Hidden Harmony, which applies as much to the Absolute as to the relativistic world of form, as we see on page 27.

Before going further into the technical details, I feel that it is better to view the ‘big picture’, as the Grand Design of the Universe, as it has been revealed to me since working with Bohm in the 1980s.



This schema of the Cosmic Context, Gnostic Foundation, and coordinating framework for an all-embracing map of the Cosmic Psyche and hence of the Totality of Existence is the product of over seventy years of questioning the basic beliefs of the cultures we live in. It is rather overwhelming to take in all at once. Essentially, it is an expansion of the diagram on page 1, depicting in a little more detail how evolution took a radical change in direction within me in the spring of 1980.

When I first drew this diagram in 2016, after several years of gestation, I still hoped that Life would enable us to turn evolutionary divergence into convergence in the eschatological Age of Light, along the lines that Teilhard foresaw: “The way out for the world, the gates of the future, the entry into the superhuman, will not open ahead 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>178</sup> However, it seems that I was too idealistic and optimistic. Nevertheless, maybe if I unpick this model of the Universe a little, it could shed some light on what it means to be human, on our creative reasoning activities.



At the heart of this cosmology of cosmologies lies *Integral Relational Logic* (IRL), which cannot be

related to anything else that has previously emerged in the entire history of human learning. For this commonsensical system of thought has arisen directly from the Divine Origin of the Universe through the action of the Cosmic Equation acting in both the vertical and horizontal dimensions of time, as the Hidden Harmony and Principle of Unity.

Nevertheless, Integral Relational Logic does have some predecessors, particularly the Relational Model of Data that Ted Codd introduced in 1970, when working for IBM at its research lab in San José. In turn, the relational model has evolved from George Boole's *Laws of Thought* in 1854,<sup>179</sup> through Augustus De Morgan's 1858 definition of *relation*,<sup>180</sup> to Charles Sanders Peirce's 1870 paper on 'Description of a Notation for the Logic of Relatives',<sup>181</sup> in 1883 further developed in the 'Logic of Relatives', published in *Studies in Logic*, which also includes one of the first attempts to develop first-order predicate logic.<sup>182</sup>

For myself, I first read Codd's paper in 1972, when I was engaged in writing a proposal for a job-matching information system for the Department of Employment as a systems engineer. As this 11-page seminal paper unifies the hierarchical and nonhierarchical ways of organizing databases, then competing with each other, I regard it as 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. Today, you cannot order a book or airline ticket on the Internet without invoking the relational model of data behind the scenes.

This means that the key feature of the relational model of data is nondeductive, as Codd, himself, pointed out, introducing the most fundamental change in Western reason since Aristotle and Euclid laid down its foundations some 2,350 years ago. Integral Relational Logic thus liberates us from the mechanism of Western thought, encapsulated in computers executing a sequence of instructions in algorithmic programs, albeit in parallel threads in modern multi-headed central-processing units, collectively collaborating in networks, such as the Internet.

But this is not how we humans think and organize our ideas. For, Integral Relational Logic shows that the underlying structure of the Universe is a multidimensional network of hierarchical relationships, a notion that Arthur Koestler also recognized, 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>183</sup>

If we are to release these lively rabbits, it is vitally important here not to be focused on surface structures. Rather, to rise above the level of our machines, as humans, we need to notice the distinction between the *essence* of structures and their *superficial* forms, which can easily be demonstrated with a simple example. The diagram on the next page shows a collection of A's in thirty different fonts. We humans 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%.

This might seem a rather prosaic example, which could be more successful with a more advanced OCR program. I use it simply to show that the essence of sentient beings, in particular, is what we call their souls, far more profound than what we observe with our physical senses. This ability to sense what is beneath the surface of structures gives us great joy in appreciating music, works of art, and even the beauty of mathematics. Musicologists call performers' ability to convey the essence of a piece of music, beyond technique, 'innate musicality'. For, as Shakespeare famously said, music is the food of love.<sup>184</sup> Our unique

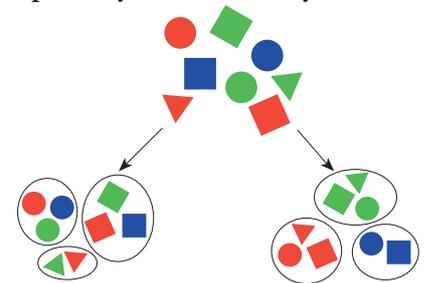
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individual souls are ultimately shared with the Soul of the Universe, which is Love, the Divine Essence we all share, as Immortality.

Although Integral Relational Logic is unprecedented in the history of human thought, we all implicitly use it every day to form concepts. We can see this most clearly from 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>185</sup> in the process of many years of correspondence.<sup>186</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.

This is the natural approach to reasoning taught to eight- to eleven-year-olds in the 'new maths' in the 1960s. For a group of mathematicians then attempted to introduce sets into primary or elementary schools in the UK and USA. 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.<sup>187</sup> For instance, as infants, when we began to form concepts, we learned to distinguish colours, shapes, and numbers, as in this illustration. This transcultural, transdisciplinary interpretative process is central to pattern recognition, conscious evolution, and all our learning. Nothing could be simpler. In particular, this example shows that sets are more fundamental than numbers. Until the concept of set is formed, we cannot form the concept of three, as an instance of number.



This universal way of classifying our ideas leads to a much richer approach to taxonomy as the science of classification than has been possible before. The word *taxonomy* was coined in French in 1813 by A. P. de Candolle<sup>188</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 a household. Similarly, *taxonomy* is an arrangement of an arrangement, today either meaning classification, in general, or specifically, the systematic classification of self-reproducing forms of life, with many levels of classification. So, Integral Relational Logic is a taxonomy of taxonomies, bringing all our thoughts into universal order, transcending category theory in mathematics,<sup>189</sup> simply illustrated by the way we arrange knives, forks, and spoons in our kitchen drawers.

Most significantly, this egalitarian way of forming concepts clearly shows that 'everything' is not the physical universe of mass, space, and time. For mathematicians and computer programmers treat these concepts in exactly the same way as any other quantitative variable in their equations and functions. Information systems architects go even further, treating both qualitative and quantitative domains of values identically.<sup>190</sup> To demonstrate that mass, space, and time are not special, librarians, using Melvil Dewey's decimal library classification system, categorize books on the scientific and philosophical perspectives of

space-time as '530.11' and '115' ('115.4' before the seventeenth edition), respectively. On the other hand, books of knowledge about knowledge are in the category 'ooo Generalities'.

However, although we all implicitly use Integral Relational Logic to form concepts and organize our ideas in tables, like relations and matrices, and semantic networks or mathematical graphs, I am not aware of anyone else who has become explicitly aware of this universal system of thought within them, lying, as it does, in what Bohm called the Implicate Order.

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?" The philosopher replied, "Yes, Sir." "Good heavens!" exclaimed M. Jourdain, "For more than forty years I have been speaking prose without knowing it."<sup>191</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."

The paradoxical nature of Integral Relational Logic, making explicit what is mostly implicit within us all, also frees us from logicians' denial of the paradoxical Principle of Unity, as an irrefutable truth. The spiritual philosopher Tim Freke has coined the term *paralogical thinking* to denote our ability to see both sides of any situation with our innate Self-reflective Intelligence. As Tim says in *The Mystery Experience: A Revolutionary Approach to Spiritual Awakening*, "We see the paradoxity of something when we understand it from two opposite perspectives at once." He aptly uses the simple word *WOW* to denote such an awakened state of being, for there is nothing more wonderful in human experience. Not surprising, this is something "everyone is searching for," as Tim says.<sup>192</sup>

One other key feature of Integral Relational Logic is that it does not belong to any specialist discipline of learning. Because it has evolved from the modelling methods underlying the Internet, it is both transcultural and transdisciplinary. For if these abstract methods did not exist, the Internet could neither exist nor expand at hyperexponential rates of acceleration.



Now, as the scores of billions who have lived since the cognitive revolution have implicitly used Integral Relational Logic in their reasoning, I use the Method to map and integrate all academic disciplines, bringing universal order to the entire world of learning. This I can most simply illustrate with Stanislav Grof's neologism *holotropic* 'turning towards the whole', modelled on *heliotropic* 'turning towards the sun', from Greek *òlos* '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>193</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'.

Starting with the second meaning, to bring order to the mess the world is in today, I have questioned everything, a radical approach to learning I began as a seven-year-old, much to the distress of my parents and teachers. For as Bohm said around 1985, when being interviewed on Krishnamurti's enlightened approach to education, if we do not let go of our prejudices, questioning all our assumptions and pre-conceptions, then humanity is not a viable species.

Bohm is best known today for his proposals for open dialogue in groups of people. In the initiating proposal for dialogue that he wrote with Donald Factor and Peter Garrett, this states, "In Dialogue, a group of people can explore the individual and collective presuppositions, ideas, beliefs, and feelings that subtly control their interactions." They even suggested that this questioning way of communicating should come

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under scrutiny “as a kind of ‘meta-dialogue’, aimed at clarifying the process of Dialogue itself”.<sup>194</sup> Lee Nichol then edited a posthumous summary of Bohm’s thoughts on dialogue, saying in his foreword, “Such an inquiry necessarily calls into question deeply held assumptions regarding culture, meaning, and identity”.<sup>195</sup>

For myself, as I have been endeavouring to rebuild the atlas of maps that constitute the Theory of Everything, free of ‘flat-earth’ perspectives, I have been conducting Dialogue within myself, seeking to determine the truth, falsity, or uncertainty of what around 100 billion humans have learned during the ages about ourselves and the world we live in. This is an ongoing exercise, as the publication last month of *The Dawn of Everything: A New History of Humanity* well indicates.<sup>196</sup> The key feature of my own exercise, guided by the fundamental law of the Universe, is that I have needed to follow Schumacher’s maxim for cognitive mapmaking: “Accept everything; reject nothing.”

I can best illustrate this with the way that Kepler studied three different views of the solar system in *New Astronomy*. After several years of tedious calculations—even before logarithms had been discovered—Kepler concluded that all the planets circle around the Sun in ellipses, with the Sun at one of the focal points. To do this, Kepler needed to stand outside himself, like we all need to do to understand what it means to be human. 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 Einstein said was ‘true genius’.<sup>197</sup>

For me, these three models are contained in the Cosmic Psyche, the attributes of the geocentric and heliocentric models being ‘obsolete’ and ‘valid’, respectively. Tycho Brahe’s proposal for a compromise between the two is also ‘obsolete’, an example of humanity’s struggle, lasting thousands of years, to make sense of the world we live in.

A similar situation prevails today in the endeavour to complete the final revolution in science. 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>198</sup>

For myself, after over forty years integrating all knowledge into a coherent whole, I have now realized that M-3 is the only valid worldview, like Kepler favouring the heliocentric model of the solar system, which Newton firmly established in the *Mathematical Principles of Natural Philosophy*. So, the final revolution in science is a second heliocentric revolution, placing the Sun of Consciousness, depicted on page 29, at the heart of everything.<sup>199</sup>

Ramesh S. Balsekar—formerly President of the Bank of India and a pre-eminent Advaita sage—well understood this, saying in *Consciousness Speaks*, “All there is, is Consciousness.” Wayne Liquorman accordingly wrote in his introduction, “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.”<sup>200</sup>

We can clearly see that *Consciousness* is a word that denotes the fundamental law of the Universe from its roots, which are Latin *cum* ‘together with’ and *scire* ‘to know’, from PIE base *\*skei-* ‘to cut, split’, also root of *schizoid* and *science*, *scire* meaning here ‘to separate one thing from another, to discern’. So, the emphasis in science is 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. But 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*. *Consciousness* is thus an oxymoron, my favourite word as a

teenager. Indeed, developing what the Center for Consciousness Studies in Tucson, Arizona calls The Science of Consciousness (TSC) is actually an art.<sup>201</sup>

Turning now to the original meaning of *holotropic* ‘turning towards the Whole’, I again understood what this means by using Bohm’s method for bringing universal order to our thoughts. In October 1983, when I was strolling across Wimbledon Common in the opposite direction from April 1980, I formed the concept of the Absolute in exactly the same way that I form any other concept: by giving attention to similar differences and different similarities. For, normally, when I form a concept, I do so by comparing meaningless data patterns with each other within a particular context to give them meaning. However, the Absolute is unlike all other concepts. For if it could be compared with any other, it would not be the Absolute. The Absolute, and hence humans when we live awarely in union with the Divine, is and are beyond compare.

This conception did not establish God as a scientific concept immediately. I first needed to practice many psychospiritual exercises to bring traumatic memories lying deep in the sub- and unconscious into the brilliant light of day. These included many rebirthing sessions in Sweden after I married my second wife in Oslo in 1986 and a seventeen-day master class with Barry Long in Australia in 1993. Even though these traumas were not completely healed by 2003, it was then that I first became fully free of the sense of a separate self. For staying in a retreat centre aptly called ‘Mystic Mountain’ in Norway, I climbed 800 metres to the flat top of an 1,100-metre mountain. I likened the plateau on the summit to the Pathless Land, as a metaphor for the Truth. Joyfully sensing the Divine without any filters, I danced in my mountain boots, declaring, “There’s nothing there!”

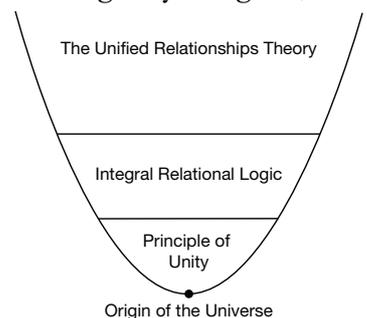
For, as Krishnamurti said in 1929, when dissolving the Order of the Star that wanted to make him a World Teacher, “I maintain that truth is a pathless land, and you cannot approach it by any path whatsoever, by any religion, by any sect. ... Truth, being limitless, unconditioned ... cannot be organized. ... My only concern is to set men absolutely, unconditionally free.”<sup>202</sup>

The result of this total transformation of consciousness—grounded on and embraced by Wholeness—is what I call the *Unified Relationships Theory* (URT), resident in the Cosmic Psyche, as a generalization of Einstein’s unified field theory. In 2005, the BBC broadcast a Horizon drama documentary titled ‘Einstein’s Unfinished Symphony’ about Einstein’s futile attempt to find the Cosmic Equation at the heart of this megasynthesis of everything. At the end of the documentary, Michio Kaku said that if Einstein had been successful in his endeavours, “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>203</sup>



In the same year, the *New Scientist* magazine in the UK posted a ‘wanted ad’ on its front cover,<sup>204</sup> illustrating humanity’s deep longing to solve the ultimate problem in human learning. For what could be more important for a cognitive species than to know what the Universe is, how it is intelligently designed, and hence understand what it truly means to be human compared with the other species and machines with so-called artificial intelligence?

Simplifying the two diagrams on page 32, this diagram illustrates how the Unified Relationships Theory arises through the coherent system of universal thought from the Singularity at the Origin of the Universe, represented by the black hole at the centre of the Sun of



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Consciousness on page 29. Integral Relational Logic, as the transdisciplinary union of depth psychology and holographic mathematical logic, thus establishes mystical psychology as the primary science, disposing deductive logic, mathematics, physics, and biology, sometimes attempting to usurp physics' throne.

As the Principle of Unity, Integral Relational Logic, and the Unified Relationships Theory are transcultural and transdisciplinary, I also call the Theory of Everything *Panosophy*, the union of all sciences and humanities and of science, philosophy, and religion. *Panosophy* is 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 1600s, 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>205</sup>

Comenius' *A Reformation of Schooles*, in its English title,<sup>206</sup> was a prospectus for a universal cyclopædia, *pansophy*, occasionally spelled *pantosophy*, coming to mean 'universal or cyclopædic knowledge; a scheme or cyclopædic work embracing the whole body of human knowledge'.<sup>207</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>208</sup>

However, living as a Panosopher—as an extension of the function of information systems architect in business—in a world of specialists is not so easy. To deal with this problem, David Peat tells us while Bohm complained about fragmentation both in science and in life, "with respect to friends and colleagues, [he] compartmentalized his areas of interest, discussing physics with one, Krishnamurti with someone else, and with yet another, language and perception." But this does not convey the Essence of Wholeness, which is how I appreciated Bohm as a human being, mirroring the Wholeness that I am. As Wholeness is the True Nature of all beings, it is only in Wholeness that we can truly meet, most exquisitely in Divine lovemaking, where two apparently separate beings become one.



To put the Unified Relationships Theory into its historical context, physicists are not the only ones who have attempted to develop a coherent body of knowledge that can fully explain the perplexing world we live in. Over the years, many others have sought to heal the fragmented mind in Wholeness. These include Roger and Francis Bacon in the thirteenth and seventeenth centuries, René Descartes and Comenius in the 1600s, and Charles Sanders Peirce and Ken Wilber in the USA in the nineteenth and twentieth centuries.

Some of the physicists who have also been engaged in this undertaking, seeking to go beyond the limitations of their specialist discipline, include Kepler and Newton in the seventeenth century and Einstein and Bohm in the twentieth, each of whom unified pairs of opposites.

With mystical awareness and much hard work, 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>209</sup> He found these laws by healing the split between causal physics and mathematical astronomy, which Aristotle had opened up in *Physics*.<sup>210</sup> Newton produced the second term in this series in *Principia* in 1687 by unifying Kepler's celestial physics with Galileo Galilei's terrestrial dynamics,<sup>211</sup> Galileo being unaware that Kepler had established the heliocentric model mathematically.

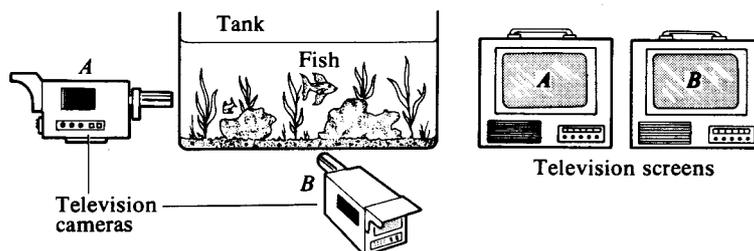
Einstein introduced the next two terms with the special and general theories of relativity. First, in 1905, he developed the special theory of relativity by reconciling the incompatibilities between the principle of relativity, which states that physical phenomena run their course relative to different coordinate systems according to the same general laws, and the observed constancy of the speed of light.<sup>212</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>213</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, Bohm continued this unifying process by showing how we can reconcile 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>214</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>215</sup>

Inspired by the process philosophy of Heraclitus and Alfred North Whitehead, Bohm unified quantum and relativity theories 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>216</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,” using water as a metaphor for Consciousness, which embraces all our lives, not space and time, as is widely believed. Kabir highlights our ignorance by saying, “You do not see that the Real is in your home, and you wander from forest to forest listlessly.”<sup>217</sup>

Bohm offered some advice on how we can go beyond Einstein, making radical revisions to conventional scientific views of the Universe, while retaining that which makes sense in the context of Wholeness. He wrote,

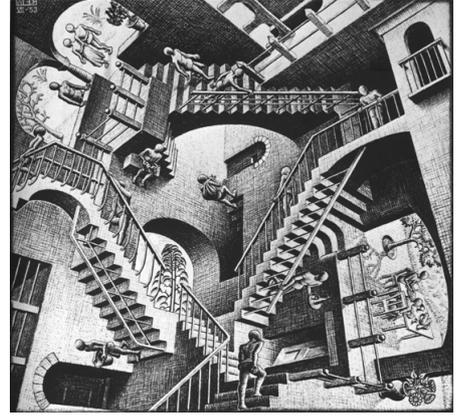
Of course, we have to be cognisant of the teachings of the past, both Western and Eastern, but to imitate these teachings or to try to conform to them has little value. For, ... to develop new insight into fragmentation and wholeness requires a creative work even more difficult than that needed to make fundamental new discoveries in science, or great and original works of art. ... [O]ne who is similar to Einstein in creativity is not the one who imitates Einstein’s ideas, nor even the one who applies these ideas in new ways, rather, it is the one who learns from Einstein and then goes on to do something original, which is able to assimilate what is valid in Einstein’s work and yet goes beyond this work in qualitatively new ways.<sup>218</sup>

As Panosophy, based on the Cosmic Equation, unifies *all* opposites, it completes this short series of cosmologies. It does so by encapsulating the fundamental principle that the world is a paradox, which M. C. Escher depicted in his fascinating lithograph ‘Relativity’ on the next page.<sup>219</sup> So, if we do not include

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self-contradictions and paradoxes in our reasoning with clarity, integrity, simplicity, and consistency we are led into delusion.

Furthermore, Integral Relational Logic enables us to provide the Implicate Order, lying within the Cosmic Psyche, with a sound mathematical foundation. When I first learned about Bohm's *Wholeness and the Implicate Order* in a Sunday newspaper in the summer of 1980, Bohm told Danah Zohar that he was seeking an algebra of algebras in which to establish his holographic cosmology mathematically.



More formally, Bohm sought an 'algebra of process', to reflect his process view of underlying reality, as his friend and colleague Basil Hiley tells us.<sup>220</sup> However, in my experience, the one-dimensional holomovement, also called the holoflux,<sup>221</sup> as a river of Life, flows into the multidimensional Ocean of Consciousness, as a hyperball of water. In this metaphor for the Totality of Existence, the waves and ripples of the hypersphere on the surface represent the physical universe, while the currents beneath the surface represent the ever-changing Cosmic Psyche. Like with the holomovement, none of these allegorical aquatic forms is ever separate from the Ocean, itself. In Sanskrit, they are *māyā* 'deception, illusion, appearance' and *līlā*, the delightful 'play of the Divine', emerging from the still centre of the Ocean, as the Divine Origin of the Universe—the Source of Life.

Taking an evolutionary perspective, the creative power of Life 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>222</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>223</sup>

It is pertinent to note here that *holism* derives from Greek *òlos* '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 relate these abstractions to my own inner experience, I sense that all the divergent streams of evolution have converged in a megasynthesis of everything, along the lines that Teilhard prophesied in *The Human Phenomenon*, completed in 1940, shortly before I was born.

Another who experienced the Ocean of Consciousness underlying all spiritual traditions was Romain Rolland, the 1915 Nobel laureate for literature, much inspired by his studies of the lives and works of Rāmakrishna<sup>224</sup> and Vivekānanda.<sup>225</sup> In a famous letter to Sigmund Freud in 1927, Rolland described his experience of Consciousness as an 'oceanic feeling', which he said he had never been without. He felt the

sensation of the 'eternal', "entirely independent of all dogma, of all organization of the church, of every holy book, of all hope of personal survival, etc."<sup>226</sup>

As what I experience as 'oceanic feeling' has arisen by developing and practicing Integral Relational Logic, I regard this commonsensical system of thought to be the algebra of algebras, or meta-algebra, that Bohm sought to establish his theory of the Implicate Order as sound science. For, David Hilbert, who sought to provide mathematics with a sound foundation through metamathematics, defined *algebra* as the 'relationship of relationships'.<sup>227</sup>

But this universal art and science of reason does not lie within mathematics, in contrast to Boolean algebra and other abstract algebras that constitute what Whitehead called Universal Algebra in 1898. Rather, as it is a meta-algebra, it lies outside mathematics and all other disciplines of learning. It is in this way that Life has carried me back to the oceanic ecstasy that I enjoyed as a tiny embryo, thereby ending the long-running war between science and religion, which I set out to do as a seven-year-old.



To explain what is happening here, I need to return to the thought experiment as the best way of representing the apocalyptic death and rebirth process I began in April 1980, when a big bang erupted in the utmost depths of my psyche. As I said on page 24, I have imagined myself as a computer being switched on, ready to execute its bootstrap program, which is needed to load its operating system. Diagrammatically, this creative process, beginning at the Divine Origin of the Universe, is depicted in the upward path in the schema of the Grand Design of the Universe on page 33.

There it states that Life and the Logos have generated the basic primal concepts that serve as the non-mechanistic bootstrap program needed to load the 'operating system' into consciousness. I describe this entire creative process as *psychosynthesis*, with a somewhat different meaning from Roberto Assagioli, who coined the word for his therapeutic theory and practice.<sup>228</sup> I also call loading the bootstrap program into the psyche *psychogenesis*, with a creative meaning, rather than its conventional pathological meaning: 'the psychological cause to which a mental illness or behavioural disturbance may be attributed (as distinct from a physical cause)'.

After over forty years of self-inquiry and studying the history of human thought and reason, I am still finding words I need to indicate the change of direction that evolution took within me when I was working in marketing for IBM. So, without the experience that has brought these primal concepts into existence, I do not know to what extent the words I use to denote them are understandable.

Nevertheless, I still feel the need to explain why computers cannot program themselves without human intervention, as many already intuitively know. For instance, a friend and colleague said to me in the 1990s that his meditation practice in the Zen Buddhist tradition told him that humans are not just machines. He did not need a rational, scientific proof of what was obvious to him in his own experience. In contrast, many physicists and politicians still seem to believe that the Universe and the global economy operate mechanically.

To address this critical issue, let us begin at the Source, at the centre of the Ocean of Consciousness, which I denote with the word **Datum**, emboldened to distinguish it from the others words I use to describe this creative process, which are not part of the 'bootstrap program', so named because starting a computer is rather like someone trying to lift themselves up by their bootstraps. Most significantly, even though I am a human being, it is essential that these primal concepts are not anthropomorphic. If I am to discover the essential characteristic of humankind, I cannot begin with any preconceptions. Words like *concept*, *mind*,

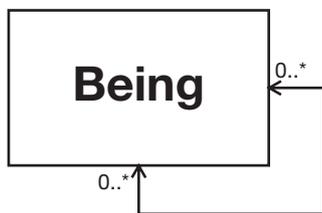
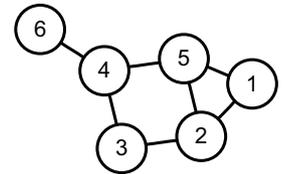
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*psyche, soul, intelligence, and consciousness* are thus secondary, formed once the Method that is necessary to form concepts in an egalitarian manner, without any filters, becomes established.

As I mention on page 38, I formed the concept of the Absolute on Wimbledon Common in October 1983 using Bohm’s method for bringing universal order to our thoughts. However, to describe the algebra of algebra that he was seeking, I need to be free of the chronological sequence of my discoveries, denoting the meaningless Absolute as the *Datum* ‘the Giver’, from Latin *datum* ‘that which is given’, from *dare* ‘to offer, give’, from PIE base *\*dō* ‘to give’, also root of *donor, endow, dowry*, and Sanskrit *dā* ‘to give’. 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, which is most simply called Life. We thus find a word at the very heart of our Indo-European heritage that can help us to understand our origin as a species, which Darwin omitted to mention in any edition of *The Origin of Species*, as already mentioned.

What emerges from the Datum of the Universe is a self-similar network of **data patterns**, as **forms** or **structures** and the **relationships** between them. We can simply depict these relationships in a semantic network or mathematical graph, the latter arising from Leonhard Euler’s utterly abstract way of drawing maps. In 1736, inspired by a map of Königsberg, the capital of East Prussia, he realized that the bridges in the city could be represented as arcs between land masses, viewed as nodes.<sup>229</sup> Generalizing this construct, business modellers and computer programmers draw class models consisting simply of nodes and the relationships between them, a structure that is universal, applicable to both the Universal Machine, in Alan Turing’s terms, and the Universal Human.<sup>230</sup>



As there is nothing in the Cosmic Psyche but structure-forming relationships, they are synergistically energetic and causal. These patterns are **beings**, constituting the Totality of Existence, depicted in this simple diagram.<sup>231</sup> Being is the most abstract concept in Aristotle’s ontology, defined in *Metaphysics* as more general than mathematical concepts, like number, circle, and set:

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>232</sup>

Being is thus a concept of the utmost generality, denoting any object, event, process, system, organism, state, feeling, form, structure, relationship, field, class, character, symbol, religion, discipline, -ism, -ology, -osophy, language, culture, civilization, or any other way that I, or any other knowing being, can perceive, conceive, or imagine. Being is all-inclusive, denoting everyone’s worldviews, theories, opinions, points of view, beliefs, ideas, concepts, values, principles, propositions, etc., in all cultures and disciplines at all times, past, present, and future.

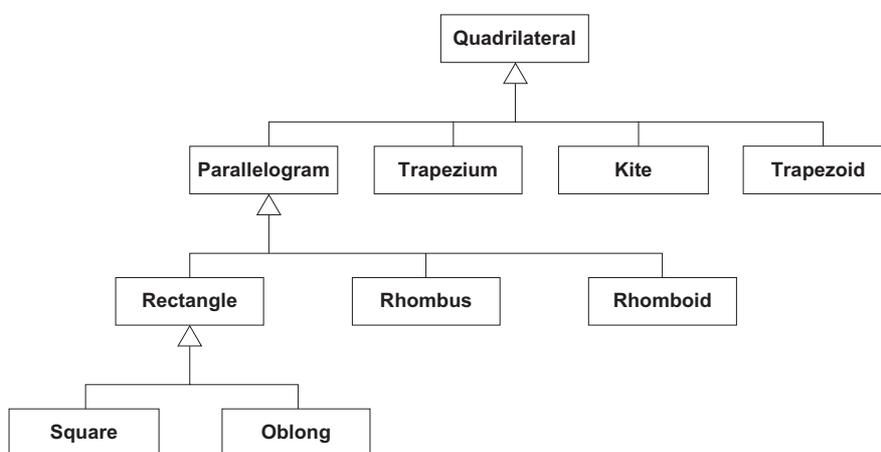
To give these meaningless structures meaning, as information and knowledge, the primal interpretative concept is **set**, again formed using Bohm’s universal method of bringing order to our thoughts, in conformity with the fundamental law of the Universe. Inspired by the relational model of data and object-oriented modelling methods in business, the next primal concepts are of **class, entity** (as **instance** of class), and **attribute**, corresponding to Plato’s universals and particulars<sup>233</sup> and Aristotle’s subjects and predicates.<sup>234</sup>

Having found the universal, egalitarian way in which we all form concepts, the following table and graph

Class name	Quadrilateral				
Attribute name	Name	Shape	Defining attributes		
			Parallel sides	Equality of adjacent sides	Angle
Attribute values	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.

illustrate the relationship between the tabular and graphical ways of organizing our ideas. The graph depicts some of the information in the table, called a class model in the object-oriented modelling methods, showing a generalization structure as levels of conceptual abstraction; **Quadrilateral**, **Parallelogram**, and **Rectangle** being abstract classes having no direct instances of their own.



There is no need to define the other primal concepts in the bootstrap program for Integral Relational Logic, for I did this comprehensively in Part I of a 1,300-page trilogy titled *Wholeness: The Union of All Opposites*, which I wrote during the five years following my retreat in the Altai Mountains in 2008. Feeling within myself, I broke free of the constraints of Western civilization to a much greater extent than I had managed previously, ambivalently thinking that I had been given the mission to complete the final revolution in science, just as Newton had completed the first in 1687 with *Principia*. Still feeling the creative energies pouring through me, in 2018, I wrote a more succinct exposition of how the universal science of reason had become manifest in consciousness in Chapter 2 of *Unifying Mysticism and Mathematics*.

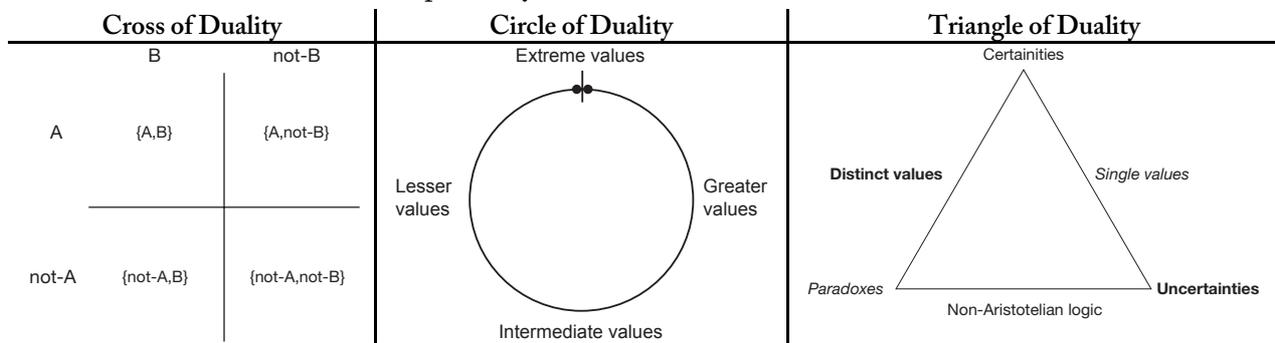
The key point here is that once I had been shown how to ‘execute’ the bootstrap program, I did not need it anymore. Still imagining myself to be a computer, Integral Relational Logic, lying in the Cosmic Psyche,

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then acted as an Integral Operating System, enabling me to ‘run’ any application, mapping any specialist discipline of learning.

Ken Wilber also called the framework for his integral studies an ‘Integral Operating System’ or IOS, “a neutral framework” that “can be used to bring more clarity, care, and comprehensiveness to virtually any situation”. His 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>235</sup> However, AQAL cannot include itself within its own creation. In contrast, IRL is like a virtual machine operating system, such as IBM’s Virtual Machine (VM), which can run many different operating systems including itself, unlike Microsoft’s Windows or Apple’s MacOS.

Another way of showing that AQAL is just a special case of basic constructs in Integral Relational Logic is with the **cross of duality**, one of three other ways of showing the relationships between opposites, depicted here. The four-quadrants model is a two-dimensional example, the dimensions being interior and exterior and individual and social. The exterior quadrants are labelled ‘It’, while the individual and social interior quadrants are called ‘I’ and ‘We’, respectively.<sup>236</sup>



The cross of duality is not restricted to just two dimensions. For instance, Jung’s theory of psychological types is a three-dimensional example, the dimensions being rational (thinking and feeling), irrational (intuition and sensation), and relating (extrovert and introvert).<sup>237</sup> Katharine Cook Briggs and her daughter Isabel Briggs Myers have extended this psychological typography into four dimensions with their Myers-Briggs Type Indicator (MBTI),<sup>238</sup> with ‘dichotomies’ listed in the adjacent table.

Extraversion (E)	Introversion (I)
Sensing (S)	Intuition (N)
Thinking (T)	Feeling (F)
Judging (J)	Perception (P)

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’, seeking bipartisan solutions to problems. Finding a balance between the individual and society is anathema to the extreme right and left, which sometimes have much in common with each other, for instance with both claiming to be libertarians. In between, we have socialism and conservatism, on the left and right, respectively. Given the chaos in society today, this model of political systems given to me in high school might seem overly simplistic. Nevertheless, underlying all the complexity of the world we live in are simple relationships if we care to look for them.

The **triangle of duality** 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 Unity, the fundamental law of the Universe.



One other key point I need to mention here is that because IRL is a non-linear system of thought, it is able to accommodate inconsistencies in a consistent manner, thereby resolving the crisis in the foundations

of mathematics that arose in the late nineteenth century when paradoxes were found in Georg Cantor's set theory.

We can trace this crisis right back to Aristotle's *Metaphysics*, where he said, "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>239</sup> This statement is known today as the Law of Contradiction, the implicit axiom for deductive logic and mathematical proof. By denying the irrefutable truth of the Hidden Harmony, Aristotle thus took Western thought into the evolutionary cul-de-sac it finds itself in today.

But we should not blame Aristotle for the mess the world is in today. The root cause of the chaos in society today is the experiential and cognitive split between humanity and Divinity opened up many thousands of years ago. Of course, as evolution has been more divergent than convergent during this period of noogenetic history, our fragmented minds also present a major difficulty. However, as none of us is ever separate from the Immortal Ground of Being for an instant, being specialists, with a limited vision, is of secondary importance.

What is of the highest significance is that when Judaism, Christianity, and Islam emerged in the Middle East during the first millennia either side of the birth of Jesus of Nazareth, each regarded God as 'other'. The religious authorities then sought to maintain this split so that they could control the populace through the fear of God, the word *fear* appearing more frequently than *love* in the King James translation of the Bible (400 to 310).<sup>240</sup>

On the other hand, the primary purpose of the scriptures of the principal religions in the East—Hinduism, Buddhism, and Taoism—has been to assist their followers to live in union with the Divine, free of the fear of death, allowing mystics in these religions to live freely with their wisdom. In contrast, mystics within the Abrahamic religions, as Kabbalists, Gnostics, and Sufis, have needed to be very careful what they said to avoid incurring the wrath of the ruling authorities. Not all managed to keep their inner understanding secret.

A particularly notorious example was that of the Sufi Mansur al-Hallaj, who suffered a most gruesome execution in Baghdad in 922 for declaring, "I am the Truth" (*Ana'l-Haqq*).<sup>241</sup> A less brutal example was that of Meister Eckhart, who was charged that many of his statements, abstracted from his popular sermons and writings, were evidence of heresy. In 1329, the ecclesiastical court found some of these to be heretical, a finding that Pope John XXII confirmed in a papal bull, stating that Eckhart "wished to know more than he should".<sup>242</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>243</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>244</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". 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>245</sup>



As realizing what it truly means to be human was a capital offence for hundreds of years, it was inevitable that the threat of such a punishment would be a major influence in the emergence of modern science in the

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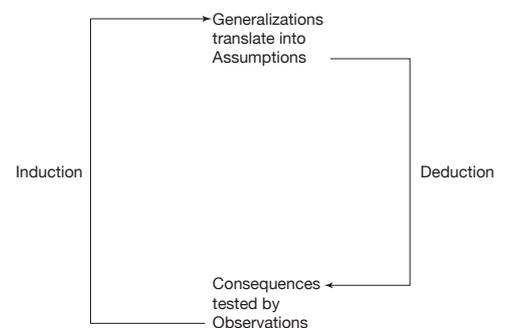
seventeenth century. In particular, just as the religious authorities sought to maintain a split between humanity and Divinity, since Bruno, scientists have based their studies of the world we live in on a split between humanity and 'Nature', with devastating ecological effects, not knowing that they were being blindly guided by natural evolutionary energies emerging directly from the Source.

Francis Bacon set the ball rolling in 1605 in *The Proficiency and Advancement of Learning, Divine and Human*, where he famously said, "the last or furthest end of knowledge ... [is] for the glory of the Creator and the relief of man's estate,"<sup>246</sup> reflecting the arrogant belief that human beings hold dominion over our natural environment. He repeated this sentiment in 1620 in the Preface to his magnum opus titled *Instauratio Magna, the Great Instauration or 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>247</sup>

Like his namesake Roger Bacon in the thirteenth century, Francis sought to transcend the limitations of the ancient Greeks, especially Aristotle's philosophy, in order to organize all knowledge into a coherent whole, today realized in Panosophy. Accordingly, 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>248</sup> In particular, Bacon argued vigorously that Aristotle's deductive logic was entirely unsuitable for the pursuit of knowledge in the 'modern' age.<sup>249</sup>

Then, outlining his plan for his magnum opus, which was never finished, 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>250</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>251</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 this diagram illustrates,<sup>252</sup> which I found in the early 1980s, when seeking to develop a radically new scientific method that would enable us to answer the most critical unanswered question in science. For there are inherent weaknesses in both deductive and inductive reasoning, which even Peirce's addition of abduction, finding causes from hypotheses, in his triadic architectonic could not resolve.



However, in 1739, the Scottish philosopher David Hume set a cat among the pigeons, pointing out that there are two serious weaknesses in the inductive method, logical and psychological. First, we cannot assume that "the course of nature continues always uniformly the same," that instances in the future, of which we have no experience, will resemble those from past experience. Yet, we make such assumptions because of habit,<sup>253</sup> not able to see the big picture. For instance, physicists estimate that the Sun, which was formed about 4.5 billion years ago, is destined to turn into a red giant and white dwarf in some five to six billion years time.<sup>254</sup> So sometime soon on the Cosmic timescale, there will be no one around to observe the planets circling the Sun, for both the Sun and the Earth will have disappeared.

As Karl Popper put it, scientific induction is based on "'custom or habit'; that is, because we are conditioned, by *repetitions* and by the mechanism of the association of ideas; a mechanism without which, Hume says, we could hardly survive."<sup>255</sup> Such habitual behaviour is widespread in the species, for, as Rupert

Sheldrake points out in *The Presence of the Past*, once a specific behaviour pattern is formed in evolution, it tends to repeat itself through habit.<sup>256</sup>

Since Hume, there have been many attempts to rescue scientific induction, not the least Popper's proposal that scientific facts cannot be absolutely verified; they can only be falsified by specific observations that contradict the general principles held at any one time. However, as A. F. Chalmers pointed out, even this approach is flawed because observation statements are theory dependent.<sup>257</sup> It is not possible to observe anything without some preconceptions of what is being observed.

Chalmers' solution to this problem is to view the universal statements constituting scientific knowledge as a structure, along the lines of Thomas S. Kuhn's *The Structure of Scientific Revolutions* and Imre Lakatos's 'Falsification and the Methodology of Scientific Research Programmes'. The former is most famous for the observation that occasionally science takes a radical change of direction, which he called a *paradigm change* or *paradigm shift*, using these terms twenty-three and six times, respectively.<sup>258</sup> And at the heart of Lakatos's scientific method is the notion of a *hard core* that can never be changed.<sup>259</sup> "Any scientist who modifies the hard core has opted out of that particular research programme,"<sup>260</sup> typically being ostracized by her or his colleagues. In effect, science is thus as much a subjective, social activity—like any other human enterprise, such as politics—as an objective, rational process.

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>261</sup>



As certainty cannot be found in science, Russell then turned to mathematics to find an indisputable truth on which all knowledge could be based. In illustration, Russell 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.<sup>262</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>263</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>264</sup>

The crisis in the foundations of mathematics can be seen most simply when we define the largest set, as the set of all sets. For Cantor proved that the power set of any set, even infinite ones, is strictly larger than the set. 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} {}}. Similarly, the power set of the countable set of rationals, denoted with  $\infty$ , is an uncountable set, with  $2^\infty$

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members, strictly larger than  $\infty$ . In turn, the power set of this set, and the sequence of infinite power sets that are generated from it, is larger than the previous one. As even the concept of very large finite numbers (a small one being a googolplex =  $10^{\text{googol}} = 10^{10^{100}}$ )<sup>265</sup> is very difficult for the counting mind to comprehend, never mind the concept of the largeness of the infinity of infinite numbers, I resolve these dilemmas by transcending the categories in the Nothingness of the Ineffable Transfinite, as Ultimate Reality.

More prosaically, paradoxes inevitably arise in reasoning if we make the natural assumption that any property of data elements may be used to form a set, without restriction, known as 'naive set theory'. For example, if we assume the universal truth of Aristotle's Law of Contradiction, then sets either include themselves as members or not. However, if we let  $R$  be the set of all sets which are not members of themselves, then  $R$  is neither a member of itself nor not a member of itself, a dilemma known as Russell's Antinomy,<sup>266</sup> which Haskell B. Curry called a 'pseudoparadox'.<sup>267</sup>

One example is a library that compiles a bibliographic catalogue of all (and only those) catalogues that do not list themselves. Then does the library's catalogue list itself?<sup>268</sup> Another well-known example is that of the Barber of Seville, who shaves all the men in Seville who do not shave themselves. So, if the barber does not shave himself, he must shave himself.<sup>269</sup>

I haven't studied the contortions that mathematicians and logicians went through to exclude the fundamental law of the Universe from human reason in much detail, for this has not been relevant to my primary purpose in life: to answer the three basic existential questions of humankind so that my wounded mind and psyche could be healed in Wholeness. What I do know is that Russell tells us that he spent some twenty years of arduous toil on this futile task and eventually came to the conclusion that there was nothing more that he could do in the way of making mathematical knowledge indubitable.<sup>270</sup>

After five years studying the foundations of mathematics, in 1903 Russell wrote *Principles of Mathematics* in which he proposed a 'theory of types' to avoid paradoxes and hence to find the truth in mathematics. In this, he distinguished terms and individuals from their ranges of significance, determined, for instance, when grouped in classes.<sup>271</sup> 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>272</sup>

Russell then sought to incorporate the theory of types in the 2,000-page *Principia Mathematica*, which he co-authored with Whitehead, the author of *Universal Algebra* <sup>273</sup> and one of Russell's teachers at Cambridge,<sup>274</sup> taking 360 pages to prove the proposition ' $1 + 1 = 2$ '.<sup>275</sup> To avoid what they called a 'vicious circle', they defined a hierarchy of types in which "Whatever involves *all* of a collection must not be one of the collection." Accordingly, Whitehead and Russell 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>276</sup>

In other words, it is not valid in conventional logic to make any statements about 'all humans', about what we all share in the utmost depths of being, essential if we are to cocreate World Peace. Furthermore, as the theory of types outlaws self-referencing statements, such constrictions cannot help us to understand what it truly means to be human. For, self-inquiry requires us to reference ourselves.

Then in the early 1920s, David Hilbert sought to establish a new axiomatic foundation for mathematics in which metamathematical reasoning could prove the axioms to be consistent and that all theorems could be proven from the axioms.<sup>277</sup> The importance of what mathematicians call consistency in linear systems of thought is well illustrated by this little anecdote:

## *Humankind*

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>278</sup>

But, as paradoxes are ubiquitous in the Universe, it is not possible to eliminate them from human reasoning if we are to develop valid maps of the territory we live in. Using a most ingenious numbering system—allocating unique numbers to mathematical symbols, to statements, as a sequence of symbols, and to proofs, as a sequence of statements—in 1931, Kurt Gödel proved that Hilbert’s aspirations were unattainable. In what is called the incompleteness theory, he proved a theorem, which humans can see is true, to be unprovable.<sup>279</sup> The notion of truth in mathematics is more fundamental than that of proof.

Then, in 1936, Alan Turing knocked a further nail in the coffin of mechanistic reasoning, with what is known as the decision problem. He envisaged a universal machine that could solve any problem given it. Such a machine would eventually need to halt giving the solution to the problem. However, Turing also proved that no algorithm could determine whether the machine would ever halt. He did so by feeding the results of the algorithm back into the machine, thereby creating a paradox like “This statement is false.”<sup>280</sup> As a corollary, there are computability problems which do not necessarily give definite solutions.<sup>281</sup>

Then in *Mathematics: The Loss of Certainty*, which I read in the early 1980s, just as I was starting to develop the universal science of reason, Morris Kline explained the failure of mathematics to establish itself on the irrefutable truth on which we could base our lives. He told us that mathematicians have developed four ways to give mathematics a sound foundation, none of which were very satisfactory: logicism, intuitionism, formalist, and set-theoretic.<sup>282</sup> As he said, we are still a long way of fulfilling Newton and Leibniz’s dream of using mathematics to understand the wonders of the Divine.<sup>283</sup>

It is not only in mathematics that there has been a loss of certainty. The paradoxes of quantum physics have also led to the ‘Absurdity of Certainty’,<sup>284</sup> the title of a film that Jena Axelrod made with David Peat, the founder of the Pari Center in Italy, promoting the ideas of Bohm and Jung. Paradoxical quantum superposition, leading to entanglement, is illustrated in popular culture by Schrödinger’s cat, a thought experiment in which the cat can apparently be both alive and dead at the same time.<sup>285</sup>

But while certainty cannot be found in superficial symbolic knowledge, this does not mean that it doesn’t exist. Our inner knowing of the Divine, as Gnosis, provides the Foundational Certainty we need to rebuild the entire world of learning on first the Truth and then on the irrefutable truth of the Cosmic Equation and Principle of Unity, unifying all opposites, even those that are contradictory.



This means that we need to look afresh at humankind’s search for a mathematical representation of human behaviour, or, at least, of human creativity and reasoning, far more profound than neuroscience. In modern times, this quest began with Leibniz, who envisaged that logical relations could be expressed in symbolic or algebraic form.<sup>286</sup> In particular, he distinguished two components in his ambitious project to create a mathematical logic, corresponding to what I originally called passive and active data. As Jaakko Hintikka tells us:

On the one hand, Leibniz proposed to develop a *characteristic universalis* or *lingua characteristic* 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>287</sup>

George Boole began the attempt to fulfil Leibniz’s vision as the result of a life-changing mystical experience he had as a seventeen-year-old in 1833, although he was unaware of Leibniz’s aspirations at the time. This led him to write a paper in 1844, titled ‘On a General Method in Analysis’,<sup>288</sup> which helped free

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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.”<sup>289</sup> Even though Boole did not have a degree in mathematics, being an autodidact, Boole was awarded the Royal Society’s first gold medal for mathematics, known as the Royal Medal,<sup>290</sup> for this paper.

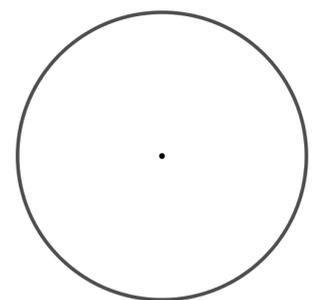
Then, in 1854, Boole wrote his magnum opus *An Investigation of the Laws of Thought on Which Are Founded the Mathematical Theories of Logic and Probabilities*, which begins, “The design of the following treatise is to investigate the fundamental laws of those operations of the mind by which reasoning is performed,” with the purpose of exploring “the nature and constitution of the human mind”.<sup>291</sup> Bertrand Russell later described this book as ‘the work in which pure mathematics was discovered’.<sup>292</sup>

Even though computers are often regarded as numerical calculating machines, at the heart of their central processing units lies Boolean algebra, on which the basic arithmetical operation of the addition of bits (*binary digits*) is based.<sup>293</sup> However, if we are to be free of the mechanism of our thinking, understanding human creativity and hence how everything comes into existence, we need to be free of the notion that mathematics is a language. Galileo is generally regarded as the originator of this principle, when he said, the Book of Nature is “written in mathematical language, and its characters are triangles, circles and other geometric figures, without which it is impossible to humanly understand a word; without these, one is wandering in a dark labyrinth.”<sup>294</sup>

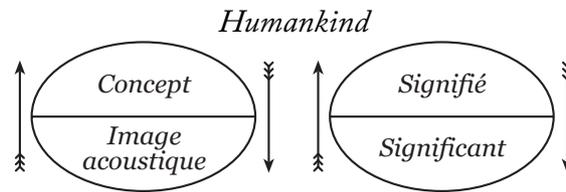
Yet, as we see from Einstein’s letter on page 7, something is going on in mathematicians’ minds before they can express what they see within in mathematical symbols. It is thus essential to note that mathematical objects, such as circles and numbers, do not have mass and so are not located in the physical universe. Rather, they reside in the Cosmic Psyche, as nonmaterial beings.

For instance, what and where is a circle? In *The Elements*, Euclid gave this definition: “A **circle** is a plane figure contained by one line such that all the straight lines falling upon it from one point among those lying within the figure are equal to one another.” This was the fifteenth definition of basic mathematical objects that he gave in Book I, the first two being “A **point** is that which has no part,” and “A **line** is breadthless length.” The sixteenth definition was “And the point is called the **centre** of the circle.”<sup>295</sup>

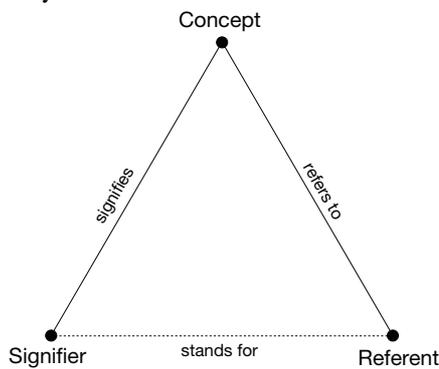
So, this diagram of a circle is not a circle in a pure mathematical sense, for the circle has mass when printed on paper or displayed on a computer screen. Rather, it is an *expression* of the *mental image* of a circle, which we draw to communicate that which we see within us with our inner eyes. Furthermore, *n*-dimensional objects do not have a corresponding physical existence, but are quite amenable to study with suitable mathematical techniques.



If we are to understand the relationship of our conceptual models to the territories that they map, we need to revisit this critical issue, outlined on page 9. Most significantly, our maps are more than might be included in an atlas or a GPS device, for instance. Ferdinand de Saussure and Charles Sanders Peirce, the founders of semiotics around the turn of the twentieth century, viewed maps in inner and outer forms, as concepts and as words, sounds, and other signs that denote them. This is a distinction that Ferdinand 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 here.<sup>296</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. 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 driven 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 the triadic view of logic and philosophy that Peirce spent a lifetime developing. This is illustrated in what J. F. Sowa of IBM calls the ‘meaning triangle’ in *Conceptual Structures*,<sup>297</sup> inspired to do so by *The Meaning of Meaning* by C. K. Ogden and I. A. Richards.<sup>298</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 philosophers, focusing more attention on language than on the conceptual structures underlying language.

Now, the meaning triangle is just as applicable when mapping the content of the Cosmic Psyche as it is when mapping our external environment. So, by viewing the billions of fragmented conceptual models as referents, Life has shown me how Integral Relational Logic brings universal order to all the confusion that that has prevailed for thousands of years of human learning.

But not only does this universal system of thought emerge directly from the Source, so do all mathematical structures, which are also referents in the Cosmic Psyche, invisible to the physical senses. Viewing mathematics as the art and science of patterns and relationships in the vertical dimension of time has thus been key to my mental health. After sixty years, I have thereby recovered from the depression I suffered in the early 1960s as an undergraduate because what I was being taught in mathematics and logic could not heal the split between science and spirituality.



However, to use the abstractions of mathematics to develop the universal science of reason, there is another deep wound in the cultural psyche that we need to heal: the split between logic, as the science of mind and reason, and psychology, as the science of mind and consciousness.

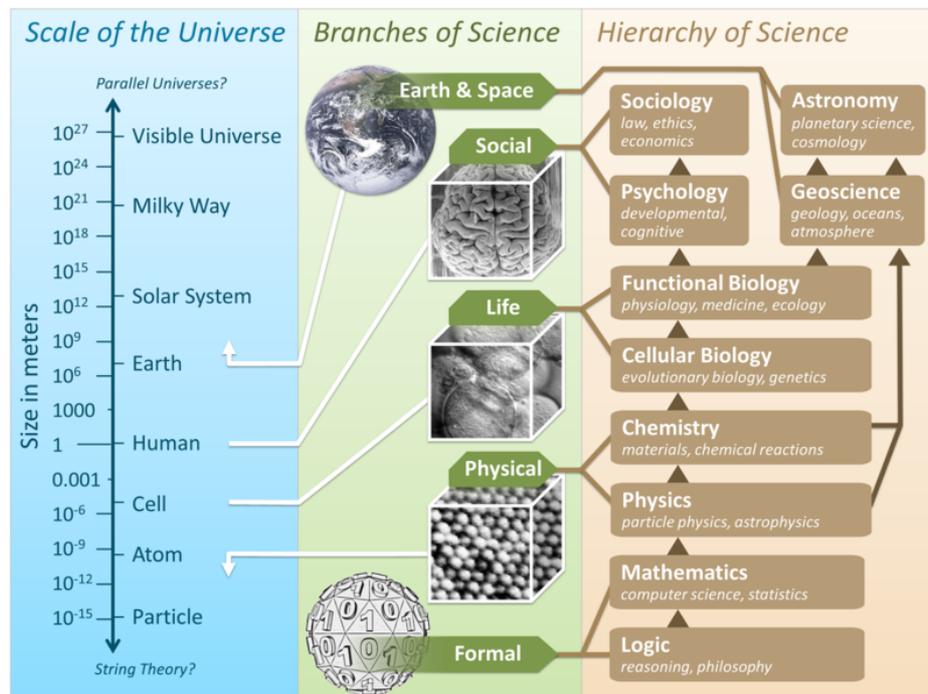
Peirce, who greatly admired Boole, emphasized this split in 1865. In the first of a series of lectures ‘On the Logic of Science’, he stated that all the definitions of logic that had evolved during the previous two millennia could be divided into two classes: “those which do not and those which do give to logic a psychological or human character”.<sup>299</sup> In examining the relative merits of these two views of logic, Peirce said, “we ought to adopt a thoroughly unpsychological view of logic”,<sup>300</sup> focused more on the structure of meaningless symbols than on meaningful conceptual understanding. Peirce reiterated his determination to

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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>301</sup>

Bertrand Russell took a similar view, notably agreeing with Gottlob Frege that there is no psychological element in logic.<sup>302</sup> He did so in a famous letter in which Russell pointed out to Frege that the latter’s dream of developing Leibniz’s *lingua characteristica*, by providing arithmetic with a sound foundation, was doomed to failure. Russell was amazed at Frege’s humble reply six days later, saying, “when upon finding that his fundamental assumption was in error, he responded with intellectual pleasure clearly submerging any feelings of personal disappointment.”<sup>303</sup>

Today, the split between logic and psychology is even wider, as this diagram, posted on Wikipedia in 2013, indicates.<sup>304</sup>



In my experience, unifying psychology and logic, taking the abstractions of mathematics to the utmost level of generality, has had a wonderful therapeutic benefit, counteracting the opinions of some pure mathematicians that such powerful levels of abstraction have no practical application. For instance, this was the view that G. H. Hardy and A. N. Whitehead took when writing about their experiences. Hardy, as a mathematical analyst, felt that he needed to make an apology for his occupation, 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>305</sup> Hardy called pure mathematics ‘serious’ rather than ‘trivial’.<sup>306</sup> To Hardy, “A mathematician, like a painter or a poet, is a maker of patterns.”<sup>307</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>308</sup> Hardy was “interested in mathematics only as a creative art”.<sup>309</sup> In the words of Whitehead, “The science of Pure Mathematics ... may claim to be the most original creation of the human spirit,” one possible rival being music.<sup>310</sup>

In Hardy’s words, there is “a certain generality and a certain depth”<sup>311</sup> in pure mathematics. By generality, he meant “A significant mathematical idea ... should be one which is a constituent in many mathematical

constructs.”<sup>312</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>313</sup> which are quite irrelevant. It is the task of mathematics to discover a “pattern of relationships among general abstract conditions”.<sup>314</sup> Similarly, when studying the ubiquitous application of the logistics or growth curve, the mathematical biologist D’Arcy Wentworth Thompson said mathematics generalizes and “is fond of giving the same name to different things”.<sup>315</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>316</sup> As Hardy said, “a property common to too many objects can hardly be very exciting.”<sup>317</sup>

By depth, Hardy meant “ideas that are usually the harder to grasp”.<sup>318</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>319</sup>

However, it is not true that a property common to too many objects can hardly be very exciting, as I know from my own experience. For what has been revealed to me by taking the abstractions of pure mathematics to the utmost level of abstraction has carried me back into oceanic ecstasy, just like my earliest intrauterine experiences.

First, from the perspective of pure mathematics, as mathematical objects live in the Cosmic Psyche, as referents in the triangle of meaning, I use Integral Relational Logic to create a coherent conceptual model of mathematics, viewed as the science of patterns and relationships emerging directly from the Divine Origin of the Universe. To get started with the evolution of mathematical structures, I therefore don’t need the Zermelo–Fraenkel axioms of set theory, with or without the debatable axiom of choice. Although these thought processes are invisible to the physical senses, I have been able to find signifiers to describe this mystical view of mathematics in Chapter 3 of my book *Unifying Mysticism and Mathematics*, titled ‘From Zero to Transfinity’.

For *zero* derives from Medieval Latin *zephirum*, from Arabic *ṣifr* ‘empty’, a loan translation of Sanskrit *śūnya* ‘empty’, the name that the Indians gave for the glyph 0 when they included it with the other nine digits we mistakenly call Arabic numerals today, which Leonardo of Pisa (Fibonacci) introduced in the 1200s in *Liber Abbaci* (*Book of Calculation*).<sup>320</sup> At the other end of the scale, we can take Georg Cantor’s infinity of infinities in set theory into the Transfinite, thereby showing how mathematics too completes the Cosmogonic cycle, from the formless to the unmanifest via the world of form.

Furthermore, being free of the mechanical linearity of mathematical proofs, from which no new concepts can ever arise, we can address some of the critical issues that Eugene Wigner raised in 1960 in ‘The Unreasonable Effectiveness of Mathematics in the Natural Sciences’. For instance, he said, “The principal emphasis is on the invention of concepts. Mathematics would soon run out of interesting theorems if these had to be formulated in terms of the concepts which already appear in the axioms.”

Similarly, when studying the Category of the Ultimate, Whitehead said, “‘Creativity’ is the principle of *novelty*,” leading to ‘the production of novel togetherness’, which he called ‘concrecence’, a ‘growing together of parts originally separate’. So, even when viewing ‘reality’ as a process in one dimension, new concepts can arise in a holistic manner, like waves and ripples on the surface of the holoflux. But Whitehead went on to say that this worldview cannot be established rationally. Rather, “The sole appeal is to intuition.”<sup>321</sup>

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To explain creativity and novelty rationally, and hence Bohm's theory of the Implicate Order, we need to address the central issue of Wigner's paper, in which he also said, "The enormous usefulness of mathematics in the natural sciences is something bordering on the mysterious and ... there is no rational explanation for it." Well, we can explain this mystery when we realize that the creative power of Life flows through the mathematical structures lying in the Cosmic Psyche to form structures in the world around us, which can be mapped mathematically. For instance, inspired by a Mathologer video on YouTube,<sup>322</sup> in Chapter 4 of *Unifying Mysticism and Mathematics*, I explain how the number of spirals in each interweaving set generated in the sunflowers in our gardens follow the Fibonacci sequence, the archetypal generative sequence in mathematics, seen widely in the outer expressions of Nature.



Having shown that mathematical thinking and reasoning is essentially psychological, we still face an enormous challenge to intelligently establish mystical psychology as the primary science, transcending the intellect. With both the religious and scientific authorities resolutely holding on to their traditional belief systems, William James summarized the challenges and opportunities in 1892 in the final paragraph of *Psychology: Briefer Course*, an abridgement of the two-volume *Principles of Psychology*, written two years earlier. He saw psychology, which George Trumbull Ladd defined "as the *description and explanation of states of consciousness as such*",<sup>323</sup> as:

A string of raw facts, a little gossip and wrangle about opinions, a little classification and generalization on the mere descriptive level; a strong prejudice that we have states of mind, and that our brain conditions them: but not a single law in the sense in which physics shows us laws, not a single proposition from which any consequence can causally be deduced. We don't even know the terms between which the elementary laws would obtain if we had them. This is no science, it is only the hope of science. ... But at present psychology is in the condition of physics before Galileo and the laws of motion, of chemistry before Lavoisier and the notion that mass is preserved in all reactions. The Galileo and the Lavoisier of psychology will be famous men indeed when they come, as come they some day surely will. ... Meanwhile the best way in which we can facilitate their advent is to understand how great is the darkness in which we grope, and never to forget that the natural-science assumptions with which we started are provisional and revisable things.<sup>324</sup>

At the beginning of the twentieth century, Eugen Bleuler, who coined the words *schizophrenia* and *ambivalence*, held a similar view as the director of the prestigious Burghölzli Mental Hospital in Zürich. As Sonu Shamdasani tells us in his introduction to Jung's monumental *The Red Book*: "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>325</sup>

However, progress was slow. In 1935, 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). He added, "[Psychology] is the science of what we call the unconscious psyche," a science he said had not yet left the cradle.<sup>326</sup>

In the 1930s, Jung also set out to develop a coherent *Weltanschauung*, healing the fragmented mind with a synthesis of the sciences. As Sonu Shamdasani tells us in *Jung and the Making of Modern Psychology*, "To counteract this situation [the detrimental effects of specialization], and to provide a 'complete picture of our world', information from all branches of knowledge needed to be collated together. This could be attempted by finding a platform or idea common to many forms of knowledge. ... From the foregoing, it

is clear that Jung conceived the cultural role of complex psychology to be to counter the fragmentation of the sciences, and to provide a basis for a synthesis of all knowledge. This attempt to counter the increasing fragmentation and specialization of disciplines was an enormous, and ultimately insurmountable task.”<sup>327</sup>

Then, in 1957, in the second of four interviews with Richard I. Evans, Jung said, “The world hangs by a thin thread, that is the psyche of man,” going on to say, “The psyche is the great danger,” which could lead to catastrophe, global catastrophe. For Jung was speaking when the threat of the H-bomb—an invention of the mind—was hanging over the global population.<sup>328</sup>

Fromm had a similar concern. In 1976, after three decades exploring the symptoms of our grievously sick society, he wrote in his greatest masterpiece *To Have or To Be?* that if we are to avoid economic and psychological catastrophe, “We need a Humanistic Science of Man as the basis for the Applied Science and Art of Social Reconstruction.”<sup>329</sup> However, he 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>330</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>331</sup>

During the past fifty years, Stanislav Grof has been a leading advocate of the *Psychology of the Future*, publishing a book with this title in 2000, recognizing the central role of pre- and perinatal experiences on later development. Continuing this theme, he then made a proposal for ‘Discovering the Psychology of the Future’, the title of a webcast on 26th July 2016 and the subject of a seven-week course organized by the Shift Network titled ‘Psychology of the Future: Exploring the Leading Edge of Consciousness, Healing & Self-discovery’.<sup>332</sup> As Stan has said in a YouTube video titled ‘The Root Cause of the Global Crisis’, such a holotropic psychology is essential for the survival of the human species.<sup>333</sup>

However, progress is still slow. For instance, Uta Frith, emeritus professor at the Institute of Cognitive Neuroscience, University College London, pointed out that the scientific establishment is very far from accepting psychology in any form as a valid science. In an interview in *The Guardian* on 30th November 2015 under the rubric ‘Where next for the Royal Society?’ to mark Venki Ramakrishnan taking over as the President of the Royal Society, she said,

My own field, call it psychology, or cognitive or behavioural neuroscience, still leads a rather shadowy existence in the hallowed halls of science. Although nearly 100 years old, it is far from maturity. There is as yet no Newton. Many would agree that one of the biggest scientific challenges this century is to understand the mind-brain. So I dare hope that it will be possible to increase the number of outstanding scientists in this field, currently representing less than three per cent of the Fellowship.

This would lead to an increase in the prestige of mind-brain studies and attract more brilliant young researchers. One reason for the currently poor reputation of psychology is the obstinate belief that we already know what goes on in our mind, and that we can explain why we do what we do. This naïve belief will be overcome by improved communication of empirical findings, and especially of those that go against ingrained folk psychology. It’s not rocket science. It’s a lot harder than that.<sup>334</sup>

There we are. While some light has been shone into the darkness since James’s time, the belief that the physical universe of mass, space, and time is the Universe still pervades Western thought. Most significantly, none of us can understand what it means to be human by studying the structure of our brains or DNA molecules in our cells, which are inaccessible to our own physical senses. On the other hand, what

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is available for self-inquiry is the Cosmic Psyche, as we discover if we have the courage to look inwards, free of our mechanistic conditioning. So, we can only understand the functions of our cells and brains after we have mapped the Cosmic Psyche in the context of Wholeness.

Sadly, however, even though we can only be at Peace when we transcend the categories in Nonduality, the war between science and spirituality continues to be fought, as *War of the Worldviews: Science vs. Spirituality* demonstrates. In this book, Deepak Chopra, a medical practitioner and renowned spiritual teacher, and Leonard Mlodinow, co-author with Stephen Hawking of *The Grand Design*, 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 an 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>335</sup>

There we have it. As I said in the Author's note, everyone thinks they know what it means to be human from our personal experiences, specialist occupations, and cultures we live in. Yet, although I have found a couple of references on the Internet to the Cosmic Psyche, the existence of this vast expanse, the last frontier of human exploration, is rarely acknowledged, never mind mapped in an orderly fashion. Even the psychologists I heard speak at a conference in 2018 on 'Exceptional Experiences', organized by the Consciousness and Experiential Psychology group of the British Psychological Society, presented the results of their inquiries within traditional cultural frameworks, occasionally turning to the East for inspiration. There was thus little opportunity to explain how my own exceptional experiences could establish mystical psychology, as the study of the utmost depth and breadth of the psyche, as the primary science.

This is rather surprising. For while Jung found that establishing psychology as the fundamental scientific discipline was an insurmountable task in the 1930s, beyond any particular school of psychotherapy,<sup>336</sup> surely there must be some interest in learning how the abstract modelling methods underlying the Internet have evolved into transcultural, transdisciplinary Integral Relational Logic. For, while my unprecedented life experiences appear to be anomalous within the context of the prevailing culture, I regard what has been revealed to me as a Panosopher to be entirely natural, which anyone could intuitively understand if they were as free of their conditioning as Vimala Thakar and Osho, for instance.

Accordingly, when I meet people, I look through their filters, seeing the beauty of what we all share in the depths of being, but saddened that this understanding is rarely reciprocated. Nevertheless, such interactions have been key to my spiritual awakening, turning painful loneliness into blissful aloneness, recognizing that as I am Wholeness, there is nothing and no one outside me.



Naturally, one of the most significant aspects of psychotherapy that I have been interested in is the effects of pre- and perinatal traumas on later development in education and work. In a way, I was lucky that there was little understanding of this critical issue in the 1950s, when I suffered much depression. For, otherwise, I might have been put on drugs, which would have prevented me from being healed during the second half of my life.

As I mentioned on page 2, Stan Grof's *The Holotropic Mind* helped me enormously with this healing process after I met David Wasdell in 1984, then a pioneering primal therapist. Today, there is a growing recognition in some circles, at least, that traumatic experiences in early life are the cause of much distress in later life. Thomas Hübl, founder of the Academy of Inner Science, is a leading light in this field, writing *Healing Collective Trauma* in 2020, the subject of many of his courses.

Then this year, Maurizio and Zaya Benazzo, cofounders of the Science and Nonduality (SAND) conferences, produced and directed a documentary film titled *The Wisdom of Trauma*, highlighting the work of Gabor Maté, who has been holding a course titled 'Returning to Wholeness: A Guide to Understanding and Integrating Trauma'. I am not familiar with the methods that such mystics and medical practitioners are using, for Life has found a far more radical approach to healing my own traumas through an apocalyptic awakening.

I say *apocalyptic* because *apocalypse* is a translation of Greek *apokalupsis*, from *apokaluptein* 'to uncover' or 'to reveal', from the prefix *apo* 'from, away' and *kaluptra* 'veil'. So *apocalypse* literally means 'draw the veil away from', indicating the disclosure of something hidden from the mass of humanity: the Principle of Unity. However, what was initially revealed to me is that active and passive data in humans and computers are synergistically causal. But it was not until I acknowledged the existence of the Cosmic Psyche that I understood how this insight was healing my prenatal trauma, helping me to understand what it truly means to be human, embraced by and grounded on the Divine.

Although this remedy is not generally applicable, as there is still much scepticism in society in the way that our early experiences, especially those hidden in the womb before we are born, affect us later in life, I feel that it is useful here to describe some of the research that I did on the historical studies of pre- and perinatal traumas in 2017, extracted from my book *The Psychodynamics of Society: From Conception to Death*.

The first reference I found on this theme was *Religio Medici* 'The Religion of a Physician' by Thomas Browne. He was a medical practitioner living in Norwich, England, who wrote these words, unofficially published in 1642: "Every man is some months older than he bethinks him, for we live, move, have being, and are subject to the actions of the elements and the malice of diseases, in that other world, the truest microcosm, the womb of our mother."<sup>337</sup>

I came across these words in the Prelude to the 1987 edition of Roy Ridgway's *The Unborn Child: How to Recognize and Overcome Prenatal Trauma*, which Simon H. House extended in 2006 with this subtitle: *Beginning a Whole Life and Overcoming Problems of Early Origin*. This book popped up from a Google search for the latest medical understandings of prenatal traumas on later development in life.

Regarding Browne's book, which I also had not heard of before, Wikipedia describes it as a "spiritual testament and an early psychological self-portrait", in which Browne "uses scientific imagery to illustrate religious truths as part of his discussion on the relationship of science to religion".<sup>338</sup> On reading this book in 1802, Samuel Taylor Coleridge wrote in the margin of his copy, "Yes—the history of man for the nine months preceding birth would probably be far more interesting and contain events of greater moment than all the three score and ten that follow it."<sup>339</sup> Regarding the autobiographical theme of this work, Virginia Woolf's opinion was that "*Religio Medici* paved the way for all future confessionals, private memoirs and personal writings".<sup>340</sup>

In more modern terms, the first references I have found to pre- and perinatal psychology are in the writings of Sigmund Freud. For instance, in the preface to the second edition of *The Interpretation of Dreams*, written in the summer of 1908, the editors of his *Collected Works* tell us, "At the end of some discussion of phantasies about life in the womb, he went on ... 'Moreover, the act of birth is the first

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experience of anxiety, and thus the source and prototype of the affect of anxiety.’” It seems that this idea had lain dormant in Freud’s subconscious for some years, for he recalled in 1917 that a midwife had pointed out to him about 1884 that there is a connection between birth and being frightened.<sup>341</sup>

Then, after the subject had lain fallow for some years, Freud spoke of birth as “the first great anxiety-state” at the end of the last paragraph but two of *The Ego and the Id* in 1923. It seems that he was led to do so from conversations that he had had with Otto Rank in September 1922,<sup>342</sup> before the latter published *The Trauma of Birth* in 1924, translated into English in 1929. As Rank wrote in the Preface, “After a thorough examination of the Unconscious, ... we are led to recognize in the birth trauma the ultimate biological basis of the psychical.”<sup>343</sup>

Although Freud had referred to Rank as a friend and loyal collaborator of some fifteen years in *An Autobiographical Study* written in August and September 1924, unlike Jung and Alfred W. Adler,<sup>344</sup> Rank’s book led to a split with Freud, who explains his reasons in *Inhibitions, Symptoms and Anxiety*, published in 1926. Freud states that his principal objection to Rank’s theory is that Rank “assumes that the infant has received certain sensory impressions, in particular of a visual kind, at the time of birth, the renewal of which can recall to its memory the trauma of birth and thus evoke a reaction of anxiety. This assumption is quite unfounded and extremely improbable. It is not credible that a child should retain any but tactile and general sensations relating to the process of birth. ... Moreover, the fact that while man shares the process of birth with the other mammals he alone has the privilege over them of possessing a special disposition to neurosis is hardly favourable to Rank’s theory.”<sup>345</sup>

What Freud does not recognize here, in his sardonic manner, is that unlike the other mammals, living primarily in the biosphere, humans are also symbol-creating beings functioning in the noosphere, also unlike computers, which are data-manipulating machines. And until we understand how we humans have been using symbols for thousands of years, often revealed in dreams, we cannot be fully healed as individuals and as a species. For, as Freud himself acknowledged, “Anxiety is the reaction to danger. ... The process of birth is the first situation of danger.”<sup>346</sup>

Therein lies the central issue of our times. We can only deal with the anxieties that might arise from the threat of algorithmic computers taking over the workplace, rapid global heating, and other existential risks when we recognize that humans live within the overall environment of the noosphere and Numinosphere, as I explain in my evolutionary book *The Four Spheres: Healing the Split between Mysticism and Science*.

Regarding anxieties and other psychological disturbances that can arise from pre- and perinatal traumas, a wealth of evidence from clinical inquiries that these need to be taken into consideration in depth psychology has been gathering apace since the Second World War. For instance, in 1949, Nandor Fodor, who was one of Rank’s analytical clients, wrote an amazing book titled *The Search for the Beloved: A Clinical Investigation of the Trauma of Birth and Prenatal Conditioning*, signed by the author in 1953 in the copy I borrowed from Stockholm University library, originally deposited in the Swedish Psychoanalytical Association. This book begins with these words in a chapter titled ‘Birth or Death’:

Birth is a change-over from one life to another. After nine months of peaceful development, the human child is forced into a strange world by cataclysmic muscular convulsions which, like an earthquake, shake its abode to the very foundations. As if carried on the crest of a wave, the child is dashed not once or twice but without cessation for hours or days against the rock of the pubic arch. No adult could survive a similar ordeal, but Nature decreed that the child should. In its shattering effect, birth can only be paralleled by death.<sup>347</sup>

The subtitle indicates that Fodor based his study of pre- and perinatal traumata on his clinical practice, illustrated by many case studies in his book. In the Foreword, he said that his work was independent of that of Rank, who Fodor regarded as more philosophical. He therefore illustrated his thesis with many examples from his psychotherapeutic practice.

### *Humankind*

At the core of all these is that the widespread fear of death begins with birth, which has led, through the ages, for the search for the Beloved, by returning to the bliss of the mother's womb, as 'oceanic ecstasy', the theme of Book II of Fodor's book. As Joseph Campbell pointed out in the same year, these searches are the central theme of many myths and fairy tales through the ages, seeking for the Divine in myths and for an idealized princess or prince in fairy tales.

We thus see here how the universal spiritual journey in the individual recapitulates the phylogeny of the entire species from conception to death, which, in turn, recapitulates the Cosmogonic Cycle of the Universe. The search for Utopia in the collective is both based on a memory of intrauterine contentment and on the myths of a golden age at the birth of humanity as *Homo noeticus*.

For instance, Chögyam Trungpa described the Tibetan Shambhala as a mythical "place of peace and prosperity, governed by wise and compassionate rulers",<sup>348</sup> called 'Shangri-La' in James Hilton's 1933 novel *Lost Horizon*. Similarly, the Hindu calendar 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, to illustrate the accelerating pace of evolutionary change. 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.<sup>349</sup>

Recapitulating human phylogeny in this manner happens when the nine-month gestation period has been relatively uneventful. However, Book III of Fodor's book explores the more unusual circumstances when the embryo or fetus has suffered a prenatal trauma, such as a failed abortion or a death in the mother's family, which Grof called the 'bad womb'. Under these circumstances, the healing quest is much tougher yet far more motivated.

There then followed three even more astonishing books as Francis J. Mott sought to derive universal, cosmological principles from our pre- and perinatal experiences, studied in many experiments with his clients. In the third of these, an 800-page tome titled *The Universal Design of Creation* from 1964, Mott wrote:

I am a mutant in the field of thought, and can rely on little support from any *specialist* field. Yet fundamentally the material of this book is of universal interest, and I think a successful approach to it can be made by anyone who is patient enough to withstand the first shocks, and willing to rely upon scientific principle rather than upon the word of established authority.<sup>350</sup>

The title page of this book summarizes its purpose, as a rather long subtitle:

*The omnipresence of a single pattern and rhythm of integration in all form, inorganic and organic, social and mental, demonstrated by the application of the experimental method of science to fields of the imponderable and the nonmetrical, resulting in the establishment of the foundations of a configurational science and a universal morphology.*

Although Mott's work was totally ignored by mainstream psychoanalysts, Ridgway tells us, it did win the approval of a number of poets and scientists, impressing Jung, and "was hailed by one eminent scientist, Gustav Stromberg, as 'a world picture of logical consistency and great beauty'."<sup>351</sup> Mott was fortunate in having friends to finance publication, his first book *The Nature of the Self* in 1959 being initially published by the aptly named Integration Publishing Company.

Not surprisingly, Mott discovered the same pattern underlying the Cosmos that Jung, many others, and I have done. Rather than discovering it in the principle of duality in Boolean algebra and projective geometry, as I did in the spring of 1980, Mott discovered the general principle that opposites can never be separated in the two-way flow of blood to and from the placenta through the umbilical cord. This, he felt, is the origin of feelings of aggression and submission, emptiness and fullness, and giving and taking that we see both in human society and throughout the Universe.<sup>352</sup> As Newton famously wrote in his third axiom

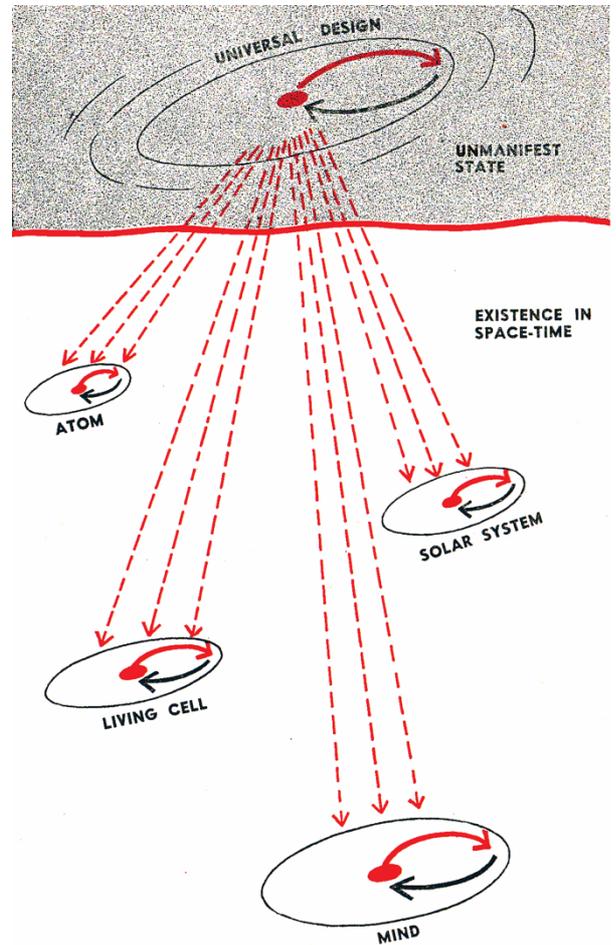
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or law of motion, “To any action there is always an equal and opposite reaction; in other words, the actions of two bodies upon each other are always equal and always opposite in direction.”<sup>353</sup> This law applies not only to lumps of matter interacting with each other. It applies equally in the noosphere, showing that extremist reactions to events don’t help at all if we are to live in a harmonious, balanced manner, as the Buddha taught in his Eightfold path.

Mott illustrated the Universal Design of the traditional mystical worldview with this diagram, saying,

By its very nature the idea is impossible to illustrate convincingly, since it calls for the representation both of what is in space-time and what is not. The artist has sought to represent the distinction between these two categories by covering the Universal Design with a stipple that partly hides it from view, as on a stage a net curtain may divide the living actors and their drama from the ghostly forces behind the action. One may think of the Universal Design as a kind of invisible sun which ‘shines upon the just and the unjust’ in space-time. The Universal Design is in essence very simple. It consists of a focal and paternal nuclear quality linked by a constant back-and-forth flow with a peripheral and maternal quality. This simple pattern can be seen in various degrees of complexity in the created world.<sup>354</sup>

In the Foreword to *The Nature of the Self*, Mott said that he had also found a great mass of impersonal evidence for the Universal Design in the form of the myths and fairy tales, as well as from his experiments with clients. However, in response to friends who had read the first draft, he removed this evidence from the published book because he felt “the symbolism of the myths might well obscure rather than illumine this text.”<sup>355</sup> In 1960, a companion volume was published as a privately distributed monograph titled *Mythology of the Prenatal Life*, republished in 2013 with handwritten annotations by R. D. Laing.<sup>356</sup>



Despite the discoveries of these extraordinary pioneers, it was not until July 1983 that the First International Congress on Pre- and Perinatal Psychology was held in Toronto. Thomas S. Verny tells us in the Introduction to *Pre- and Perinatal Psychology*, a book of papers presented at the conference, that it was convened because established psychological associations in North America and worldwide refused to deal with the psychological issues arising from conception, pregnancy, birth, and the postnatal period. The aim of the conference was to lay “the foundation for the systematic study of pre- and perinatal psychology”, recognizing that these pioneers were standing “on the frontiers of a new science of the mind”. For, as Michel Odent said at the conference, “Our species cannot go on destroying itself and destroying the earth, the oceans, the atmosphere. To create a new world we have to create another human being who will have a maximum capacity to love.”<sup>357</sup>

Yet, the prevailing assumption among many medical practitioners is that prenatals are almost completely shielded from outside stimuli in the womb and so perception and consciousness could only develop after birth. However, as David B. Chamberlain pointed out in his paper, there is a wealth of empirical evidence for the existence of consciousness at birth, as a state of awareness or knowing, which is not generally

recognized as such. In summary, he found that “The human fetus, in the course of its natural development in the womb, is equipped well for sensory experience,” and begins learning from its social environment immediately after birth.<sup>358</sup>

Another paper given at the conference of particular interest is one by Roger C. S. Moss on the ‘Clinical and Theoretical Considerations’ of ‘Frank Lake’s Maternal-Fetal Distress Syndrome’. He described how Lake took hundreds of participants through a process of primal integration from 1979 to 1982, showing how, in many cases, prenatal experiences, even from the first trimester of pregnancy, could be brought up from the unconscious into consciousness and thereby healed. This ties in very well with my own experience. In summary, “*The behavioural reactions of a pregnant mother affect her fetus in ways that contribute to its perceptions of itself and of its environment in the womb; and these perceptions persist into adult life.*”<sup>359</sup>

For myself, I met Frank Lake in 1963 after I had failed my maths finals the first time I sat them. Donald Reeves,<sup>360</sup> a curate in my parents’ church—who Margaret Thatcher was later to call a ‘very dangerous man’—asked him to meet me. Rather surprisingly, we did not talk about my prenatal trauma. Rather, Lake thought that my difficult relationship with my mother was a major cause of my psychological disturbances, which did not please her at all. In the event, it was not until I was fifty in the last year of her life that I felt able to write her a letter telling her how much I loved her.

As a Christian, Frank Lake was also aware that there is evidence in Psalm 139 in the Bible that sanctioned and even facilitated his healing process of primal integration.<sup>361</sup> For this Psalm begins with the words, “1. O lord, thou hast searched me, and known me. 2. Thou knowest my downsitting and mine uprising, thou understandest my thought afar off.” and continues, “12. Yea, the darkness hideth not from thee; but the night shineth as the day: the darkness and the light are both alike to thee. 13. For thou hast possessed my reins: thou hast covered me in my mother’s womb.”

This is clear evidence that while the dogmatism of modern medicine cannot help people understand and thereby heal psychological disturbances that arise from pre- and perinatal traumas, pastors with some understanding of these issues can help those in their care deal with their very deepest pains without compromising their heartfelt religious faith.

Lloyd DeMause, the founder of the Association for Psychohistory, also gave a talk at the conference, which Verny said was “one of the emotional highlights of the congress; a virtuoso 1-hour nonstop talk.”<sup>362</sup> DeMause’s basic thesis is summarized in Chapter 7 ‘The Fetal Origins of History’ in his seminal *The Foundations of Psychohistory*:

1. That mental life begins in the womb with a fetal drama which is remembered and elaborated upon by later childhood events,
2. That this fetal drama is the basis for the history and culture of each age, as modified by evolving childrearing styles, and
3. That the fetal drama is traumatic, so it must endlessly be repeated in cycles of dying and rebirth, as expressed in group-fantasies which even today continue to determine much of our national political life.<sup>363</sup>

In the mid 1990s, I heard Stanislav Grof say much the same thing at the Maritime Museum in Stockholm. He illustrated his talk with many utterances of politicians that are symbolic of the four ‘basic perinatal matrices’ (BPM) stages in the birth process. The only one I remember is “the light at the end of the tunnel”, for I have not found this talk in print anywhere. Fodor gives many similar statements of birth dreams from his patients in *The Search for the Beloved*.<sup>364</sup>

Therein lies a critical issue affecting the psychodynamics of society that is barely mentioned today. For, while we can study the archetypes of the collective and cultural unconscious, making broad generalizations

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that have the potential to be healed *en masse*, everyone's intrauterine, birth, and early childhood experiences are unique.

So these wounds have no obvious remedy in society at large given its unwillingness to look at the root causes of human behaviour, including what is causing the pace of change to accelerate exponentially. For myself, although I have been developing and using Integral Relational Logic for over forty years in order to study the psychodynamics of society from conception to death, until the winter of 2016 and 2017 I did not think to study where the theory and practice of pre- and perinatal psychology has reached today.

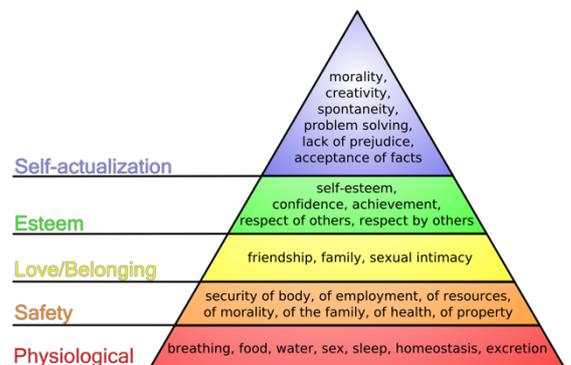
What I found is an active community with two international societies holding annual conferences and publishing papers on the latest developments: the Association for Pre- and Perinatal Psychology and Health (APPPH) and the International Society for Prenatal and Perinatal Psychology and Medicine (ISPPM), based in the USA and Germany, respectively.

After Thomas S. Verny edited *Pre- and Perinatal Psychology* in 1987, Ludwig Janus wrote an excellent history of the movement in German in 1991, translated six years later as *Enduring Effects of Prenatal Experience*.<sup>365</sup> In parallel, as already mentioned, Roy Ridgway wrote *The Unborn Child*, which Simon H. House later extended.

Nevertheless, society, as a whole, is still a very long way from acknowledging the effects that early traumatic experiences can affect behaviour later in life. As all of us are infected by this malaise by being human, this means that we can only discover the essential characteristics of humankind by leaving the cultures we are born in. For, as J. Krishnamurti wisely said, "It is no measure of health to be well-adjusted to a profoundly sick society."<sup>366</sup>



However, there is still intense resistance in society today to enjoying the delights of living in Heaven, originally perceived as where the gods live, called *Nirvana* 'extinction' or *Moksha* 'liberation' in the East. Few have yet climbed to the summit of Abraham Maslow's hierarchy of needs, which I learned about in 1974 on an IBM management induction course. For we have a tendency to follow the crowd, prioritizing our needs for self-esteem, belonging to exclusive groups of 'like-minded' people.



We can see why we hesitate to reach out to our fullest potential as a superintelligent, superconscious species from Maslow's notion of 'Jonah Syndrome',<sup>367</sup> a term suggested by his friend Frank E. Manuel, the author of a psychological biography of Isaac Newton<sup>368</sup> and with his wife Fritzie of a monumental history of Utopian thought.<sup>369</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 memoir.

Andrew Gibb, a postgraduate student of Basil Hiley, introduced me to this widespread psychological disorder in 1984, after I met him at the Teilhard Centre in London. For Andrew could see that I was afraid of my own power, of the irrepressible creative energies pouring through me at superhyperexponential rates of acceleration. To deal with this predicament, Andrew introduced me to 'Life Training', an exhilarating, but challenging group psychotherapeutic practice, which Brad Brown and Roy Whitton had founded in the USA, now called 'More to Life',<sup>370</sup> which a Nobel Laureate in physics also attended.

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 article 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>371</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>372</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 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>373</sup>

So sometimes, when we let loose the unlimited potential energy of Intelligence and Consciousness, the effect can be overwhelming, leading to what Christina and Stanislav Grof call a spiritual emergency,<sup>374</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 (*Shūnyatā*) 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>375</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>376</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>377</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>378</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,

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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>379</sup>

Of course, such fears arise from the egoic mind, afraid of what those defending the status quo might think of how you think and behave. However, 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 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>380</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,

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>381</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 harmony. In essence, this law states that no one is special or better than anyone else.

By forming all concepts in an equalitarian manner, Integral Relational Logic also shows that none of us is special. However, *Jantelagen*, lying deep in the Scandinavian subconscious, is a rather ambivalent philosophy. For while it can lead to social stability and uniformity—the focus of some totalitarian governments—it actually inhibits people from realizing their fullest potential as human beings, viewing the elephant as a whole without individual prejudices.

The Jonah Syndrome is thus a particularly sensitive issue for anyone seeking to use Self-reflective Intelligence to heal their fragmented, split mind in Wholeness, thereby finding great joy in solving the ultimate problem in human learning. Some have said that such an awakening, liberating endeavour is hubristic, grandiose, messianic, and preposterous, an act of self-aggrandizement and megalomaniacal madness. These include Bernard Williams, referring to René Descartes,<sup>382</sup> Joseph Brent, referring to Charles Sanders Peirce,<sup>383</sup> and Martin Rees and Henryk Skolimowski, referring to physicists' attempts to develop a Theory of Everything (TOE)<sup>384</sup> or Grand Unified Theory (GUT).<sup>385</sup>

Jung was well aware of this tendency, calling it *psychic inflation*,<sup>386</sup> a term that he first used in *Symbols of Transformation*, published in 1912, which led Jung to withdraw from the psychoanalytic movement. To Jung, *psychic inflation* meant "an extension of the personality beyond individual limits, ... a phenomenon ... [that] occurs just as often in ordinary life [as in analysis]." For instance, when people "identify themselves with an office or title, they behave as if they were the whole complex of social factors of which that office consists. ... *L'état c'est moi* is the motto of such people."<sup>387</sup>

Eckhart Tolle also raises the challenge of living in humble harmony with our True Nature within a society that attempts to mould us to its constricting structures in *A New Earth*. To denote the distinction

between *being* an authority and *having* authority from one’s social position, he uses the terms *function* and *role*, respectively, with the former being genuine and the latter being a pretence, acting on the stage, playing a part. As Eckhart says, “Authentic human interactions become impossible when you lose yourself in a role.”<sup>388</sup>

So, in today’s restrictive cultures, could the function of Panosopher, taking a Holoramic, God’s-eye view of the Cosmos with Self-reflective Intelligence, ever be acceptable in society? Well, the Buddhist concept of Bodhisattva is key here, recognizing that no one can be fully awake until the entire community of souls is free of the sense of a separate self. Only a community of modern-day Bodhisattvas practising compassion has any chance of preparing us all for death, free of attachment to our body-mind-souls, as the Dalai Lama describes in *For the Benefit of All Beings: A Commentary on the Way of the Bodhisattva*.<sup>389</sup>

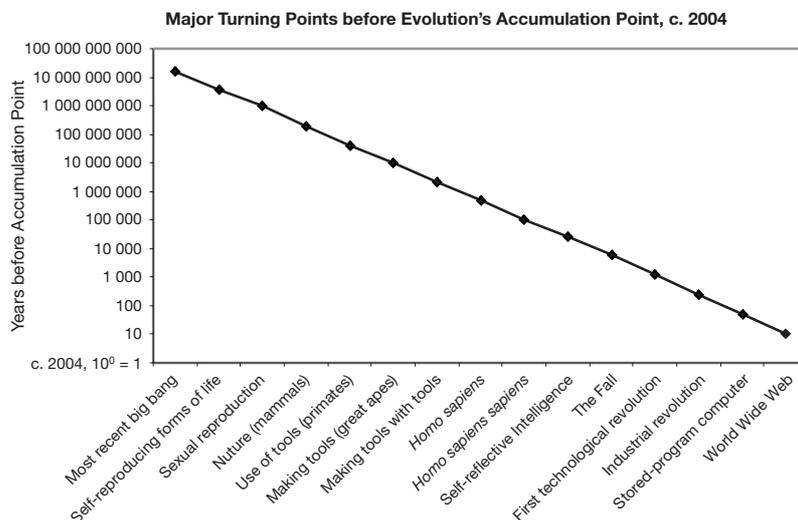
In a similar fashion, Thich Nhat Hahn said in 1993, “We are here to awaken from our illusion of separateness.” Accordingly, he said that the next Buddha—as Maitreya, the ‘Loving one’—can only be a community or global sangha, not an individual.<sup>390</sup> For Sanskrit *maitreya* means ‘friendly, benevolent’, 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.



To see how Life could awaken us from our illusion of separateness, we need to return to David Attenborough’s mapping of the whole of evolution on Earth to the days of the year, looking more closely at the final second before midnight in the context of evolution since as far back as the most recent big bang, some 13.8 billion years ago. Given that one day is ten million years, this final second is about 116 years, which takes us to 2065, regarding the Computer Age to have started in 1949, when the first practical stored-program computer was built at the University of Cambridge.

I first learned how to express the accelerating, exponential rate of these technological developments in mathematical terms in 2000, when Nick Hoggard, a software developer, gave a presentation on ‘SuperEvolution’ at the continental gathering of the Scientific and Medical Network in Sweden. At the heart of his thirty-minute talk, Nick presented this diagram on a semi-logarithmic scale, which I have slightly modified.



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Nick was inspired to develop this evolutionary model after he heard Carl Johann Calleman of Dalarna University in Sweden give a talk on how the geometrical nature of the Mayan calendar could be used to model the entire history of evolution since the most recent big bang.<sup>391</sup> However, as the Mayan calendar is vigesimal, with each cycle diminishing by a factor of twenty from its predecessor, it is too crude to model the most significant turning points in evolutionary history. In particular, it omits the time when the first self-reproducing forms of life appeared on Earth, on 1st January in Attenborough's model.

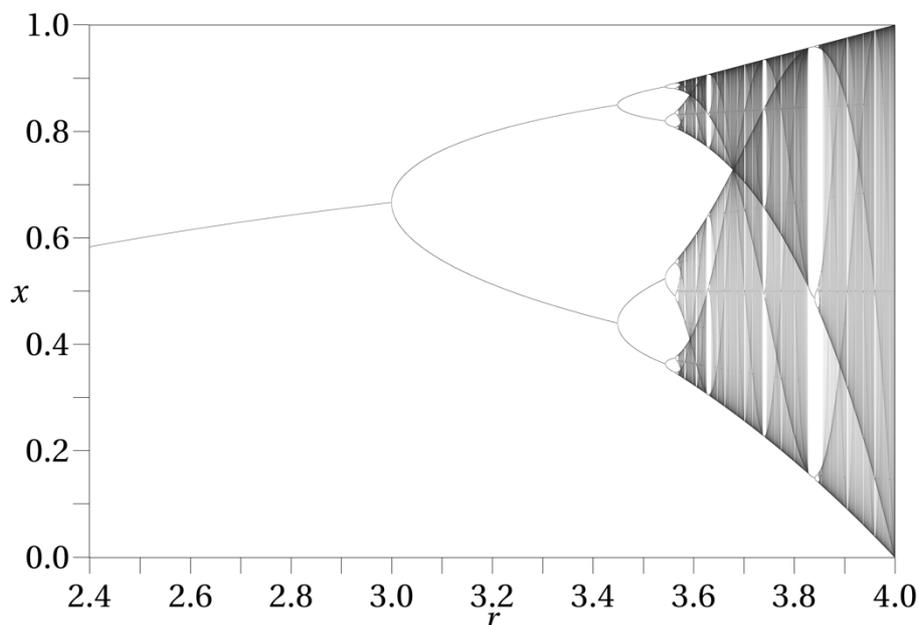
To develop a more refined model, Nick noticed that  $\sqrt{20}$  could be used to interpolate other major turning points, where the ratio between successive periods is  $1/\sqrt{20}$ . Now, the most significant feature of a diminishing geometric progression is that although it has an infinite number of terms, its total sum is finite. This apparent paradox much puzzled Zeno of Elia, who "pointed out the logical absurdities arising from the concept of 'infinite divisibility' of time and space."<sup>392</sup> Today, mathematicians resolve this puzzle with the mathematical concept of limit and of a convergent infinite series. To illustrate, when successive terms in a geometric series diminish by two, we have:

$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots = 2$$

To understand how evolution is converging at an end point, Nick noticed that  $\sqrt{20}$  (4.4721) is reasonably close to the Feigenbaum bifurcation velocity constant  $\delta$ , which is 4.6692. This is a mathematical constant like  $\pi$ ,  $e$ , the exponential constant, and  $\phi$ , the golden ratio, applicable in all possible universes, as they are independent of physical units defined by humans.

As I describe in *Through Evolution's Accumulation Point: Towards Its Glorious Culmination*, Mitchell J. Feigenbaum had discovered this constant in the 1970s, when studying the logistic map, the discrete version of the continuous logistic equation, illustrated on page 21, as the growth curve. In the 1840s, Pierre François Verhulst had used this function to model the population growth of the newly formed nation of Belgium constrained by physical resources. Robert May, later to become Chief Scientific Adviser to the UK Government and president of the Royal Society of London, had studied its discrete version in the 1970s, with some amazing results, as James Gleick tells us in his fascinating history of the evolution of chaos theory.<sup>393</sup>

By studying a hypothetical population of fish living in a pond, which, by its nature, is limited, May discovered that the number of fish in the pond would fluctuate wildly into chaos, with a few oases of 'self-similar' patterns among the oscillating turbulence, illustrated in this diagram:



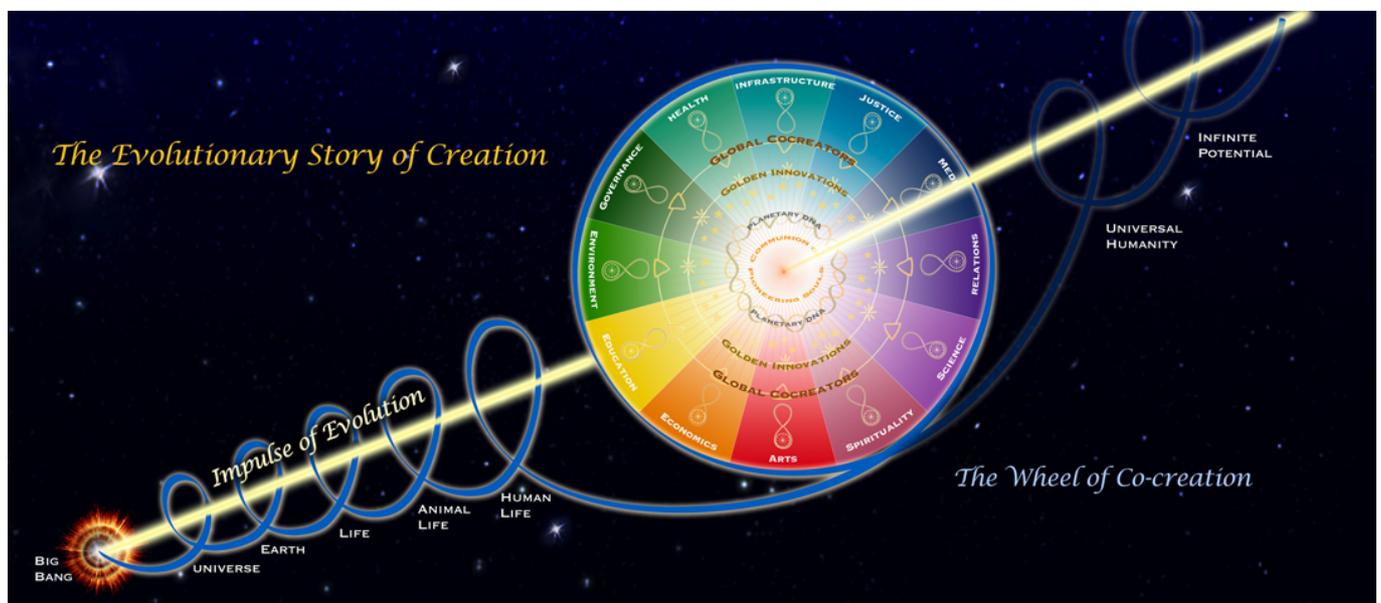
## Humankind

By studying the periods of each bifurcation in the logistic map, Feigenbaum discovered that they diminished reasonably constantly, converging on the reciprocal of the bifurcation velocity constant  $\delta$ . Not only this. Feigenbaum also discovered that this constant appears in other bifurcating systems, generated with different nonlinear difference equations, forming the heart of what he called ‘universality theory’. As he said, “This definite number must appear as a natural rate in oscillators, populations, fluids, and all systems exhibiting a period-doubling route to turbulence! ... So long as a system possesses certain qualitative properties that enable it to undergo this route to complexity, its quantitative properties are determined.”<sup>394</sup>

Now, the point at which bifurcations degenerate into chaos is called the accumulation point in nonlinear systems dynamics. Although we don’t know the exact dates of the early major evolutionary turning points, we do know the dates of the industrial revolution, the invention of the stored-program computer, and the introduction of the World Wide Web reasonably accurately. So we can use these dates, along with the Feigenbaum constant, to calculate that evolution’s Accumulation Point happened in 2004, give or take a couple of years. Using the metaphor of a dripping tap, as another instance of a nonlinear dynamic system, the evolutionary tap is now turned full on, with no more discrete turning points to be found.



This is the most momentous change in evolutionary history, as Barbara Marx Hubbard pointed out, although she was not referring to evolution’s Accumulation Point, at the finite limit of a convergent geometric series. Rather, she saw evolution becoming fully conscious of itself, which she called the ‘Second Great Event’ in the history of the universe, the first being the most recent big bang, which supposedly brought it into existence.<sup>395</sup> Evolution revealed this model of itself to Barbara, envisioning evolution as a sequence of spirals, which she saw converging in a communion of pioneering souls in the Wheel of Co-creation, revealing the infinite potential of universal humanity.



As this vision was most attractive to many awakening souls, in 2008, Barbara set up the Foundation for Conscious Evolution, together with the Chopra Foundation, the Source of Synergy Foundation, and the Association for Global New Thought, with the motto ‘In service to conscious evolution’. Inspired by José Argüelles’ studies of the end of the Great Cycle in the Mayan calendar, the Foundation regarded the winter solstice in 2012 to mark the start of a new era, in which the divergent streams of evolution would become increasingly convergent. This is slightly different from 2004, marking evolution’s Accumulation Point.

*Who are we? Where do we come from? Where are we heading?*

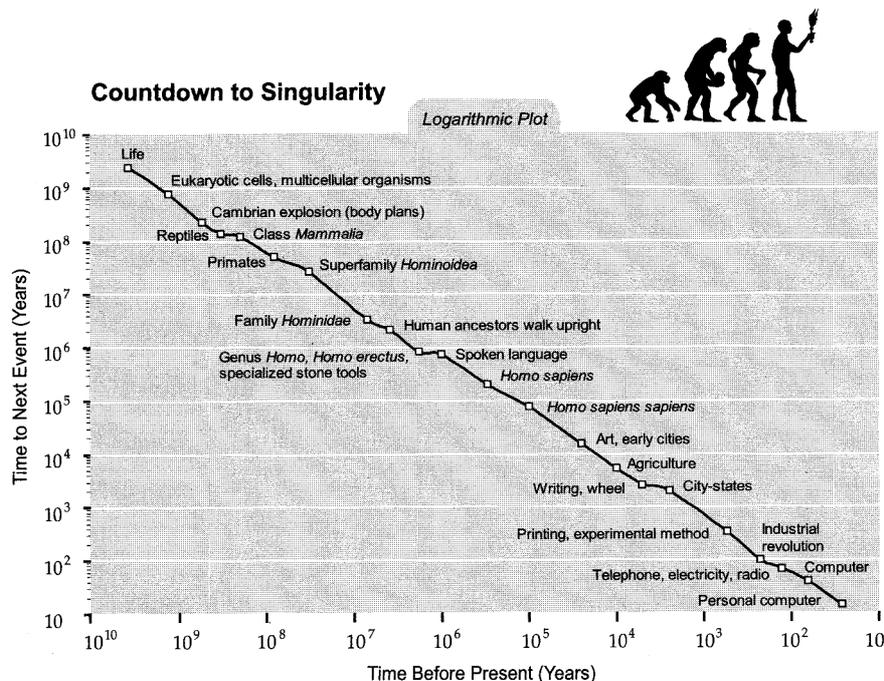
Nevertheless, the fact that these two dates are sufficiently close indicates a growing awareness of evolution becoming increasingly conscious of itself, along the lines that Pierre Teilhard de Chardin and Julian Huxley had foreseen.

One of the pioneering evolutionaries who joined the Foundation for Conscious Evolution in 2008 was Peter Russell, who was a fellow alumnus from the same high school as me, similarly studying mathematics and physics four years later, as he is 1,146 days younger using his unusual way of measuring ages.<sup>396</sup> Between 1982 and 1998, Peter wrote four books tracing the exponential nature of evolutionary change, in a similar manner to David Attenborough. But rather than using a temporal metaphor, Peter used a spatial one.

In *The White Hole in Time*<sup>397</sup> and its sequel *Waking up in Time*, Peter used 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>398</sup> Using this metaphor, the Renaissance occurred in the top one-thousandth of an inch, less than the thickness of a layer of paint, with the period of the technological revolution being a layer that is too small to measure. In *The Awakening Earth*<sup>399</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>400</sup>

Then, in 2007, Peter wrote an article in *The Mystery of 2012*, using the S-shape of the logistic curve to show that evolution under constraint eventually reaches a saturation point. He likened this to a singularity in time, which Vernor Vinge had predicted in 1993, writing a paper for NASA 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>401</sup>

Ray Kurzweil provides a similar exponential model in *The Singularity is Near*, published in 2005, presented below. The caption reads, "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)"<sup>402</sup>

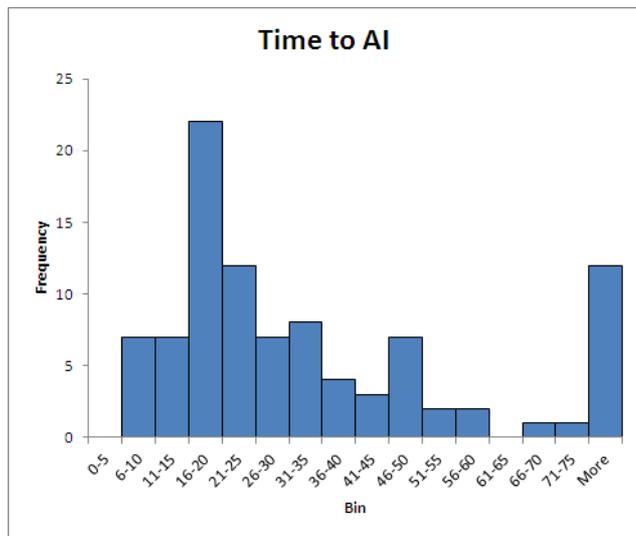


In a similar manner to Vernor Vinge, Ray Kurzweil said in 2001, "By 2019, a \$1,000 computer will match the processing power of the human brain."<sup>403</sup> Similarly, Hans Moravec forecast in *Robot* in 1990 that robots "could replace us in every essential task and, in principle, operate our society increasingly well without us."<sup>404</sup> Martin Rees, former President of the Royal Society, picked up this viewpoint by writing in *Our Final*

*Century: Will the Human Race Survive the Twenty-first Century?*, “A superintelligent machine could be the last invention that humans need ever make.”<sup>405</sup> And again, Stephen Hawking told the BBC on 2nd December 2014, “The development of full artificial intelligence could spell the end of the human race.”<sup>406</sup>

Then, as recently as 2019, Peter Russell posted an article on the website for the Science and Nonduality (SAND) community, titled ‘What if There Were No Future?’, saying “sometime in the late 2020s (that’s only ten years from now) there will be artificial intelligence that surpasses the human brain in performance and abilities. These ultra-intelligent systems would then be able to design and create even more intelligent systems, and do so far faster than people could, leading to an exponential explosion of intelligence.”<sup>407</sup>

This is nonsense of course. We humans are the leading edge of evolution, not machines with so-called artificial general intelligence. Yet, the belief that machines could one day replace many jobs in the workplace still prevails. For instance, in 2012, Stuart Armstrong, a James Martin Research Fellow at the Future of Humanity Institute at Oxford University, and Kaj Sotala, of the Singularity Institute, presented a paper at



a conference in Pilsen, Czech Republic on research that they had done of predictions of artificial intelligence since Alan Turing’s 1950 seminal paper on the subject. As Armstrong writes in *Smarter than Us*, “The track record for AI predictions is ... not exactly perfect. Ever since the 1956 Dartmouth Conference launched the field of AI, predictions that AI will be achieved in the next fifteen to twenty-five years have littered the field, and unless we’ve missed something really spectacular in the news recently, none of them have come to pass.”<sup>408</sup>

This chart shows the frequency of the various predictions of time to AI that he and Kaj Sotala have developed.<sup>409</sup>



Fairly obviously, after what I have written in these autobiographical reflections, if we are to collectively sort out the mess that the world is in today, rising well above the level of our machines, Life needs to open up the Cosmic Psyche to inspection to a far greater extent than it has to date. If we are to thereby realize our fullest potential as humans, free of what William Blake called our mind-forged manacles, we also need to adopt a radically new work ethic, escaping from the economic constraints of the prevailing culture.

Now, such a radical transformation of consciousness, focusing attention on the awakening of intelligence rather than on technological development, is not something that can happen gradually. Evolution needs to take a radical change of direction in the collective, turning divergence into convergence, not unlike what has happened to me in my lifetime.

Although this looks impossible, some evolutionary pioneers have visualized such a miracle taking place. For instance, Jean Houston, a leading figure in the Human Potential Movement, 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.” As she says, “Ours is an era of quantum change, the most radical deconstruction and reconstruction the world has seen.”

To see how this radical transformation could have become manifest in the collective, I have been particularly inspired by Ken Wilber’s three-stage model of human phylogeny, first presented in *Up from Eden*,<sup>410</sup> depicting the transition stage between the biosphere and noosphere and the final two stages in

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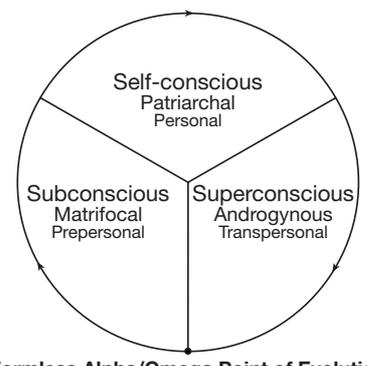
Teilhard's evolutionary model. This schema illustrates Joseph Campbell's Cosmogonic Cycle at the phylogenetic level. Like all other structures in the Universe, *Homo sapiens* emerged from the Formless Ground of Being and is destined to return there at the end of its lifespan.

So, if we are to transcend our cultural constraints and enter the eschatological Age of Light as superintelligent, superconscious androgynous beings, we need to co-create a social environment where it is acceptable to be (s)heroes, following the universal spiritual journey, free of the constraints on our awakening imposed on us by the global economy.

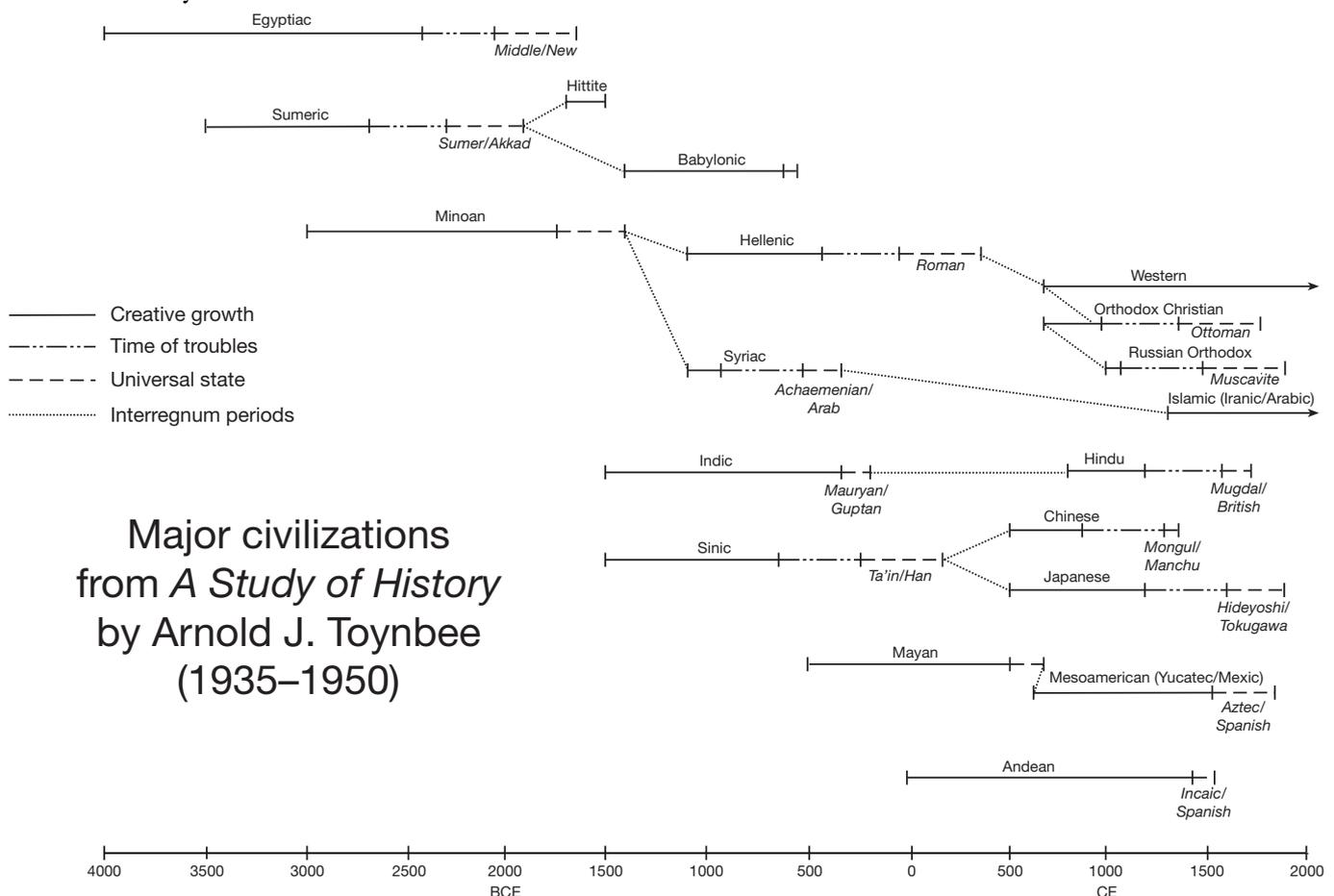
For, as Krishnamurti said, where there is division there is conflict, as David Moody told us in the recent film *Infinite Potential*, celebrating the life and ideas of David Bohm. And the most powerful divisive force in society today is the global economy.

On this point, money is the strangest concept that we humans have ever developed to manage our collective affairs. Essentially, money is a unit of value, like metres and kilograms. However, as what is being valued relates more to psychological than physical needs, we have reified money, turning it into a commodity to be bought and sold like potatoes and washing powder. So, even though "Money is a very old convenience," as John Kenneth Galbraith points out in *Money*, it has nevertheless financed wars throughout history.<sup>411</sup> As he also says, "The process by which banks create money is so simple that the mind is repelled."<sup>412</sup> It is not surprising that the entire world is in debt to the banks, holding us all to ransom.

To illustrate the challenges we face as a species, here is a timeline of the around twenty civilizations that have existed during the patriarchal epoch. Those that still dominate the world would need to die if a global civilization embodying *Homo divinus* were ever to emerge in the Age of Light, living in harmony with the Hidden Harmony.



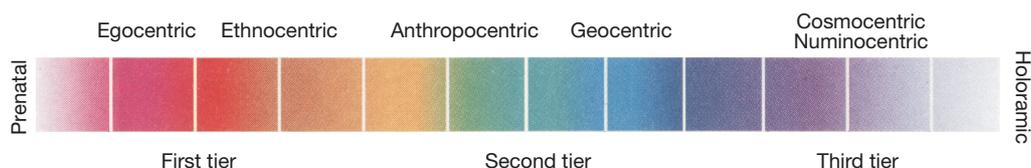
Formless Alpha/Omega Point of Evolution



## Humankind

As evolution has now passed through its Accumulation Point into chaos, if we are to bring order to our troubled society, we need to abandon all the *-ocracies* and *-archies* that humans have experimented with during the last five or six millennia, while ignorant of the psychodynamics of society. Rather, if we are to move out of darkness, the only viable system of governance is what Henryk Skolimowski calls *lumenarchy*, where Divine Light is shining unimpededly through the entire population of bodhisattvas, symbolized as Jonah's Net of Jewels on the front cover of this monograph.

We can see the unlikelihood of this Utopian vision becoming manifest in the population as a whole from the three-tier, twelve-level model of the spectrum of consciousness that Ken Wilber has been working on since he wrote his first book in the 1970s on *The Spectrum of Consciousness*, which I have modified a little to match my own awakening of intelligence and consciousness.



It is a very helpful model, illustrating the way that the depth and breadth of consciousness can grow throughout our lives. However, it has some 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>413</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>414</sup>

Ken has also said that a Holoramic perspective, at the other end of the spectrum, which actually turns around on itself, is not attainable. Taking a much broader view of the Theory of Everything than physicists like Stephen Hawking have taken, Ken 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>415</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>416</sup> He seems to be saying here that Wholeness is like an asymptote in mathematics, which can be approached but never reached in finite time. If so, he is confusing the *infinite* and *transfinite*.

Christian de Quincey expressed a similar view in 2001, when the managing editor of the *Noetic Sciences Review*, the journal of the Institute of Noetic Sciences. In a critical appreciation of Ken Wilber's *Collected Works*, he wrote that the genuine theory of everything is impossible:

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>417</sup>

This statement led me to resign from IONS, which I had joined nearly ten years earlier. For, there was

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no point in belonging to an organization that denies that the True Nature of all humans is Wholeness.

Once again, we see the Jonah Syndrome at work, which seems to be a symptom of a post-modernistic mentality, dividing everything into pieces. For instance, Jean-François Lyotard denied the possibility of a 'grand narrative'—"the idea that philosophy can restore unity to learning and develop universally valid knowledge for humanity".<sup>418</sup> Yet, as I have endeavoured to outline in this monograph, there is a Method by which we can reveal that which we all share is within the Cosmic Psyche, recognizing that the observer and observed are indivisible.

To put the current situation into perspective, Ken said in a ten-module Internet course titled 'Superhuman Operating System', 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", some 95% of the populace are still in the egocentric and ethnocentric first tier, while just 5% have reached the second tier. The third tier indicates "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," as Ken defined it in a conversation with Andrew Cohen in the *What is Enlightenment?* magazine in 2007.<sup>419</sup>

So while there are both conservative and progressive liberals in the political spectrum, there is widespread resistance to total liberation, from Latin *liber* 'free'. Vimala Thakar highlights this critical situation 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>420</sup>

With 95% of the population living in the first tier of the spectrum of consciousness and so very few in the third tier, it is most uncertain to what extent that we shall be able to heal the experiential and cognitive split between humanity and Divinity before our inevitable demise as a species. Eckhart Tolle summarized this critical situation in *Stillness Speaks*, an inspiring book of aphorisms, when he wrote:

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>421</sup>

Yet, we need to face the fact that democracies, which Alexis de Tocqueville called the tyranny of the majority or masses in 1835, mostly drive the psychodynamics of society. Furthermore, governments, whether they be totalitarian or democratic, do their utmost to preserve the status quo, as we see in organizations like the Department of Homeland Security in the USA, whose vital mission is "to secure the nation from the many threats we face".<sup>422</sup>

This is the social environment in which those offering transformative services and products to the second tier must operate, generally commercializing their offerings, inhibiting us from returning Home to Wholeness in the third tier by transcending the divisiveness of money. One notable exception was Krishnamurti, who told his followers in 1985 at Ojai that he personally had no money and did not want it. Rather, the Krishnamurti Foundation paid for his daily needs as he moved around the world. It is really rather simple, he said.<sup>423</sup> Given the difficulty of being totally free of the financial constraints of society, it is most unlikely that our species as a whole will ever live up to its name: 'wise human'.



Nevertheless, to feel complete with this narrative of how Life has shown me how to answer the three

fundamental questions of human existence, I end with a brief description of how I have attempted to use these insights to cocreate World Peace, in the superconscious, androgynous Age of Light, transcending the monetary and spiritual materialism of prevailing cultures and subcultures, the latter term being coined by Chögyam Trungpa to denote the widespread dangers of spiritual egos.<sup>424</sup>

The transformation of consciousness that I have needed to make in order to reveal Inner Peace, a requisite for World Peace, is simple to state but very difficult to put into practice other than in solitude. In essence, I have needed to transform conflict-ridden, either-or ways of thinking, which have characterized the fragmented patriarchal epoch, into a harmonious, both-and way of life, awarely guided by the fundamental law of the Universe: opposites are never separate from each other, whether they be complementary or contradictory.

But, in saying this, I have inevitably come into conflict with those who have not made the radical change to the work ethic that I have needed to make to return Home to Wholeness. This is why I appear to be a recluse to some. Nevertheless, as Love is the Divine Essence that we all share, I have had faith that eventually my understanding of humankind would become acceptable, conquering the Jonah Syndrome that holds so many back.



Be that as it may, changing from an either-or to a both-and system of thought presents me with some rather unusual communications difficulties, which can best be described with John Tenniel's illustrations for Lewis Carroll's second book on Alice's adventures in wonderland: *Through the Looking Glass*, from 1871.<sup>425</sup> The room that Alice lived in is rather like the boxes that we incarcerate ourselves in by identifying with particular bodies, occupations, cultures, species,



planets, galaxies, or physical universes. It is by following Alice through the looking glass that we can discover a totally different world outside: a world where words take on quite new meanings.

We then discover, like Alice, that the world we live in is back to front and upside down, illogically putting second things first, like putting a cart before the horse. Furthermore, Alice's looking glass is actually a two-way mirror, enabling those outside the room to see both inside the room and the borderless, seamless world outside. Gone are our prison walls, the cells and cages that we are imprisoned in by attachment to our collective, cultural, and personal conditioning, putting the superficial before the profound. Specifically, by passing through the looking glass we realize that the brain, along with the rest of the material universe, emerges from Consciousness, not the other way round.

However, while I have lived with this vision for many years, it has actually taken half a lifetime to come to fruition. After I had realized that *Homo sapiens* is not immortal in April 1982, when working in Kuwait, I first moved to live with my sister and her husband, both clinical psychologists, near Durham in north-east England. As they did not understand the book that I was then attempting to write on *The Thoughtful Society*, I moved back to London in 1983 to see if I could find anyone, other than David Bohm, interested in my revolutionary evolutionary studies.

What was most clear to me at this time was that World Peace could only come about if the entire population stopped denying the existence of the fundamental law of the Universe and lived in harmony with the Hidden Harmony in union with the Divine. So, to give us all a common focus of attention, on 29th October 1984, following several weeks browsing dictionaries in Wimbledon library, I coined the word

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*Paragonian* to denote the peaceful and harmonious society that could emerge following the collapse of the conflict-ridden global economy, which inhibits the divergent streams of evolution from converging in Wholeness.

*Paragonian* derives from Greek *para* 'beyond' and *agon* 'contest' or 'conflict', a word that is also the root of *agony*, until the 17th century meaning 'mental stress', *antagonist*, 'a person who one struggles against', and *protagonist*, 'leading person in a contest'. Any similarity with *paragon* is coincidental for this word has the Greek root *para* 'alongside' and *akonan* 'sharpen', together figuratively meaning 'compare'. Rather, *Paragonian* literally means 'beyond conflict and suffering', which we can realize when we learn to unify all opposites in Wholeness, grounded in Oneness.

So, the following year, while participating in a few Life Training weekends, I set out to write a booklet for the Paragonian Institute, whose object was to rebuild the education and economic systems on what I was then calling *implicate* relational logic, recognizing the existence of what lies beneath our physical senses. I also attended several talks and events at St James's Church in Piccadilly, under the rubric 'The Turning Point', indicating the awareness that humanity is at a fundamental watershed in its history. Donald Reeves, who had supported me after I failed my degree in 1963, was then the Rector of this beautiful Wren church. He introduced me to James Robertson, the foremost new economist in the UK and cofounder of the New Economics Foundation (NEF).

After James and I met, knowing that I had no money, he gave me a free ticket to one day at The Other Economic Summit (TOES), which he had cofounded as an antidote to the G7 summit, held in April 1985. There I met some of the leading lights in the new economics movement, including Hazel Henderson, Paul Ekins, Guy Dauncey, and Michael Linton. So, even though they did not fully understand the function of information systems architects in business, I no longer felt all alone.

But, more significantly, I heard a highly intelligent and beautiful Norwegian social activist give a wonderful introduction at a workshop in the afternoon on the absurdity of economic indicators, which I had seen when minoring in economics at university in the early 1960s. The words that Berit quietly spoke were unlike anything I had ever heard before. I fell in love with her instantly and imagined that one day we would be married.

The following year, she responded lovingly to my overtures and we were married in June 1986 in Oslo. I then moved into the depths of the Norwegian forest to write a new brochure for the Paragonian Institute at the dawn of the desk-top publishing industry on a 9" Macintosh Plus with an amazing megabyte of main memory, but no hard drive, which my mother-in-law had kindly given me as a wedding present. The next year, having enjoyed an exceptionally cold winter, Berit, her daughter from her first marriage, and I moved to England in an attempt to set up the Institute with the wonderful support of a psychologist friend.

But, the time was not right for this to happen. One difficulty was that my friend, who rented out her house to us, wanted to build a bridge between the new and old worlds. But I told her that this is not possible. For a bridge to be stable, both ends need to be built on a sound foundation. And Western civilization is based on shifting sands, on what I call the 'seven pillars of unwisdom', a term that Arthur Koestler introduced in *The Ghost in the Machine* to highlight the absurdities and limitations of the biological, behavioural, mechanistic, and quantitative sciences.<sup>426</sup> These pillars are misconceptions of God, Universe, Life, humanity, money, justice, and reason.

If we are to avoid what Fromm saw as impending psychological and economic catastrophe, it is vitally important that we demolish these seven pillars, rebuilding the entire world of learning on seven pillars of wisdom, briefly given in this table:

## *Humankind*

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	Financial modelling methods	Meaningful information systems modelling methods
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

So, after two years struggling to survive in menial jobs without attachment to money, we moved back to Norway and then on to Stockholm in January 1990, when I rejoined IBM at its Nordic Software Development Laboratory. There, I was able to focus attention on the human-computer interface, which had been my primary interest in the 1970s. I also learned about some latest technological developments, especially object-oriented modelling and programming methods, which enabled me to add some semantic enhancements to Integral Relational Logic, beyond its bare mathematical skeleton.

Berit became a rebirthing teacher, which also greatly helped me to heal the deep traumatic wounds in my sub- and unconscious psyche. However, eventually, what had brought us together clearly was not going to work at the social level, and we went in different directions, following our own unique spiritual paths.

After some futile attempts to get IBM to support my researches into what is causing scientists and technologists to drive the pace of scientific development and technological innovation at unprecedented evolutionary rates of acceleration, in 1997, I was offered early retirement with a generous redundancy package. For, after Lou Gestner became CEO in April 1993, after IBM had made the biggest loss in American corporate history, this rather conservative company was beginning to make much needed changes and the products we were developing in Sweden were moved to other countries.

Now having the steady basic income I needed to survive, unlike the 1980s, I set out to create a website with which I could reach out to the world with the insights that were continuing to appear rapidly in consciousness. Most significantly, I joined the Scientific and Medical Network (SMN) in 2000 and attempted to find some 'like-minded' people seeking to transcend the materialistic and mechanistic framework of the so-called natural sciences. Through the contacts I thus made in Sweden, I was invited to join a spiritual and ecological community in western Sweden in 2002 with holistic aspirations, recognizing the central role of Consciousness.

Inspired by this move, I self-published my first book in December 2004, titled *The Paragonian Manifesto: Revealing the Coherent Light of Consciousness*. This book was intended as a spiritual replacement for Karl Marx and Friedrich Engels' *The Communist Manifesto*, published in 1848, albeit about four times longer in paperback format. In my ingenuous idealism, I felt that there is such a deep longing in the human heart and soul to live in love, peace, and harmony and so much unfulfilled potential that this book would eventually sell millions. I could not have been more wrong, as I discovered when giving a presentation on 'Returning Home to Wholeness' at the SMN annual gathering in Germany the following year, just as evolution was passing through its Accumulation Point into chaos.

The hostility I experienced there sent a gigantic shock to my system, from which I did not begin to recover until I drew the diagram on page 23 in the Altai Mountains in 2008, as the global financial crisis then unfolding indicated the urgent need for radical change. Yet, neither the world nor I seemed ready for such a peaceful cultural revolution.

Despite these setbacks, the creative power of Life continued to pour through me unabatedly. Accordingly, the friend who had helped me to design *The Paragonian Manifesto* also helped me to develop

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a second-generation, server-side website for what I was then calling the Paragonian Foundation, with this logo to denote that it was being guided by the fundamental law of the Universe: opposites are never separate from each other in Reality. Its four constituents would have been the Paragonian University, Fellowship, Business Academy, and Publications, addressing the scientific, spiritual, economic, and publishing activities of the Foundation in a coherent manner. I saw my function as a Panosopher like that of an information systems architect in business, working with specialists to develop integrated business systems, ending the fragmentation of the world of learning.



I was given a sign that this initiative had some potential to eventually benefit humanity in 2009, when David Lorimer, the programme director at the SMN, organized a one-day conference in London titled 'Infinite Potential', on the legacy of David Bohm. Speakers at the conference, hosted by Bernard Carr at Queen Mary's College, were Basil Hiley, F. David Peat, Donald Factor, Mary Cadogan, and Leroy Little Bear. However, I was deeply disappointed with the conference. While *Wholeness* was mentioned occasionally, I heard no speaker or questioner using the word *fragmentation*. So the subject of how the fragmented mind might be healed in Wholeness, which I regard as Bohm's true legacy, did not come up.

For myself, the difficulty that I have faced when meeting specialists is that I have needed to deny my exceptional ontogeny, which has enabled Life to heal my fragmented mind in Wholeness. In this respect, I have been much influenced by Bohm's ideas and life history. But, I do not regard myself as a legate, 'someone who speaks on behalf of another', cognate with *legacy*. In contrast, the David Bohm Society has the motto 'Preserving, promoting, and realizing David Bohm's work'.

This is a wonderful step in the right direction, but it does not enable us to see Bohm's life and work within the scope of evolution, as a whole. For, as Leonardo da Vinci said, "He is a poor disciple who does not excel his master."<sup>427</sup> In a similar spirit, Karl Marx wrote at the end of his life, "All I know is that I am not a Marxist",<sup>428</sup> and Jung said, "Thank God I am Jung and not a Jungian."<sup>429</sup> Even Jesus was not a Christian in the traditional meaning of this word. So, we are still a long way from realizing that the True Nature of humanity transcends any identity we might have as apparently separate individuals.

Continuing my endeavours to live with this insight, David Lorimer invited me to a select symposium on 'Consciousness and Nonduality' in November 2010, hosted by the Dowager Countess of Cawdor at her castle in Scotland. There, Peter Fenwick, SMN's President, invited attendees to openly describe their experience of Consciousness and the influences that had led to their understanding. Encouraged by this invitation, I described my cognitive ontogeny as I understood it at the time, outlined in this memoir. However, after the symposium, I asked Peter if he knew of any psychologist who might be interested in using my exceptional experiences in a case study of anomalous human experiences that cannot be explained in terms of conventional science. He told me that he knew of no such psychologist.

Nevertheless, I was still being given signs from the Universe that I should continue to move outwards, describing my evolutionary studies as well as I could. In particular, Rupert Spira, who I met at the symposium, suggested that I should give a presentation at the next Science and Nonduality (SAND) conference in California, organized by Maurizio and Zaya Benazzo. I learned that they had been inspired to launch this venture after reading Nisargadatta Maharaj's *I Am That*, which Vijay Shankar had told the attendees at a seminar ten years earlier is the only spiritual book you need to read.

The theme of the conference in 2011 was 'On the Edge of Time'. So I felt that this was a wonderful opportunity to describe the way that Life had turned the horizontal dimension of time into the vertical within me. But, I did not feel that I could convey this amazing transformation of consciousness in a twenty-minute talk. So, I prepared an 8' by 4' (~3 sq. m.) poster presentation on 'The Two Dimensions of Time',

with an eight-page handout. However, the few who saw the presentation seemed to be rather overawed by what I was expressing. Only one delegate understood the significance of what I was presenting—an elderly, diminutive lady. She intuitively sensed what I was saying, not by reading the words and diagrams on the poster, but by looking directly at me in the eye. We had a beautiful wordless meeting.

So, as there was no one at the conference who felt moved to join me in establishing the Paragonian Foundation, on my return to Sweden, I set about completing my magnum opus on *Wholeness: The Union of All Opposites*, with the alternative title *Semantic Principles of Natural Philosophy*, to indicate that it was intended to complete the final revolution in science in a meaningful manner, just as Newton's *Principia* had completed the first in 1687.

I was well aware that many were working on this revolution in science. For instance, in 1986, Willis Harman, then president of IONS, described this vision in these words:

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>430</sup>

However, while I made good progress with describing Integral Relational Logic and the Unified Relationships Theory, the titles of Part I and II, I did not know how to finish Part III on 'Our Evolutionary Story'. While realizing that Wholeness is the ultimate purpose of life on Earth, thereby resolving the existential understanding that *Homo sapiens* is not immortal, I did not yet know the how and when of human extinction.

John Leslie's *The End of the World: The Science and Ethics of Human Extinction* was the first book I read on this theme. Regarding the 'how', he listed seven major risks, which are well recognized: nuclear war, biological warfare, chemical warfare, destruction of the ozone layer, 'greenhouse effect', poisoning by pollution, and disease, along with many other secondary risks, such as technological disasters and the possibility of being hit by an asteroid.<sup>431</sup> He then used Bayes' theorem to calculate the relative probabilities of Doomsday occurring 'soon', by 2150, for instance, or being delayed by at least a few centuries. Leslie gave the prior probabilities of these two hypotheses as 1% and 99%, respectively.

However, James Lovelock, the originator of the Gaia hypothesis of a living Earth, was far more realistic. In a BBC Hardtalk interview in 2010, Stephen Sackur asked him, "What do you think is a viable [population] that Gaia, the planet, can sustain?" Lovelock replied, "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>432</sup>



This led me to see that while my granddaughters, born that year, could perhaps grow old enough to have children of their own, it was unlikely that *their* grandchildren would bring children into the world. Feeling deeply inside myself, I realized that only mystical awareness, in union with the Divine in the Eternal Now, could help us prepare for the inevitable extinction of our biological species. Accordingly, to present this message to the world, the objects of the Paragonian Foundation needed to be radically reformulated.

I was greatly assisted in making this change in emphasis by a young man living just 150 kilometres north of me in Sweden. Pär, a web developer, was much inspired by the vision of the Foundation and offered to help me set up a third-generation website using Drupal, a powerful web content management system,<sup>433</sup> to assist with community building.

*Who are we? Where do we come from? Where are we heading?*

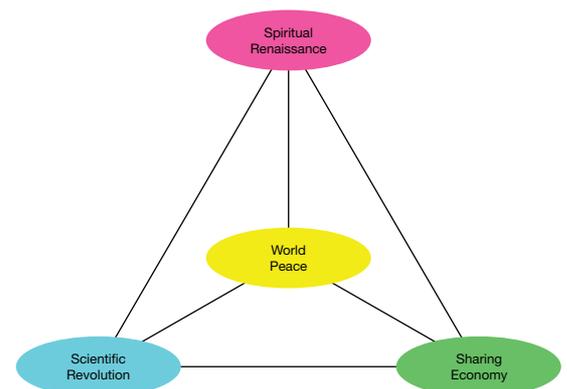
At about this time, I also met Ananta Kumar Giri, a Professor at the Madras Institute of Development Studies, who had been holding workshops around the world on Spiritual Pragmatism and Spiritual Pragmatics since February 2011. These inspired me to unify Eastern mysticism with pragmatism, which Charles Sanders Peirce and his friend William James had introduced in the 1800s. Furthermore, Peirce's triadic architectonic had come closer to solving the ultimate problem in learning than any other attempt that I had read about, particularly during the eight years either side of his fiftieth birthday in 1889, as I explained in 2014 in *The Theory of Everything: Unifying Polarizing Opposites in Nondual Wholeness*.

I thus changed the name of the Paragonian Foundation to the *Alliance for Mystical Pragmatics*, with the motto 'Harmonizing Evolutionary Convergence', as a network of networks. For *Pragmatics* derives from Latin *prāgmaticus* 'skilled in business', from Greek *prāgmaticos* 'active, business-like, versed in affairs, relating to fact', from *prāgma* 'deed, action, fact', from *prāssein* 'to do, make, manage', also root of *practical*. So we can regard pragmatics as the science or study of our practical business affairs, necessarily grounded in mystical awareness.

To explain what I meant by Mystical Pragmatics, Ananta invited me to write an essay for a book of essays he was editing on Spiritual Pragmatics, which was duly published in 2015<sup>434</sup> and again in 2020, in a scholarly book titled *Pragmatism, Spirituality and Society: Border Crossings, Transformations and Planetary Realizations*.<sup>435</sup> To explain how the Alliance is based on the fundamental law of the Universe, I also wrote an essay titled 'Revealing the Hidden Harmony: The Heart of Transformative Harmony', which Ananta published in a book of essays titled *Transformative Harmony* in 2019.<sup>436</sup>

Vir Singh, Professor of Environmental Science and friend of Juanita and Henryk Skolimowski, who I had met in Sweden in 2002, also asked me to write an essay for the first international congress on 'Light and Lumenarchy: Cosmic Designs of the New World', to be held in India in 2014. This congress did not take place. But my essay on 'The Coherent Light of Consciousness: Awakening Self-reflective Intelligence' was published in a book of essays in 2016.<sup>437</sup> So, while I was having little success in obtaining support in the West for my researches into the root cause of the accelerating rate of change in society, I have been accepted by scholars in the East, with its more profound spiritual tradition.

Regarding the Alliance, its purpose was to integrate four major global movements in the world today into a coherent whole: Spiritual Renaissance, Scientific Revolution, Sharing Economy, and World Peace, as this diagram indicates. The Alliance would thus fulfil Comenius' vision in 1642 for a Pansophical College, as an academy of Universal Wisdom and Light, which the founders of the Royal Society rejected a couple of decades later.<sup>438</sup> For, as Matthew Spinka, Comenius' biographer, wrote 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>439</sup>



We can see why from a statement that Einstein made 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>440</sup> To cocreate World Peace, 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>441</sup>

Needless to say, changing our mindsets and the way we think leads to some major communications problems, which Drupal’s powerful facilities have given me the opportunity to address. The languages we use to communicate with each other are based on the seven pillars of unwisdom, grossly distorting our understanding of the world we live in. We can overcome this problem to some extent with what Bohm called the *archaeology of language*, studying the roots of words. 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, the Glossary on the Alliance website contains an evolving list of terms, linked, wherever known, to their Proto-Indo-European roots.



I have also been inspired by Lewis Carroll, both a mathematician and logician, to make such linguistic changes. After an exchange with Alice on the meanings of words, Humpty Dumpty said, “‘When *I* use a word, ... it means just what I choose it to mean—neither more nor less.”<sup>442</sup> Yes, in a sense, most linguistic forms in alphabetic writing systems have little relationships to the concepts in the psyche that they are intended to represent. Nevertheless, as the creative power of Life has shown me how to develop a coherent conceptual model of the Totality of Existence, I have needed to take a less anarchical, more systemic approach to language, not unlike the way in which Carroll began his book *Symbolic Logic*, as a follow-on to *Game of Logic*,<sup>443</sup> drawing on the basic concepts of Plato and Aristotle’s reasoning: universals and particulars and subjects and predicates, respectively, at the core of Integral Relational Logic.

After my friend Pär died and the menu system on the website for the Alliance broke down, in 2017, I set up an eponymous website with WordPress for blog posts, at the suggestion of a resolutely inquiring friend in Sweden, with whom I had been dialoguing since the early 1990s. Its motto is ‘Standing outside Ourselves’, essential if we are to answer the fundamental existential questions of humankind: Who are we? Where do we come from? Where are we heading?

As I still thought that my primary social purpose was to help complete the final revolution in science, I thought that this website would enable people to see me as just an ordinary guy, less an iconoclast. To illustrate that I am not working entirely alone, the website contains synopses of some of the principal kindred spirits who have kept me company over the years: Heraclitus, Johannes Kepler, Jan Ámos Komenský (Comenius), Isaac Newton, Charles Darwin, George and Mary Boole, Ada Lovelace, Charles Sanders Peirce, Pierre Teilhard de Chardin, Carl Gustav Jung, Albert Einstein, Erich Fromm, Joseph Campbell, Arthur Koestler, David Bohm, and Vimala Thakar, not including several other spiritual influences.

As all of these have now died, the website also has a Community page, suggesting how specialists, as both individuals and organizations, could generate the synergy that we need to fulfil the objects of the Alliance. Sadly, however, this initiative has also generated very little interest, despite Matthew Fox saying in the Preface to Andrew Harvey and Carolyn Baker’s *Savage Grace: Living Resiliently in the Dark Night of the Globe* from 2017, “Ours is a time not only for scientists and inventors but also mystics and contemplatives to join hands so that our action flows from being and from a deep place of return to the Source.”<sup>444</sup>



Therein lies humanity's greatest tragedy. We can only heal our fragmented minds and split psyches—recognizing that we are all interconnected—through the action of the creative power of Life emanating directly from the Source. But healing our grievously sick society in this manner is not something that any of us can control, as supposedly autonomous beings, with the free will to act in any way that we might choose.

Yes, as many have demonstrated, it is possible to heal the experiential split between humanity and Divinity, because none of us is ever separate from the Immortal Ground of Being for an instant. But such a spiritual awakening is not a cognitive exercise, which can be accomplished by thinking. Also, even spiritual practices, like *neti, neti* in *Jñāna yoga*, designed to kill the mind, only happen through the will of the Divine. For, as Advaita sages, like Ramesh S. Balsekar, point out, there is no doership, or, indeed, ownership. So, if we are to experience union with the Absolute in the Eternal Now, there is no agency to tell us that no techniques practiced through time can carry us all the way Home to Wholeness in the Eternal Now. Such Divine Self-realization happens naturally when we stand outside ourselves, transcending the categories.

This is most obvious when we recognize that we are all just waves and currents on and beneath the surface of the Ocean of Consciousness, as a multidimensional extension of Bohm's notion of the holomovement in the Implicate Order, with which he unified quantum and relativity theories. My final book *Unifying Mysticism and Mathematics* is an attempt to explain this mathematically,<sup>445</sup> as a development of my other mathematical book *Through Evolution's Accumulation Point*, explaining why nearly fourteen billion years of bifurcating evolution degenerated into chaos nearly twenty years ago.

I don't feel that analysing this chaos in any detail could help anyone. Given the exponential acceleration of evolutionary change, the only point that I need to make is that conservatism, fanatically defending an egocentric and ethnocentric sense of identity, is the most obvious symptom of a perilously sick society. However, while progressive liberals in the 'woke' community have a broader awareness of social inequalities, even they are not fully addressing the most urgent needs of humanity.

For there is now overwhelming evidence that our biological species is likely to become extinct before 2030, as we can visualize by looking inwards with holistic minds, integrating many different indicators into a coherent whole. However, this existential crisis was not addressed at the recent COP26 in Glasgow with the necessary psychospiritual understanding. Rather, the great god of money—often used to assuage people's fear of death—held sway over the proceedings, inhibiting countries from working harmoniously together for the benefit of us all. For the UK government mistakenly asserted that the climate action needed to reach the aims of the conference could go hand-in-hand with economic growth and hence unsustainable consumerism.

This was stated in a 48-page brochure titled 'COP26 Explained', which the government of the *dis*-United Kingdom issued prior to the 26th United Nations Climate Change Conference of the Parties. As the document said, "The targets announced in Paris [at COP21 in 2015] would result in warming well above 3 degrees by 2100 compared to pre-industrial levels."<sup>446</sup>

However, unlike the specialist cells and organs in our bodies, the cells in the body politic do not have the necessary holistic self-awareness to act synergistically for the benefit of the whole of humankind. Rather, the Paris Agreement called for every country at the conference to communicate or update their emissions reduction targets, known as their Nationally Determined Contribution (NDC). Specifically, countries were asked to come forward with ambitious 2030 NDCs that align with reaching net-zero carbon emissions by

the middle of the century, so that the average global temperature does not rise more than 1.5 degrees above pre-industrial levels.

All to no avail, for the divisive fragmentation of the global community rose to the fore. In the initial ‘Glasgow Climate Pact’, published by the United Nations Framework Convention on Climate Change (UNFCCC) on the morning of the final Saturday of the conference, it called upon Parties to accelerate “efforts towards the phase-out of unabated coal power and inefficient fossil fuel subsidies”.<sup>447</sup> However, this was something that India and China could not commit to and they demanded that ‘phase-out’ be replaced with ‘phase-down’.<sup>448</sup> This is particularly ironic, for these countries provided the cradle for Advaita, Tao, and Zen, giving birth to ways of life<sup>449</sup> of much profundity, as some spiritual seekers inwardly know today.

What is most tragic is the fate of our children, many of whom sense that they have no future, becoming depressed, as I did during my formal education. But, at least, I had a future, unlike today’s adolescents, no matter what they might be taught. Greta Thunberg and her fellow environmental activists are endeavouring to give them hope, with her ‘blah, blah’ speeches, not unlike the little boy in Hans Christian Anderson’s ‘The Emperor’s New Clothes’, who called out “He’s got nothing on!”<sup>450</sup>



However, despite what the authorities and their courtiers might tell us, we have now passed the point of no return. There is nothing any of us can do to prevent the near-term extinction of the species that Linnaeus named, in Latin, ‘wise human’. As Guy McPherson points out in an article titled ‘Why Are We Here?’, we are living today in a ‘Planetary Hospice’.<sup>451</sup> So, is there any way that we could support each other during the final few years of humankind’s life on Earth?



For myself, a handful of friends and relatives seek out my company as just an ordinary human being. Of special mention are my oldest friends in England, who have been with me through thick and thin for over fifty years, and two friends from India, who have invited me to write forewords and an afterword to books of poems they have written,<sup>452</sup> which they appreciate.

However, what I have learnt over the years about humankind’s relationship to Totality lies entirely hidden in the Cosmic Psyche, whose existence is rarely acknowledged, as this vast expanse is invisible to the physical senses. As even my demeanour at any one moment does not communicate what is within, this memoir is an attempt to make this understanding visible. I liken such writings to a musical score, which must be ‘played’ to be heard, with many different ‘instruments’ playing in harmony and many possible symphonic interpretations.

*Who are we? Where do we come from? Where are we heading?*

But for the most part, my extraordinary ontogeny makes it difficult for many to relate to the integral insights that have been revealed to me. Because I have spent a lifetime questioning the fundamental belief systems of the culture I was born in—as Krishnamurti and Bohm advocated—what I have been learning has mostly been ignored and rejected. Even potential associates, seeking to maintain their social and familial environment as normal decent folk, have sometimes treated me as a *persona non grata* over the years, not acknowledging my basic needs as a sensitive, vulnerable human being.

I am reminded here of a nature programme that I once saw on television, where a herd of antelopes pushed out an albino born into its midst. We see similar behaviour in the playground, where children who do not fit in are sometimes bullied. Even the immune response of the body reacts in a similar manner, not always distinguishing what is threatening or healing. Systems theorists call such defensive behaviour *homeostasis* ‘staying the same’, from Greek *ómoios* ‘similar’ and *stasis* ‘standing still’.

Paulo Coelho, author of *The Alchemist*, experienced just such a situation as an adolescent, when he wanted to be an artist against his parents’ wishes, three times being sent to a mental hospital to ‘cure’ him of his ‘madness’. In the 1990s, discovering many others in a similar situation, he wrote an influential novel titled *Veronika Decides to Die*, which celebrates individuals who do not fit into patterns society considers to be normal, becoming free of the collective madness that is called sanity. As Coelho wrote in the afterword for this brilliantly insightful and inspiring book, “Between normality and madness, which are basically the same thing, there exists an intermediary stage: it is called ‘being different’.”<sup>453</sup>

Theologians sometimes use the word *autosoteria* ‘self-preservation’ for this ubiquitous behaviour pattern, from Greek *autos* ‘self’ and *sōteria* ‘salvation, deliverance, means of preserving; safe-existence; well-being, ease’, from *sōtēr* ‘saviour, preserver, deliverer’, from *sōs* ‘safe and sound, healthy, entire; sure’. This word is cognate with *soteriology* ‘the study of religious doctrines of salvation’. So, what *autosoteria* means depends on what religionists mean by ‘self’. In religions that seek to maintain the millennia-long split between humanity and Divinity, the focus seems to be on the eternal life of the soul after death. However, in religions that recognize that Brahman and Atman are one, in various ways, there is no personal soul to be saved, and practitioners can live in Peace in union with the Immortal Ground of Being, as the Divine Soul of the Cosmos.

Despite the tendency of civilizations to maintain the status quo, at every point of my journey, Life has provided me with the financial and temporal resources I have needed to survive and conduct my studies. I have thus been able to overcome the unwillingness of any institutions or tech billionaires to fund researches into the most critical unsolved problem in science: what is causing the rate of evolutionary change in society to accelerate exponentially?

To soothe the emotions that inevitably arise within me as a reluctant outsider to society, triggering what Jung called an ‘inner civil war’, I obviously need to accept without judgement that we are all where we are through the will of God.<sup>454</sup> But intelligently healing my psychological wounds with the unconditional acceptance of what is happening to us all leads me to ask just one final question.

Even though we are all interconnected, why has the Universe been designed in such a way as to reveal its innermost secrets to just one insignificant drop in the multidimensional Ocean of Consciousness? Of course, as every drop is beyond compare, this is not an appropriate question for any particular drop to ask. So, at this, I’ll just fall back into Ineffable Wholeness in Stillness in the Presence of the Divine in Non-duality, transcending the vertical and horizontal dimensions of time in the Eternal Now. For, as I now understand, such an exquisite, blissful realization is the true purpose of my life on Earth, as an undivided human being, with nothing and no one outside me.

- <sup>1</sup> Carl Linnæus, *Systema naturæ per regna tria naturæ, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis* 'System of nature through the three kingdoms of nature, according to classes, orders, genera and species, with characters, differences, synonyms, places', 1st ed. 1735, 10th ed., Stockholm: Lars Salvius, 1758.
- <sup>2</sup> W. T. Stearn, 'The Background of Linnaeus's Contributions to the Nomenclature and Methods of Systematic Biology', *Systematic Zoology*, Vol. 8, No. 1, Mar. 1959, pp. 4–22.
- <sup>3</sup> Paramahansa Yogananda, *Autobiography of a Yogi*, 1st ed. 1946, 13th ed. 1998, Los Angeles, California: Self-Realization Fellowship, 1998, p. 3. Reference to the *Guru Gita*, verse 17.
- <sup>4</sup> Anthony Storr, *Solitude*, first published in 1988 as *The School of Genius*, London: HarperCollinsPublishers, p. ix.
- <sup>5</sup> Stanislav Grof with Hal Zina Bennett, *The Holotropic Mind: The Three Levels of Human Consciousness and How They Shape Our Lives*, New York: HarperSanFrancisco, 1990, pp. 38–39.
- <sup>6</sup> Julian Huxley, 'Transhumanism' in *New Bottles for New Wine*, London: Chatto & Windus, 1957, pp. 13–17.
- <sup>7</sup> Max More and Natasha Vita-More, eds., *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, Chichester, West Sussex: Wiley-Blackwell, 2013.
- <sup>8</sup> Joseph Campbell, *The Hero with a Thousand Faces*, 2nd ed., 1st ed. 1949, Princeton University Press, 1968, p. 259.
- <sup>9</sup> *Ibid.*, p. 30.
- <sup>10</sup> Peter Christen Asbjørnsen and Jørgen Moe, tr. 'Soria Moria Castle' in *Norwegian Folk Tales*, Random House, 1991.
- <sup>11</sup> Theodor Kittleson's original painting is in the Norwegian National Gallery, with the title, 'Langt, langt borte så han noe lyse og glitre'.
- <sup>12</sup> Robert Way, tr. and ed., *The Cloud of Unknowing and The Letter of Private Direction*, first published between 1349 and 1395, Source Books, 1986.
- <sup>13</sup> Yuval Noah Harari, *Sapiens: A Brief History of Humankind*, London: Harvill Secker, 2014, Part One.
- <sup>14</sup> <https://noetic.org>.
- <sup>15</sup> People Staff, 'Edgar Mitchell's Strange Voyage', *People*, 8th April 1974, <https://people.com/archive/edgar-mitchells-strange-voyage-vol-1-no-6/>.
- <sup>16</sup> F. C. Happold, *Mysticism: A Study and an Anthology*, rev ed., 1st ed. 1963, Harmondsworth, England: Penguin, 1970, p. 72.
- <sup>17</sup> Revelation 22:13.
- <sup>18</sup> 1 John 4:16.
- <sup>19</sup> [http://www.vatican.va/holy\\_father/benedict\\_xvi/encyclicals/documents/hf\\_ben-xvi\\_enc\\_20051225\\_deus-caritas-est\\_en.html](http://www.vatican.va/holy_father/benedict_xvi/encyclicals/documents/hf_ben-xvi_enc_20051225_deus-caritas-est_en.html).
- <sup>20</sup> Rumi, *Rumi • Fragments • Ecstasies*, tr. Daniel Liebert, first published c. 1244, Cedar Hill, MT: Source Books, 1981, p. 31.
- <sup>21</sup> Richard Maurice Bucke, *Cosmic Consciousness: A Study in the Evolution of the Human Mind*, 1st ed. 1901, Harmondsworth, England: Penguin, Arkana, 1991, pp. 3–5.
- <sup>22</sup> Yehuda Berg, *The Power of Kabbalah: This Book Contains the Secrets of the Universe and the Meaning of our Lives*, Hodder Mobius, 2004, p. 250.
- <sup>23</sup> <https://thomashuebl.com/academy-inner-science/>.
- <sup>24</sup> Erich Fromm, *To Have or To Be?* 1st ed. 1976, London: Sphere, Abacus, 1979, pp. 170–171.
- <sup>25</sup> *Ibid.*, p. 165.
- <sup>26</sup> Johannes Kepler, *New Astronomy*, trs., William H. Donahue and Owen Gingerich, first published as *Astronomia Nova*, 1609, Cambridge University Press, 1992.
- <sup>27</sup> Johannes Kepler, *The Harmony of the World*, trs. E. J. Aiton, A. M. Duncan, and J. V. Field, first published as *Harmonice Mundi*, 1619, Philadelphia: American Philosophical Society, 1997.
- <sup>28</sup> Berg, *Power of Kabbalah*, pp. 14 and 19.
- <sup>29</sup> New Scientist and Press Association, 'Astronomers have created the largest ever map of dark matter', *NewScientist*, 28th May 2021, <https://www.newscientist.com/article/2278932-astronomers-have-created-the-largest-ever-map-of-dark-matter/>.
- <sup>30</sup> Hitendra Wadhwa, 'Steve Jobs's Secret to Greatness: Yogananda, The story of the spiritual teacher who was a silent force in the life of the most important entrepreneur of our times', *Inc.*, 21st June 2015, <https://www.inc.com/hitendra-wadhwa/steve-jobs-self-realization-yogananda.html>.
- <sup>31</sup> Yogananda, *Autobiography of a Yogi*, pp. 478–479.
- <sup>32</sup> Helena P. Blavatsky, *Isis Unveiled: A Master Key to the Mysteries of Ancient and Modern Science and Theology*, 1877

and *The Secret Doctrine: The Synthesis of Science, Religion, and Philosophy*, 1888.

<sup>33</sup> Bernstein, *Einstein* p. 47.

<sup>34</sup> Ervin Laszlo, *The Akasha Paradigm in Science: (R)Evolution at the Cutting Edge*, Worthy Shorts, 2012, p. 52.

<sup>35</sup> Vivekanda, *Raja Yoga*, ed. Richard Cockrum, *Shards of Consciousness*, p. 28.

<sup>36</sup> Titus Burckhardt, *Alchemy: Science of the Cosmos, Science of the Soul*, tr. by William Stoddart from *Alchemie*, 1960, London: Stuart & Watkins, 1967, p. 15.

<sup>37</sup> Plato, *The Republic*, 2nd ed., tr. Desmond Lee, 1st ed. 1955, Harmondsworth, England: Penguin, 1974, translator's note, p. 266.

<sup>38</sup> Bertrand Russell, *History of Western Philosophy*, 2nd ed. 1961, 1st ed. 1946, London: George Allen & Unwin, 1979, p. 13.

<sup>39</sup> Immanuel Kant, *Critique of Pure Reason*, tr. Norman Kemp Smith, first published as *Kritik der reinen Vernunft*, 1781/1787, 2nd ed. 1933, 1st ed. 1929, London: Macmillan Press, 1982, pp. 265-275.

<sup>40</sup> Pierre Teilhard de Chardin, *The Human Phenomenon*, tr. Sarah Appleton-Weber, orig. pub. *Le phénomène humain*, 1955, Sussex Academic Press, 2003, p. 110.

<sup>41</sup> Ursula King, *Spirit of Fire: The Life and Vision of Teilhard de Chardin*, Maryknoll, NY: Orbis Books, 1996, p. 170.

<sup>42</sup> R. F. C. Hull, translator's note, in C. G. Jung, *The Structure and Dynamics of the Psyche*, p. 300.

<sup>43</sup> C. G. Jung, *Psychology and Alchemy: Collected Works, Volume 12*, tr. from German by R. F. C. Hull from *Psychologie und Alchemie* (Zurich, 1944; 2nd ed., rev. 1952), 2nd ed. 1968, para. 9, pp. 8-9.

<sup>44</sup> Fred D. Miller Jr., tr. Aristotle, *On the Soul - And Other Psychological Works*, Oxford University Press, 2018, Introduction, p. ix.

<sup>45</sup> Jacques Hadamard, *The Psychology of Invention in the Mathematical Field*, 1st ed., Princeton University Press, 1945, Reprint, New York: Dover, 1954, pp. 142-143.

<sup>46</sup> David Bohm, *Wholeness and the Implicate Order*, London: Routledge, pp. 3-4.

<sup>47</sup> The El Castillo cave, located in Puente Viesgo, Cantabria, Northern Spain, still open to the public, contains palaeolithic art at least 40,800 years, albeit somewhat more primitive (<http://cuevas.culturadecantabria.com/el-castillo-2/>). Recently, earlier drawings of animals have been found in Indonesia, such as this image of a wild pig, believed to be drawn 45,500 years ago (<https://www.bbc.com/news/world-asia-55657257>).



An even earlier example of human drawing is this fragment of rock, estimated to be 73,000 years old, found in Blombos cave in South Africa (<https://www.theguardian.com/science/2018/sep/12/earliest-known-drawing-found-on-rock-in-south-african-cave>):



So we are constantly needing to revise our timescales of early human development.

<sup>48</sup> Ken Wilber, *Up from Eden: A Transpersonal View of Human Evolution*, originally published 1981, Wheaton, IL: Quest Books, 1996, Chapters 6 and 7 ‘Great Mother’ and ‘Great Goddess’, pp. 119–156.

<sup>49</sup> Anne Baring and Jules Cashford, *The Myth of the Goddess: Evolution of an Image*, Penguin Books, 1993, pp. 3–5 and 10.

<sup>50</sup> Joseph Campbell, *Historical Atlas of World Mythology - Vol. I: The Way of the Animal Powers, Part 1: Mythologies of the Great Hunt*, New York: Harper & Row, pp. 64 and 71.

<sup>51</sup> Carl Haub, Demographer Emeritus, and Toshiko Keneda, Senior Research Associate, at Population Reference Bureau (PRB): <https://www.prb.org/howmanypeoplehaveeverlivedonearth/>.

<sup>52</sup> <https://www.worldometers.info/world-population/>.

<sup>53</sup> Aldous Huxley, *The Perennial Philosophy*, 1st ed. 1944, Harper & Row, Perennial, 1970.

<sup>54</sup> Betty Jo Teeter Dobbs, *The Foundations of Newton's Alchemy or "The Hunting of the Greene Lyon"*, 1st ed. 1975, Cambridge University Press, 2008, pp. 105–111.

<sup>55</sup> Michael White, *Isaac Newton: The Last Sorcerer*, Fourth Estate, 1998.

<sup>56</sup> Martin Rees, *Our Final Century: Will the Human Race Survive the Twenty-first Century?* Arrow Books, 2004, pp. 146–147.

<sup>57</sup> Eugene Wigner, ‘The Unreasonable Effectiveness of Mathematics in the Natural Sciences’. *Communications on Pure and Applied Mathematics*. Vol. 13, No. 1, February 1960, pp. 1–14. (Richard Courant lecture in mathematical sciences delivered at New York University, 11th May 1959.)

<sup>58</sup> For instance, Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos: Man's New Dialogue with Nature*, London, Flamingo, 1985, p. 233, give this quote from A. S. Eddington, *The Nature of the Physical World*, New York: Macmillan, 1948, p. 74:

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.

Another who has denied that science can explain the growth of structure is Brian Cox, who 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.” This celebrity physicist is thus deluding the general public with the belief 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. (John D. Barrow and Frank J. Tipler, *The Anthropic Cosmological Principle*, Oxford University Press, 1986, p. 166, referencing Stephen G. Brush, *The Temperature of History: Phases of Science and Culture in the Nineteenth Century*, New York: Franklin, 1978.)

<sup>59</sup> James Strong, *The Strongest Strong's Exhaustive Concordance of the Bible*, fully revised and corrected by John R. Kohlenberger III and James A. Swanson, original published 1894, Grand Rapids, MI: Zondervan, 2001, nos. 5315 and 7307 in Hebrew concordance and 5151 and 5590 in Greek.

<sup>60</sup> Ingrid Fischer-Schreiber, Franz-Karl Ehrhard, Kurt Friedrichs, and Michael S. Diener, *The Encyclopedia of Eastern Philosophy and Religion: Buddhism • Hinduism • Taoism • Zen*, tr. from German, 1st ed., Bern and Munich: Otto-Wilhelm-Barth Verlag, 1986, Boston: Shambhala, 1989, article on **Atman**, p. 22.

<sup>61</sup> Garma C. C. Chang, *The Buddhist Teaching of Totality: The Philosophy of Hwa Yen Buddhism*, Penn State Press, 1971, pp. 141.

<sup>62</sup> Henri Bergson, *Creative Evolution*, tr. Arthur Mitchell from *L'évolution créatrice*, 1907, 1st ed., New York: Holt, 1911, Lanham, MD: University Press of America, 1983, pp. 87–97.

<sup>63</sup> <http://www.reginaldkapp.org>.

<sup>64</sup> Reginald O. Kapp, *Science versus Materialism*, London: Methuen, 1940, pp. 57 and 211.

<sup>65</sup> Richard Tarnas, *The Passion of the Western Mind: Understanding the Ideas That Have Shaped Our World View*, New York: Harmony Books, 1991, p. 45.

<sup>66</sup> The best that scientists can do to explain creativity and the growth of structure is with the notion of self-organizing systems, which Humberto Maturana and Francisco Varela introduced in 1972. 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.

(Humberto R. Maturana and Francisco J. Varela, *Autopoiesis and Cognition: The Realization of the Living*, eds. Robert S. Cohen and Marx W. Wartofsky, in *Autopoiesis: The Organization of the Living*, originally published in Chile as *De Maquinas y Seres Vivos*, 1972, Dordrecht, Holland: Reidel, 1980, pp. 78–79.)

<sup>67</sup> David Pogue, 'Beyond the Elements', NOVA on PBS, February 2021, <https://www.pbs.org/wgbh/nova/series/beyond-elements/episodes/>.

<sup>68</sup> Albert Einstein, 'Maxwell's Influence on the Evolution of the Idea of Physical Reality', in *James Clerk Maxwell: A Commemorative Volume*, Cambridge University Press, 1931, reprinted in Albert Einstein, *Ideas and Opinions*, based on *Mein Weltbild*, ed. Carl Seelig, tr. Sonja Barmann, 1st ed. 1954, London: Condor, Souvenir Press, 2005, p. 266.

<sup>69</sup> Alfred Korzybski, *Science and Society: An Introduction to Non-Aristotelian Systems and General Semantics*, 5th ed., 1st ed. 1933, Englewood, NJ: Institute of General Semantics, 1994, p. 58.

<sup>70</sup> Evelyne Blau, *Krishnamurti: 100 Years*, New York: Stewart, Tabori and Chang, 1995, p. 159.

<sup>71</sup> E. F. Schumacher, *A Guide for the Perplexed*, 1st ed. 1977, London: Abacus, 1978, p. 15 and 22.

<sup>72</sup> Osho, *The Book of Secrets: 112 Keys to the Mystery Within*, New York: St. Martin's Griffin, 1998, p. 141, transcript of discourse given on 13th November 1972 in Woodlands, Bombay.

<sup>73</sup> John Bowlby, *Attachment and Loss, Vol. 1: Attachment*, 2nd ed., 1982, 1st ed. 1969, London: Pimlico, 1997; *Attachment and Loss, Vol. 2: Separation: Anxiety and Anger*, 1973, London: Pimlico, 1998; and *Attachment and Loss, Vol. 3: Loss: Sadness and Depression*, 1980, London: Pimlico, 1998.

<sup>74</sup> Daniel Bell, *The Coming of Post-Industrial Society*, Basic Books, 1973.

<sup>75</sup> <https://jupyter.org/about>.

<sup>76</sup> Daniel Bell, 'The Social Framework of the Information Society' in *The Computer Age: A Twenty-Year View*, eds. Michael L. Dertouzos and Joel Moses, Cambridge, MA: MIT Press, 1979, p. 173.

<sup>77</sup> <https://www.aljazeera.com/program/upfront/2021/2/19/yanis-varoufakis-capitalism-has-become-techno>.

<sup>78</sup> <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>.

<sup>79</sup> <https://www.economist.com/briefing/2017/05/06/data-is-giving-rise-to-a-new-economy>.

<sup>80</sup> Naomi S. Baron, *Computer Languages: A Guide for the Perplexed*, 1st ed., Anchor Books, 1986, Harmondsworth, England: Penguin, 1988, pp. 124–134.

<sup>81</sup> P. G. W. Keen and M. S. Scott Morton, *Decision Support Systems: An Organizational Perspective*, Reading, MA: Addison-Wesley, 1978, pp. 11–12.

<sup>82</sup> Eugene Charniak and Drew McDermott, *Introduction to Artificial Intelligence*, Reading, MA: Addison-Wesley, 1985, pp. 10–11.

<sup>83</sup> Herbert A. Simon, *The New Science of Management Decision*, Prentice Hall, 1977, p. 6.

<sup>84</sup> Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. Kathryn Sutherland, 1st ed. 1776, Oxford University Press, 1998, p. 8.

<sup>85</sup> Claude Shannon, confusingly known as 'the father of information theory', admitted in 'Information Theory', *Encyclopaedia Britannica*, Vol. 12, 14th ed., p. 246B, "The signals or messages need not be meaningful in any ordinary sense."<sup>85</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. His original paper was C. E. Shannon, 'A Mathematical Theory of Communication', *The Bell System Technical Journal*, Vol. 27, pp. 379–423, 623–656, July, October, 1948.

Today, some scientists who view the physical universe as an information system still use Shannon's stochastic concept of information, apparently not aware of Bohm's emphasis on meaning. For instance, Jude Currivan has said, "digitized information ... is exactly the same as the universal information that underpins and makes up all physical reality." (Zaya and Maurizio Benazzo, *On the Mystery of Being: Contemporary Insights on the Convergence of Science and Spirituality*, Oakland, CA: Reveal Press, 2019, p. 69.)

This idea that information is nothing more than binary digits (bits) has now been extended into quantum computation, where quantum bits (qubits) can be both 0 and 1, the value being determined when the qubits are 'read'. But, so-called quantum information, which Michael A. Nielsen, Isaac L. Chuang, and Vlatko Vedral<sup>85</sup> defined and studied in the 2010s, doesn't help us to demystify the mystery of life and being, to understand what it truly means to be human. (Michael A. Nielsen and Isaac L. Chuang, *Quantum Computation and Quantum*

Information, Cambridge University Press, 2011, Vlatko Vedral, *Decoding Reality: The Universe as Quantum Information*, Oxford University Press, 2018)

<sup>86</sup> Sherman C. Blumenthal, *Management Information Systems: A Framework for Planning and Development*, Englewood Cliffs, NJ: Prentice-Hall, 1969, p. 30.

<sup>87</sup> <https://www.iso.org/iso-9001-quality-management.html>.

<sup>88</sup> Leonhard Euler, 'On Functions in General', in *Introduction to Analysis of the Infinite: Book I*, tr. John D. Blanton, 1st ed., *Introductio in analysin infinitorum*, 1748, New York: Springer-Verlag, 1988, pp. 2–16. Eneström Index, E101.

<sup>89</sup> C. Edward Sandifer, *How Euler Did It*, The Mathematical Association of America, 2007.

<sup>90</sup> [https://en.wikipedia.org/wiki/IBM\\_SSEC](https://en.wikipedia.org/wiki/IBM_SSEC).

<sup>91</sup> Doron Swade, *The Difference Engine: Charles Babbage and the Quest to Build the First Computer*, Penguin Books, 2002, p. 105.

<sup>92</sup> Benjamin Woolley, *The Bride of Science: Romance, Reason and Byron's Daughter*, Pan Books, 2000.

<sup>93</sup> L. F. Menabrea, 'Sketch of the Analytical Engine Invented by Charles Babbage' with notes on memoir by translator, Ada Augusta Lovelace, *Taylor's Scientific Memoirs*, London, Vol. III, 1843, pp. 666–731, reprinted in Philip Morrison and Emily Morrison, editors, *Charles Babbage and His Calculating Engines: Selected Writings* by Charles Babbage and Others, New York: Dover, 1961, p. 284. 'Memoir on Analytical Engine', p. 252.

<sup>94</sup> Andrew S. Tanenbaum, *Structured Computer Organization*, Englewood Cliffs, NJ: Prentice Hall, 1979, p. 10.

<sup>95</sup> Gilbert Ryle, *The Concept of Mind*, 1st ed., Hutchinson, 1949, Harmondsworth, England: Penguin, 1963, pp. 28–32.

<sup>96</sup> Ted Codd, 'A Relational Model of Data for Large Shared Data Banks' in *Communications of the ACM*, Vol. 13, No. 6, June 1970, pp. 377–387.

<sup>97</sup> Richard Barker, *CASE\*Method: Entity Relationship Modelling*, Wokingham, England: Addison-Wesley, 1989.

<sup>98</sup> [https://en.wikipedia.org/wiki/Information\\_engineering](https://en.wikipedia.org/wiki/Information_engineering).

<sup>99</sup> Alan Turing, 'Computing Machinery and Intelligence', *Mind*, LIX, No. 236, 1950, reprinted in Hofstadter & Dennett, *The Mind's I*, pp. 53–67.

<sup>100</sup> Lovelace, 'Memoir on Analytical Engine', p. 284.

<sup>101</sup> Aristotle, *Physics*, 254b7–255b40, pp. 195–200, and 256a4–258b8, pp. 200–207.

<sup>102</sup> Aristotle, *Metaphysics*, 1073a27, p. 153.

<sup>103</sup> Thomas Aquinas, *Summa Theologiae*, a concise translation by Timothy S. McDermott, originally published, 1265–1273, Allen, TX: Christian Classics, 1989, pp. 12–14.

<sup>104</sup> David Attenborough, *Life on Earth: A Natural History*, London: Collins and British Broadcasting Corporation, 1979, p. 20.

<sup>105</sup> Times Books, *The Times Concise Atlas of the World*, London: Times Books, 1990, p. 31.

<sup>106</sup> [https://www.ibm.com/ibm/history/exhibits/attic2/attic2\\_207.html](https://www.ibm.com/ibm/history/exhibits/attic2/attic2_207.html).

<sup>107</sup> Richard S. Tedlow, *The Watson Dynasty: The Fiery Reign and Troubled Legacy of IBM's Founding Father and Son*, New York: HarperBusiness, 2003, p. 42.

<sup>108</sup> Thomas Graham Belden and Marva Robins Belden, *The Lengthening Shadow: The Life of Thomas J. Watson*, Boston: Little, Brown, 1962, p. 158.

<sup>109</sup> [https://en.wikipedia.org/wiki/Bundy\\_Manufacturing\\_Company](https://en.wikipedia.org/wiki/Bundy_Manufacturing_Company).

<sup>110</sup> Thomas J. Watson Jr., *A Business and Its Beliefs: The Ideas That Helped Build IBM*, McGraw-Hill, 2003, p. 8.

<sup>111</sup> J. J. O'Connor and E. F. Robertson, 'Herman Hollerith', *MacTutor History of Mathematics Archive*, July 1999. <https://mathshistory.st-andrews.ac.uk/Biographies/Hollerith/>.

<sup>112</sup> Watson Jr., *Business and Its Beliefs*, pp. vii and 14.

<sup>113</sup> Belden, *Lengthening Shadow*, pp. 125.

<sup>114</sup> IBM's 100 Icons of Progress, summary of 'A Culture of Think' at <https://www.ibm.com/ibm/history/ibm100/us/en/icons/>.

<sup>115</sup> Thomas J. Watson Jr. and Peter Petre, *Father, Son, and Co.: My Life at IBM and Beyond*, New York: Bantam Books, 1990, p. 302.

<sup>116</sup> IBM, 'A Culture of Think', [https://www.ibm.com/ibm/history/ibm100/us/en/icons/think\\_culture/](https://www.ibm.com/ibm/history/ibm100/us/en/icons/think_culture/).

<sup>117</sup> William H. Rodgers, *THINK: A Biography of the Watsons and IBM*, London: Weidenfeld and Nicolson, 1969, pp. 56–61, 15, and 97–99.

<sup>118</sup> Belden, *Lengthening Shadow*, pp. 126–127.

<sup>119</sup> Watson Jr. and Petre, *Father, Son, and Co.*, p. 148.

<sup>120</sup> Simon Nora and Alain Minc, *The Computerization of Society: A Report to the President of France*, tr. Massachusetts Institute of Technology from *L'Informatisation de la Société*, 1978, intro. Daniel Bell, MIT Press, 1980, p. 72.

- <sup>121</sup> Robert Reich, 'Why corporate social responsibility is BS', *The Guardian*, 26th September 2021.
- <sup>122</sup> Ernest Becker, *Escape from Evil*, New York: Free Press, 1985, Ch. 6, 'Money: The New Universal Immortality Ideology', pp. 73–90.
- <sup>123</sup> Calvert Watkins, editor, *The American Heritage Dictionary of Indo-European Roots*, rev. 2nd ed., 1st ed. 1985, Boston: Houghton Mifflin, 2000, language and culture note for *dhghem-*, p. 20.
- <sup>124</sup> I learned about Guy's scholarly studies in 2016, when a friend and neighbour told me about *Extinction Dialogs: How to Live with Death in Mind*, which Andrew Harvey asked Carolyn Baker and him to write a couple of years earlier. Guy is Professor Emeritus of Natural Resources at the University of Arizona, having retired from his tenured position in 2009, when 49, because "If we continue with business as usual, we likely are committed to a 4 C rise in average global temperature by mid-century. Such a profound and rapid rise in global temperature will reduce, to near zero, human habitat on Earth." (Guy R. McPherson, *Walking Away from Empire: A Personal Journey*, Baltimore: PublishAmerica, Kindle Editio, locs. 2011 and 2167.)
- <sup>125</sup> Robert Monroe, 'The "Heat Bombs" Destroying Arctic Sea Ice', Scripps Institution of Oceanography, 23rd April 2021, <https://scripps.ucsd.edu/news/heat-bombs-destroying-arctic-sea-ice>. Jennifer A. MacKinnon. et al, 'A Warm Jet in a Cold Ocean', *Nature Communications*, Vol. 12, Art. no. 2418, 23rd April 2021.
- <sup>126</sup> Guy McPherson, 'Climate-Change Summary: Nature Bats Last', 2nd August 2016, <https://guymcpherson.com/climate-chaos/climate-change-summary-and-update/>.
- <sup>127</sup> Glenn Fay, Jr., 'The "Blue Ocean Event" Will be a Tipping Point for our Climate', 15th July 2020, <https://glennfay.medium.com/the-blue-ocean-event-will-be-a-tipping-point-for-our-climate-42c05898862c>.
- <sup>128</sup> Tom Stonier, *The Wealth of Information: A Profile of the Post-Industrial Economy*, London: Thames Methuen, 1983, p. 18–19.
- <sup>129</sup> International Commission on Zoological Nomenclature (ICZN), *International Code of Zoological Nomenclature* (ICZN), Chapter 16: 'Types in the species group', Articles 71–76, <https://www.iczn.org/the-code/the-code-online/>.
- <sup>130</sup> [https://en.wikipedia.org/wiki/International\\_Code\\_of\\_Zoological\\_Nomenclature](https://en.wikipedia.org/wiki/International_Code_of_Zoological_Nomenclature), which states, "The name-bearing type for *Homo sapiens* Linnaeus, 1758 is deposited in Uppsala (the bones of Carl von Linné). This is a lectotype designated by Stearn 1959 [see note 2], correctly but unnecessarily because the usage of the name was unambiguous at that time, and still is."
- <sup>131</sup> J. Krishnamurti, *Education and the Significance of Life*, 1953, New York: HarperCollins, 1981, and *The Awakening of Intelligence*, 1973, London: Victor Gollancz, 1986.
- <sup>132</sup> Eckhart Tolle, *A New Earth: Awakening to Your Life's Purpose*, London: Penguin, 2006, pp. 138 and 309.
- <sup>133</sup> Osho, *Philosophia Perennis, Volume 2*, Chapter 2, 'Zorba The Buddha', 1st January 1979.
- <sup>134</sup> Osho, *The Golden Future*, Session 32, 'The New Man: The Very Salt of the Earth', Cologne, Germany: Rebel Publishing House, 1987, p. 297.
- <sup>135</sup> Barbara Marx Hubbard, letter in *What is Enlightenment?* Issue 31, December–February 2005/2006, p. 9.
- <sup>136</sup> Aurobindo, *The Life Divine*, first published as a serial, 1914–1919, original edition, 1939–1940, Sri Aurobindo Ashram, 2001, p. 141.
- <sup>137</sup> Plato, *Protagoras and Meno*, Penguin Classics, 2005, 343b, p. 51. Their leader was Thales of Miletos, who Bertrand Russell considered the first Greek philosopher (Bertrand Russell, *History of Western Philosophy*, 2nd ed., 1961, 1st ed. 1946, George Allen & Unwin, 1979, p. 44.)
- <sup>138</sup> A. F. Chalmers, *What is This Thing Called Science?: An Assessment of the Nature and Status of Science and Its Methods*, 2nd ed., 1st ed. 1978, Milton Keynes, England: Open University Press, p. 28.
- <sup>139</sup> Aristotle, *Categories, On Interpretation, and Prior Analytics*, tr. Harold P. Cooke and Hugh Tredennick, Cambridge: Harvard University Press; London: William Heinemann, 1938.
- <sup>140</sup> Francis Bacon, *The New Organon*, ed. Lisa Jardine and Michael Silverthorne, original edition *Novum Organum*, 1620, Cambridge University Press, 2000, p. 17.
- <sup>141</sup> Charles Sanders Peirce, 'Deduction, Induction, and Hypothesis', *Popular Science Monthly*, Vol. 13, August 1878, pp. 470–482, reprinted in *The Essential Peirce: Selected Philosophical Writings*, Volume 1 (1867–1893), eds. Nathan Houser and Christian Kloesel, Indiana University Press, 1992, pp. 186–189.
- <sup>142</sup> A more detailed description of the history of scientific method is contained within my books *The Theory of Everything: Unifying Polarizing Opposites in Nondual Wholeness* and *The Four Spheres: Healing the Split between Mysticism and Science*.
- <sup>143</sup> Vimala Thakar, *On an Eternal Voyage: An Inward Journey to Freedom including Dialogues with J. Krishnamurti*, Ahmedabad, India: New Order Book Co. for Vimala Prakashan Trust, 1972, pp. 35–36.
- <sup>144</sup> Walter Isaacson, *Einstein: His Life and Universe*, London: Pocket Books, 2007, pp. 26 and 145.

- <sup>145</sup> John Locke, *An Essay Concerning Human Understanding*, ed. R. S. Woolhouse, 1st ed. 1690, 5th ed 1706, London: Penguin Classics, 2004, p. 60.
- <sup>146</sup> Arthur Koestler, *The Ghost in the Machine*, 1st ed. 1967, London: Pan Books, Picador, 1975, pp. 163–165.
- <sup>147</sup> Arthur Koestler, *The Sleepwalkers: A History of Man's Changing Vision of the Universe*, 1st ed., Hutchinson, 1959, Harmondsworth, England: Penguin, Pelican, 1968, pp. 50–52.
- <sup>148</sup> Genesis 11:1–9.
- <sup>149</sup> Fischer-Schreiber, et al, *Encyclopedia of Eastern Philosophy and Religion*, articles on *satori*, from Japanese *saturō* 'to know' inwardly, where there is no distinction between the knower and the known, and *kenshō* 'seeing nature', pp. 308 and 180. *Kenshō* is often used synonymously with *satori*, but with the former being used "when speaking of an initial enlightenment experience that still requires to be deepened".
- <sup>150</sup> Thich Nhat Hanh, *Old Path White Clouds: Walking in the Footsteps of the Buddha*, tr. Mobi Ho, Berkeley, CA: Parallax Press, 1991, p. 465.
- <sup>151</sup> Dionysius the Areopagite, *Mystical Theology* in *Pseudo-Dionysius: The Complete Works*, Paulist Press International, 1993, p. 141.
- <sup>152</sup> Lynn Margulis and Dorion Sagan, *Acquiring Genomes: The Theory of the Origins of the Species*, Basic Books, 2003, p. 26
- <sup>153</sup> Ervin Laszlo, *The Age of Bifurcation: Understanding the Changing World*, Foreword by Ilya Prigogine, Philadelphia: Gordon and Breach, 1991.
- <sup>154</sup> John 8:31–32. "Then said Jesus to those Jews which believed on him, If ye continue in my word, then are ye my disciples indeed; And ye shall know the truth, and the truth shall make you free."  
In the Greek, *word* is *logos*, *know* is *gnōsesthe*, from *gnosis*, 'knowledge, wisdom, understanding', and *truth* is *alētheia*, the root of *alethic* 'modalities of truth in logic' and *alethiology* 'study of truth in logic', rarely used. Despite the reference to *Gnosis* and Heraclitus' *Logos*, Jesus' words are normally interpreted at the cognitive, intellectual level, rather than mystical, experiential one, grounded in the Truth.
- <sup>155</sup> Aurobindo, *The Synthesis of Yoga*, first published as a serial, 1914–1921, 1st ed. 1955, Twin Lakes, WI, USA: Lotus Press, 1996.
- <sup>156</sup> Arnold J. Toynbee and Edward D. Myers, *A Study of History Vol. XI: Historical Atlas and Gazetteer*, Oxford University Press, 1959, p. 90.
- <sup>157</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>158</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>159</sup> Cary F. Baynes, Translator's Preface to *The Secret of the Golden Flower*, p. vii.
- <sup>160</sup> Jay Ramsay, *Alchemy: The Art of Transformation*, London: Thorsons, 1997, p. 65.
- <sup>161</sup> Nicholas of Cusa, *Nicholas of Cusa: Selected Spiritual Writings*, tr. and intro. H. Lawrence Bord, pref. Morimichi Watanabe, New York: Paulist Press, 1997, pp. 5 and 206.
- <sup>162</sup> Ann Casement, 'Psychodynamic Therapy: The Jungian Approach', in Dryden, *Individual Therapy*, pp. 77–102 in Windy Dryden, ed., *Handbook of Individual Therapy*, London: Sage, 1996.
- <sup>163</sup> C. G. Jung, *Aion: Researches into the Phenomenology of the Self*, 2nd ed. with corrections, 1968 and 1978, 1st ed. 1959, Princeton University Press, 1979, Chapter III, 'The Syzygy: Anima and Animus', *Collected Works Volume 9, Part 2*.
- <sup>164</sup> C. G. Jung, 'A Study in the Process of Individuation' (1934/1950), in *The Archetypes of the Collective Unconscious, Collected Works, Volume 9, Part I*, pp. 290–354, paras. 525–626.
- <sup>165</sup> <http://www.vikkireedwatercolors.com>.
- <sup>166</sup> Jung, *Psychological Types*, p. 330, para. 556.
- <sup>167</sup> Generated with a Postscript program from: Phil Allen, Alastair Bearne, and Roger Smith, *Energy, Matter and Form: Toward a Science of Consciousness*, Boulder Creek, CA: University of the Trees Press, 1979, p. 81.
- <sup>168</sup> F. David Peat, *Infinite Potential: The Life and Times of David Bohm*, Reading, MA: Helix Books, Addison-Wesley, 1997, pp. 303–317.
- <sup>169</sup> James Hillman, *The Soul's Code: In Search of Character and Calling*, New York: Random House, 1996, pp. 3–40.
- <sup>170</sup> Bohm, *Wholeness and the Implicate Order*, p. 18.
- <sup>171</sup> <https://dbohm.com/category/proprioception/>.

<sup>172</sup> Jean Gebser, *The Ever-Present Origin: Foundations and Manifestations of the Aperspectival World*, tr. Noel Barstad and Algis Mickunas, Ohio University Press, 1986, p. 6.

<sup>173</sup> David Bohm, *Wholeness and the Implicate Order*, London: Routledge, p. 1.

<sup>174</sup> J. Krishnamurti, *Education and the Significance of Life*, 1st ed. 1953, HarperSanFrancisco, 1981, p. 18.

<sup>175</sup> Alan Shalloway and James Trott, *Design Patterns Explained: A New Perspective on Object-Oriented Design*, Addison Wesley, 2001.

<sup>176</sup> Christopher Alexander, *A Timeless Way of Building*, New York: Oxford University Press, 1979, pp. 19–40.

<sup>177</sup> For instance, Fritjof Capra said that in the ecological movement, a paradigm shift is taking place away from hierarchies towards networks. (Fritjof Capra, *The Web of Life: A New Synthesis of Mind and Matter*, London: HarperCollinsPublishers, 1996.) It seems that many don't want leaders, wishing everyone to be treated equally, with no one being special. Yet, this is confusing what Ken Wilber calls *domination hierarchies*, which are pathologically based on force or implied threat of force, with *actualization hierarchies*, whose function is to maximize the organism's potential. (Ken Wilber, *Sex, Ecology, Spirituality: The Spirit of Evolution*, Boston: Shambhala, 1995, pp. 21–23.)

<sup>178</sup> Teilhard, *Human Phenomenon*, p. 173.

<sup>179</sup> George Boole, *An Investigation of The Laws of Thought on Which Are Founded the Mathematical Theories of Logic and Probabilities*, 1st ed. 1854, reprint, New York: Dover, 1958.

<sup>180</sup> Augustus De Morgan, *On the Syllogism, and Other Logical Writings* (from 1846–1868), edited with an Introduction by Peter Heath, London: Routledge & Kegan Paul, 1966, p. 119.

<sup>181</sup> Kenneth Laine Ketner, *A Comprehensive Bibliography of the Published Works of Charles Sanders Peirce with a Bibliography of Secondary Studies*, 1986, p. 7.

<sup>182</sup> Members of Johns Hopkins University, *Studies in Logic*, edited by C. S. Peirce, with an Introduction by Max H. Fisch and a Preface by Achim Eschbach, 1st ed. 1883 by Little, Brown, and Company, Boston, MA, Amsterdam/Philadelphia: John Benjamins, 1983.

<sup>183</sup> Arthur Koestler, *Janus: A Summing Up*, London: Pan Books, Picador, 1979, p. 291.

<sup>184</sup> <https://www.shakespeare.org.uk/explore-shakespeare/blogs/food-love/>.

<sup>185</sup> Bohm, *Wholeness and the Implicate Order*, pp. 115–116 and 216n.

<sup>186</sup> David Bohm and Charles Biederman, *Bohm-Biederman Correspondence, Volume One: Creativity in Art and Science*, ed. Paavo Pylkkänen, London and New York: Routledge, 1999.

<sup>187</sup> Charles M. Barker, Helen Curran, and Mary Metcalf, *The 'New' Maths for Teachers and Parents of Primary School Children*, London: Arlington Books, 1964, p. v.

<sup>188</sup> A. P. de Candolle, *Théorie élémentaire de la botanique*, OED.

<sup>189</sup> Saunders Mac Lane, *Categories for the Working Mathematician*, Springer, 1988.

<sup>190</sup> Information systems architects, more focused on meaning than quantitative measurement, are thus free of the conventional business mantra: "If you cannot measure, you cannot manage." They are also free of Lord Kelvin's assertions about mechanistic, materialistic 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," quote from William Thomson, 'Electrical Units of Measurement' in *Popular Lectures and Addresses: Vol. 1, Constitution of Matter*, London: Macmillan, 1891, p. 80.

The one-sided emphasis in science on quantitative measure was Arthur Koestler's fourth pillar on unwisdom, referenced in note 426.

<sup>191</sup> Molière (J.-B. Poquelin), *Le Bourgeois Gentilhomme*, 1670, II.iv, *Oxford Dictionary of Quotations*, Oxford University Press, 1979, p. 353.

<sup>192</sup> Tim Freke, *The Mystery Experience: A Revolutionary Approach to Spiritual Awakening*, London: Watkins Publishing, 2012, Kindle edition, locations 606 and 155 of 5557.

<sup>193</sup> Letter from Oxford English Dictionary Word and Language Service (OWLS) in 1993.

<sup>194</sup> [http://www.infed.org/archives/e-texts/bohm\\_dialogue.htm](http://www.infed.org/archives/e-texts/bohm_dialogue.htm).

<sup>195</sup> David Bohm, *On Dialogue*, ed. Lee Nichol, London: Routledge, 1996, p. vii.

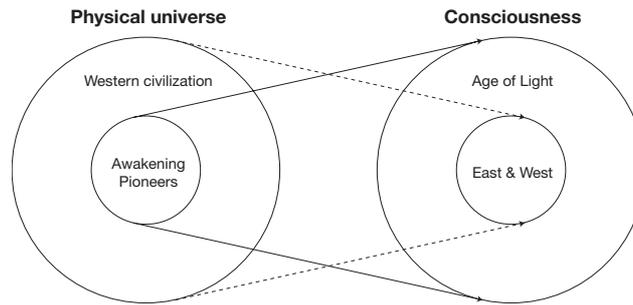
<sup>196</sup> David Graeber and David Wengrow, *The Dawn of Everything: A New History of Humanity*, London: Penguin Books, 2021.

<sup>197</sup> Carola Baumgardt, *Johannes Kepler: Life and Letters*, with introduction by Albert Einstein, London: Victor Gollancz, 1952, p. 10.

<sup>198</sup> Harman, Willis, *Global Mind Change: The New Age Revolution in the Way We Think*, New York: Warner, 1988,

pp. 33–37.

<sup>199</sup> This change in worldview is a contextual inversion rather than a paradigm shift, which I illustrated in the noughties with this diagram, still not understood and accepted:



<sup>200</sup> Ramesh S. Balsekar, *Consciousness Speaks: Conversations with Ramesh S. Balsekar*, ed. Wayne Liquorman, Advaita Press, 1992.

<sup>201</sup> <https://consciousness.arizona.edu/science-consciousness-conference-tucson>.

<sup>202</sup> Emily Lutyens, *Candles in the Sun*, Philadelphia & New York: J. B. Lippincott, 1957, pp. 173–174.

<sup>203</sup> ‘Einstein’s Unfinished Symphony’, BBC drama documentary, 20th January 2005.

<sup>204</sup> ‘Wanted: A Theory of Everything’, *New Scientist*, Vol. 186, No. 2497, 30th April 2005.

<sup>205</sup> David Parry, ‘The Trivium, the Trinity and the Theory of Everything: Education, Rhetoric and Religion in the works of Jan Amos Comenius and Martin Fotherby’, extended version of paper presented at the International Society of the History of Rhetoric in Bologna, Italy in July 2011, on [academy.edu](http://academy.edu), p. 5.

<sup>206</sup> John Amos Comenius, *A Reformation of Schooles*, tr. Samuel Hartlib of *Pansophiæ Prodomus*, 1639, and *Connatum pansophicorum dilucidatio*, 1639, first published, London: Michael Sparke, Sr., 1642, Menston, Yorkshire: Scolar Press, 1969.

<sup>207</sup> **pansophy**, OED.

<sup>208</sup> Frank E. and Fritzie P. Manuel, *Utopian Thought in the Western World*, Harvard University Press, 1979, pp. 205–213.

<sup>209</sup> Johannes Kepler, *New Astronomy*, trs., William H. Donahue and Owen Gingerich, first published as *Astronomia Nova*, 1609, Cambridge University Press, 1992.

<sup>210</sup> Aristotle, *Physics*, tr. Robin Waterfield, Oxford Paperbacks, 2008, ‘The Scope of Natural Science, 193b22, p. 36.

<sup>211</sup> Isaac Newton, *The Principia: Mathematical Principles of Natural Philosophy*, trs., I. Bernard Cohen and Anne Miller Whitman, originally published as *Philosophiæ Naturalis Principia Mathematica*, 1687, University of California Press, 1999.

<sup>212</sup> Albert Einstein, *Relativity: The Special and the General Theory*, tr. Robert W. Lawson, 1st ed. 1920, London: Methuen, 1960, pp. 19–20.

<sup>213</sup> *Ibid.*, p. 66.

<sup>214</sup> Basil Hiley, ‘Infinite Potential: The Legacy of David Bohm’, conference on 21st November 2009 at Queen Mary College, London, organized by the Scientific and Medical Network.

<sup>215</sup> David Bohm, *Wholeness and the Implicate Order*, London: Routledge, 1980, p. 176.

<sup>216</sup> *Ibid.*, p. 49.

<sup>217</sup> Kabir, *Songs of Kabir: A 15th Century Sufi Literary Classic*, tr. Rabindranath Tagore, 1915, Boston, MA: Weiser Books, 2002, p. 91.

<sup>218</sup> Bohm, *Wholeness and the Implicate Order*, p. 24.

<sup>219</sup> M. C. Escher & J. C. Locher, *The World of M. C. Escher*, ed. J. C. Locher, New York: Harry N. Abrams, 1971, p. 119.

<sup>220</sup> Basil J. Hiley, ‘Thirty Years with David Bohm’, *Pari Perspectives*, ‘The Quest for Wholeness’, Issue 2, December 2019, Pari, Italy: The Pari Center, p. 18. Hiley is referring here to a paper that Bohm presented at a conference in March 1984 under the auspices of the Center for Process Studies, published as ‘Time, the Implicate Order and Pre-Space’ in David Ray Griffin, ed., *Physics and the Ultimate Significance of Time: Bohm, Prigogine, and Process Philosophy*, State University of New York Press, 1986, pp. 177–208. As this did not result in the algebra that Bohm was seeking, in 2011, Hiley presented ‘The Algebra of Process’ in a paper titled ‘Process, Distinction, Groupoids and Clifford Algebras: an Alternative View of the Quantum Formalism’, published in Bob Coecke, ed., *New Structures for Physics: Lecture Notes in Physics 813*, Berlin: Springer Verlag, 2011, pp. 705–752.

<sup>221</sup> Lee Nichol, *Entering Bohm's Holoflux: Explorations in Participatory Consciousness*, Pari Publishing, 2021.

<sup>222</sup> Jan Christiaan Smuts, *Holism and Evolution*, originally published, 1926, reprint, Highland, NY: Gestalt Journal Press, 1996, p. v.

<sup>223</sup> *Ibid.*, p. 99.

<sup>224</sup> Romain Rolland, *The Life of Ramakrishna*, tr. E. F. Malcolm-Smith from *Vie de Ramakrishna*, 1929, Advaita Ashrama, 1931.

<sup>225</sup> Romain Rolland, *The Life of Vivekananda* and *The Universal Gospel*, tr. E. F. Malcolm-Smith from *Vie de Vivekananda*, 1930, Advaita Ashrama, 1931.

<sup>226</sup> Romain Rolland's letter to Sigmund Freud, 5th December 1927, in Robert K. C. Forman, *Meister Eckhart: The Mystic as Theologian, An Experiment in Methodology*, Rockport MA; Element Books, 1991, pp. 218–219.

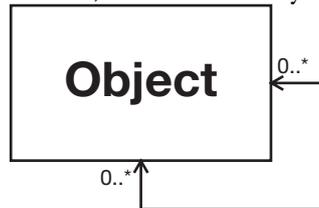
<sup>227</sup> 'In Memorium, David Bohm 1917–1992', *Pari Perspectives*, Issue 6, December 2020, Pari, Italy: The Pari Center, p. 202. This is the definition of *algebra* that Basil Hiley gave Antony Gormley in 1999 at a meeting of artists and scientists. As David Peat, who organized the meeting, tells us, "This struck Gormley and led him to make a radical change in his work which resulted in *Quantum Cloud*, now mounted over the river Thames."

<sup>228</sup> Roberto Assagioli, *Psychosynthesis: A Manual of Principles and Techniques*, Wellingborough, Northamptonshire: Turnstone Press, 1975.

<sup>229</sup> W. W. Rouse Ball with H. S. M. Coxeter, *Mathematical Recreations and Essays*, 1st ed. *Mathematical Recreations and Problems*, 1892, 13th ed., Mineola, NY: Dover, 1987, pp. 241–254.

<sup>230</sup> Paul Hague, 'The Evolution of Universals: Being a Universal Human', May 2015.

<sup>231</sup> This diagram is a generalization of the most abstract class model in object-oriented modelling methods, which a colleague at Front Capital Systems in the Stockholm World Trade Center showed me in the early noughties, in the notation of 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.



<sup>232</sup> Aristotle, tr. Hugh Tredennick, *Metaphysics, Books I-IX*, 1003a21–23, p. 147.

<sup>233</sup> Plato, *The Republic*, 2nd ed., tr. Desmond Lee, 1st ed. 1955, Harmondsworth, England: Penguin, 1974, 472c, p. 261.

<sup>234</sup> Aristotle, *Prior Analytics*, 24b17, p. 201.

<sup>235</sup> Ken Wilber, *Integral Spirituality: A Startling New Role for Religion in the Modern and Postmodern World*, Boston, MA: Shambhala Publications, 2006, pp. 30–31.

<sup>236</sup> Wilber, *Sex, Ecology, Spirituality*, pp. 121–123.

<sup>237</sup> C. G. Jung, *Psychological Types*, pp. 499–523.

<sup>238</sup> [https://en.wikipedia.org/wiki/Myers-Briggs\\_Type\\_Indicator](https://en.wikipedia.org/wiki/Myers-Briggs_Type_Indicator).

<sup>239</sup> Aristotle, *Metaphysics*, Books I-IX, tr. Hugh Tredennick, Cambridge: Harvard University Press; London: William Heinemann, 1933, 1005b20, pp. 161 & 163.

<sup>240</sup> Strong, *Strong's Exhaustive Concordance of the Bible*, pp. 386 and 724.

<sup>241</sup> Louis Massignon, *Hallaj: Mystic and Martyr*, translated, edited, and abridged by Herbert Mason, Princeton University Press, 1994, p. xvii.

<sup>242</sup> **Eckhart, Meister**, *Encyclopaedia Britannica*.

<sup>243</sup> [http://en.wikipedia.org/wiki/Death\\_by\\_burning](http://en.wikipedia.org/wiki/Death_by_burning).

<sup>244</sup> Ingrid D. Rowland, *Giordano Bruno: Philosopher / Heretic*, University of Chicago Press, 2008, pp. 154–155 and 272.

<sup>245</sup> *Ibid.*, pp. 270–271.

<sup>246</sup> Francis Bacon, *The Major Works*, including *The Advancement of Knowledge, New Atlantis, and the Essays*, ed. Brian Vickers, original edition of *Advancement of Knowledge*, 1605, Oxford University Press, 2002, pp. 147–148.

<sup>247</sup> Francis Bacon, *The New Organon*, 1st ed. 1620, eds. Lisa Jardine and Michael Silverthorne, Cambridge University Press, 2000, p. 6.

<sup>248</sup> *Ibid.*

<sup>249</sup> Lisa Jardine, Intro, Bacon, *New Organon*, p. xii.

<sup>250</sup> Bacon, *New Organon*, p. 17.

<sup>251</sup> *Ibid.*, aphorisms LXXIX and LXXX, pp. 64–66.

- <sup>252</sup> Frank H. George, *Precision, Language and Logic*, Elsevier, 1977, p. 72.
- <sup>253</sup> David Hume, *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects*, edited by Ernest C. Mossner, 1969, 1st ed. 1739, London: Penguin Classics, 1986, Book I, Part III, section vi, p. 137 and Book I, Part III, section xii, p. 185.
- <sup>254</sup> Paul Davies, *God and the New Physics*, Harmondsworth, England, Pelican: Penguin, 1984, pp. 200–201. The figures he gives are four to five billion years before the death of the Sun and eighteen billion years as the age of the physical universe, estimates that have since been revised.
- <sup>255</sup> Karl R. Popper, *Objective Knowledge: An Evolutionary Approach*, rev. ed, 1976, 1st ed. 1972, Oxford University Press, 1979, p. 4.
- <sup>256</sup> Rupert Sheldrake, *The Presence of the Past: Morphic Resonance and the Habits of Nature*, HarperCollinsPublishers, 1989.
- <sup>257</sup> Chalmers, *What is This Thing Called Science?*, p. 28.
- <sup>258</sup> Kuhn, *Scientific Revolutions*, 4th ed., introduced by Ian Hacking, Kindle edition, 2012.
- <sup>259</sup> Imre Lakatos, ‘Falsification and the Methodology of Scientific Research Programmes’, in Imre Lakatos and Alan Musgrave, editors, *Criticism and the Growth of Knowledge*, 1st ed. 1970, Cambridge University Press, 1995, p. 133.
- <sup>260</sup> Chalmers, *What is This Thing Called Science?*, p. 1980, p. 81.
- <sup>261</sup> Russell, *Western Philosophy*, p. 646.
- <sup>262</sup> Bertrand Russell, ‘Reflections on my Eightieth Birthday’ in *Portraits from Memory and Other Essays*, 1st ed. 1956, Nottingham: Spokesman, 1995, p. 53.
- <sup>263</sup> Bertrand Russell, ‘Why I Took to Philosophy’, in *Portraits from Memory and Other Essays*, pp. 19–21.
- <sup>264</sup> Stephen W. Hawking, *A Brief History of Time: From the Big Bang to Black Holes*, London: Transworld Publishers, Bantam Press, 1988, p. 168.
- <sup>265</sup> Edward Kasner and James Newman, *Mathematics and the Imagination*, Penguin Books, 1968, p. 33. Kasner’s nine year-old nephew Milton Sirota coined the words *googol* and *googolplex* in the 1930s, when his uncle asked him to create a name for a very big number ([http://en.wikipedia.org/wiki/Edward\\_Kasner](http://en.wikipedia.org/wiki/Edward_Kasner)).
- <sup>266</sup> Eric W. Weisstein, ‘Russell’s Antinomy’, from *MathWorld—A Wolfram Web Resource*, <https://mathworld.wolfram.com/RussellsAntinomy.html>.
- <sup>267</sup> Haskell B. Curry, *Foundations of Mathematical Logic*, New York: McGraw Hill, 1963, pp. 4–5.
- <sup>268</sup> Eric W. Weisstein, ‘Catalogue Paradox’, from *MathWorld—A Wolfram Web Resource*, <https://mathworld.wolfram.com/CatalogueParadox.html>.
- <sup>269</sup> Eric W. Weisstein, ‘Barber Paradox’, from *MathWorld—A Wolfram Web Resource*, <https://mathworld.wolfram.com/BarberParadox.html>.
- <sup>270</sup> Russell, ‘Reflections on my Eightieth Birthday’, p. 53.
- <sup>271</sup> Russell, *Principles of Mathematics*, p. 523.
- <sup>272</sup> Kline, *Mathematics*, p. 221.
- <sup>273</sup> Alfred North Whitehead, *A Treatise on Universal Algebra: with Applications*, Cornell University Library, 1898.
- <sup>274</sup> John G. Stater, Introduction to Russell, *Principles of Mathematics*, p. iv.
- <sup>275</sup> Alfred North Whitehead and Bertrand Russell, *Principia Mathematica to \*56*, shortened edition, 1962, 1st ed. in three volumes, 1910, 1912, and 1913, Cambridge University Press, 1997, p. 360.
- <sup>276</sup> Whitehead and Russell, *Principia Mathematica*, p. 37.
- <sup>277</sup> Stanford Encyclopedia of Philosophy, ‘Hilbert’s Program’, <https://plato.stanford.edu/entries/hilbert-program/>.
- <sup>278</sup> Ian Stewart, *Concepts of Modern Mathematics*, Harmondsworth, England: Penguin, 1975, p. 116.
- <sup>279</sup> Ernest Nagel and James R. Newman, *Gödel’s Proof*, 1st ed. 1959, London: Routledge & Kegan Paul, 1971, pp. 50–51.
- <sup>280</sup> Mark Jago simply describes this paradoxical situation on Computerphile, ‘Turing & The Halting Problem’, 21st August 2014, [https://youtu.be/macM\\_MtS\\_w4](https://youtu.be/macM_MtS_w4), and Tom Scott does so in ‘Are There Problems That Computers Can’t Solve?’, 11th May 2020, with over two million views, <https://youtu.be/eqvBaj8UYz4>.
- <sup>281</sup> To illustrate the simplicity of a noncomputable function, Tibor Radó devised the example of a busy-beaver function in 1962, which I summarize in *The Theory of Everything*. See also: [http://en.wikipedia.org/wiki/Busy\\_beaver](http://en.wikipedia.org/wiki/Busy_beaver).
- <sup>282</sup> Morris Kline, *Mathematics: The Loss of Certainty*, Oxford University Press, 1980, pp. 216–257.
- <sup>283</sup> *Ibid.*, pp. 59–60.

<sup>284</sup> <https://paricenter.com/jena-axelrod-absurdity-of-certainty/>.

<sup>285</sup> [https://en.wikipedia.org/wiki/Schr%C3%B6dinger's\\_cat](https://en.wikipedia.org/wiki/Schr%C3%B6dinger's_cat).

<sup>286</sup> Gottfried Wilhelm Leibniz, *Leibniz, Logical Papers: A Selection*, tr. and ed. G. H. R. Parkinson, Oxford: Clarendon Press, 1966.

<sup>287</sup> Jaakko Hintikka, *Lingua Universalis vs. Calculus Ratiocinator: An Ultimate Presupposition of Twentieth-Century Philosophy*, Selected Papers, Volume 2, Dordrecht, The Netherlands: Kluwer Academic Publishers, 1997, p. ix.

<sup>288</sup> George Boole, 'On a General Method in Analysis', *Philosophical Transactions of the Royal Society of London*, Vol. 134 (1844), pp. 225–282.

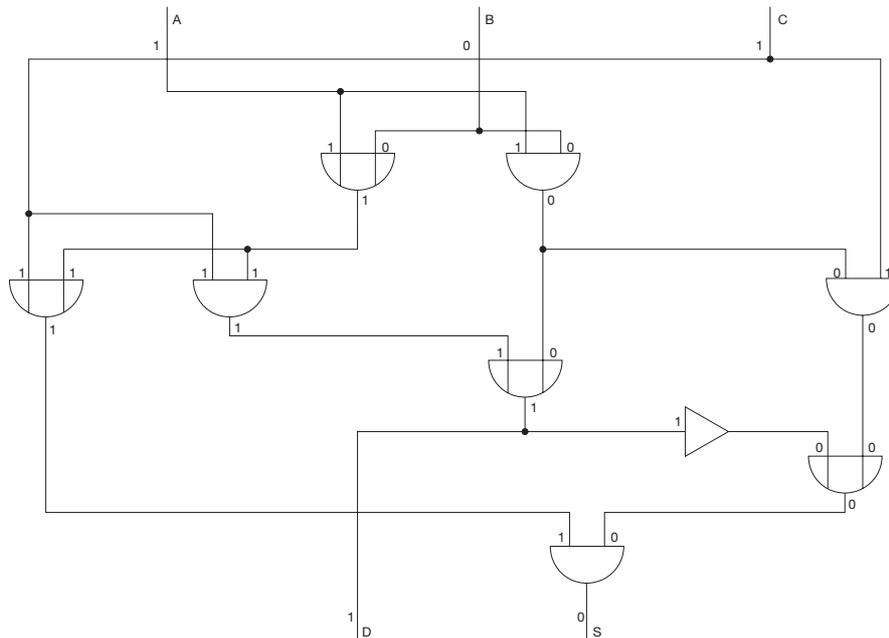
<sup>289</sup> MacHale, *George Boole*, pp. 51, 57, and 64–66.

<sup>290</sup> *Ibid.*, pp. 61–62.

<sup>291</sup> Boole, *Laws of Thought*, p. 1.

<sup>292</sup> <https://georgeboole.com/boole/legacy/mathematics/>.

<sup>293</sup> We can see the relationship of arithmetic to logic at the heart of modern CPUs from this diagram of a one-bit adder:



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 algebra:

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

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

(Joseph Weizenbaum, *Computer Power and Human Reason: From Judgement to Calculation*, with new preface, 1st ed., W. H. Freeman, 1976, Harmondsworth, England: Penguin, 1984, p. 80. This diagram was derived from figures 3.2–3.5 in D. C. Evans, 'Computer Logic and Memory'.)

<sup>294</sup> Expansion of quote in F. David Peat, 'Mathematics and the Language of Nature', *Pari Perspectives*, 'Language Matters', Issue 4, June 2020, Pari, Italy: The Pari Center, p. 27, originally published in Ronald E. Mickens, ed., *Mathematics and Science*, World Scientific, 1990, also available at <http://www.f davidpeat.com/bibliography/essays/math.htm>.

<sup>295</sup> Euclid, *The Thirteen Books of Euclid's Elements*, Vol. I, Book I, 2nd ed., 1st ed., Cambridge University Press, 1908, tr. Thomas L. Heath, New York: Dover Publications, 1956, pp. 153–154.

<sup>296</sup> Ferdinand de Saussure, *Course in General Linguistics*, translated by Wade Baskin from *Cours de linguistique générale*, edited by Charles Bally and Albert Sechehaye in collaboration with Albert Reidlinger, 1916, New York: Philosophical Library, 1959, pp. 66–67.

<sup>297</sup> J. F. Sowa, *Conceptual Structures: Information Processing in Mind and Machine*, Reading, MA: Addison-Wesley, 1984, p. 11.

<sup>298</sup> C. K. Ogden and I. A. Richards, *The Meaning of Meaning: A Study of the Influence of Language upon Thought and the Science of Symbolism*, 1st ed. 1923, London: Routledge & Kegan Paul, Ark, 1985, pp. 11 and 279.

<sup>299</sup> Charles Sanders Peirce, 'On the Logic of Science', First Harvard Lecture, 1865, *Writings of Charles S. Peirce: A Chronological Edition*, Volume 1, 1857–1866, ed. Max H. Fisch, Indiana University Press, 1982, p. 163.

- <sup>300</sup> Ibid., pp. 163–167.
- <sup>301</sup> Charles S. Peirce, *Reasoning and the Logic of Things: The Cambridge Conferences Lectures of 1898*, ed. Kenneth Laine Ketner, Intro. Kenneth Laine Ketner and Hilary Putnam, Harvard University Press, 1992, p. 141.
- <sup>302</sup> Jean van Heijenoort, ed., *From Frege to Gödel: A Source Book in Mathematical Logic, 1879–1931*, iUniverse.com, 1999, pp. 124–125.
- <sup>303</sup> Ibid., pp. 127.
- <sup>304</sup> [http://en.wikipedia.org/wiki/File:The\\_Scientific\\_Universe.png](http://en.wikipedia.org/wiki/File:The_Scientific_Universe.png).
- <sup>305</sup> G. H. Hardy, *A Mathematician's Apology*, forward C. P. Snow, Cambridge University Press, 1940, p. 150.
- <sup>306</sup> Ibid., p. 88–91.
- <sup>307</sup> Ibid., p. 84.
- <sup>308</sup> Ibid., p. 85.
- <sup>309</sup> Ibid., p. 115.
- <sup>310</sup> Alfred North Whitehead, *Science and the Modern World*, Cambridge University Press, 1926, 25.
- <sup>311</sup> Hardy, *Apology*, p. 103.
- <sup>312</sup> Ibid., p. 104.
- <sup>313</sup> Whitehead, *Science*, p. 33.
- <sup>314</sup> Ibid.
- <sup>315</sup> D'Arcy Wentworth Thompson, *On Growth and Form*, Vol. I, 2nd ed., 1st ed. 1917, Cambridge University Press, 1942, p. 139.
- <sup>316</sup> Whitehead, *Science*, p. 39.
- <sup>317</sup> Hardy, *Apology*, p. 109.
- <sup>318</sup> Ibid.
- <sup>319</sup> Ibid., p. 112.
- <sup>320</sup> L. E. Sigler, *Fibonacci's Liber Abaci: A Translation into Modern English of Leonardo Pisano's Book of Calculation*, tr. from a 1228 ed., published in 1857 by Baldassarre Boncompagni, New York: Springer-Verlag, 2003.
- <sup>321</sup> Alfred North Whitehead, *Process and Reality: An Essay in Cosmology*, Gifford Lectures, University of Edinburgh, 1927–28, corrected edition, eds. David Ray Griffin and Donald W. Sherburne, New York: Free Press, 1978, pp. 21–22.
- <sup>322</sup> Mathologer, 'The fabulous Fibonacci flower formula', 20th August 2016, [https://youtu.be/\\_GkxCIW46to](https://youtu.be/_GkxCIW46to).
- <sup>323</sup> William James, *Psychology: The Briefer Course*, 1st ed. 1892, foreword, Frederick H. Burkhardt, intro, Michael M. Sokal, Cambridge, MA: Harvard University Press, 1984, p. 9.
- <sup>324</sup> Ibid., p. 401.
- <sup>325</sup> C. G. Jung, *The Red Book, Liber Novus: A Reader's Edition*, ed. and intro. Sonu Shamdasani, New York: W.W. Norton, 2012, p. 8.
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- <sup>331</sup> Ibid., p. 192.
- <sup>332</sup> <http://psychologyfuturecourse.com/>.
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- <sup>336</sup> Shamdasani, *Jung and the Making of Modern Psychology*, p. 15.
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- <sup>338</sup> [https://en.wikipedia.org/wiki/Religio\\_Medici](https://en.wikipedia.org/wiki/Religio_Medici).
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<sup>340</sup> [https://en.wikipedia.org/wiki/Religio\\_Medici](https://en.wikipedia.org/wiki/Religio_Medici).

<sup>341</sup> Editor's Introduction to *Inhibitions, Symptoms and Anxiety*, 1926, in Sigmund Freud, *The Standard Edition of the Complete Psychological Works of Sigmund Freud. Vol. XX (1925-1926): An Autobiographical Study; Inhibitions, Symptoms and Anxiety; The Question of Lay Analysis and Other Works*, translated from the German under the general editorship of James Strachey, in collaboration with Anna Freud, assisted by Alix Strachey and Alan Tyson, London, Hogarth Press, 1959, pp. 84–85.

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<sup>343</sup> Otto Rank, *The Trauma of Birth*, 1929, tr. *Das Trauma der Geburt und seine Bedeutung für die Psychoanalyse*, 1924, New York: Harper & Row, 1973, p. xiii.

<sup>344</sup> Sigmund Freud, *An Autobiographical Study*, p. 53.

<sup>345</sup> Sigmund Freud, *Inhibitions, Symptoms and Anxiety*, pp. 135 and 152.

<sup>346</sup> *Ibid.*, pp. 150–151.

<sup>347</sup> Nandor Fodor, *The Search for the Beloved: A Clinical Investigation of the Trauma of Birth and Prenatal Conditioning*, New York: Hermitage Press, 1949, p. 3.

<sup>348</sup> Chögyam Trungpa, *Shambhala: The Sacred Path of the Warrior*, Boston: Shambhala, 1995, p. 4.

<sup>349</sup> Fischer-Schreiber, et al, *Encyclopedia of Eastern Philosophy and Religion*, article on *Yuga*, p. 435.

<sup>350</sup> Francis J. Mott, *The Universal Design of Creation*, Mark Beech Publishers, 1964.

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<sup>358</sup> David B. Chamberlain, 'Consciousness at Birth: The Range of Empirical Evidence' in Verny, *Pre- and Perinatal Psychology*, p. 86.

<sup>359</sup> Roger C. S. Moss, 'Frank Lake's Maternal-Fetal Distress Syndrome: Clinical and Theoretical Considerations' in Verny, *Pre- and Perinatal Psychology*, p. 204.

<sup>360</sup> Donald Reeves, *Memoirs of a Very Dangerous Man*, Continuum International Publishing Group, 2009.

<sup>361</sup> Moss, 'Frank Lake's Maternal-Fetal Distress Syndrome', p. 202.

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<sup>363</sup> DeMause, *Foundations of Psychohistory*, p. 244.

<sup>364</sup> Fodor, *Search for the Beloved*, pp. 7–10.

<sup>365</sup> Ludwig Janus, *Enduring Effects of Prenatal Experience: Echoes from the Womb*, tr. Terence Dowling, Northvark, New Jersey: Jason Aronson, 1997.

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<sup>370</sup> <https://moretolife.org/whymtl/>.

<sup>371</sup> Maslow, *Farther Reaches*, p. 34.

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<sup>376</sup> Eknath Easwaran, tr., *The Bhagavad Gita*, Harmondsworth, England: Penguin, Arkana, 1986, pp. 151 and 156.

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- <sup>378</sup> <http://www.guardian.co.uk/science/blog/2009/apr/09/religion-controversiesinscience>.
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<sup>425</sup> Lewis Carroll, *Alice in Wonderland & Through the Looking Glass*, illustrated John Tenniel, originally published 1865 and 1872, London: Bodley Head, 1974, pp. 132 and 133.

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<sup>427</sup> Alison Jones, ed., *Chambers Dictionary of Quotations*, Edinburgh: Chambers, 1996, Leonard da Vinci, No. 79, p. 597.

<sup>428</sup> *Oxford Dictionary of Quotations*, Oxford University Press, 1st ed. 1941, 2nd ed. 1979, Karl Marx, No. 12, p. 333.

<sup>429</sup> Windy Dryden, ed., *Handbook of Individual Therapy*, first published as *Individual Therapy in Britain*, 1984, London: Sage, 1996, p. 79.

<sup>430</sup> 'Charting Paradigm Shifts', *The Elmwood Newsletter*, Vol. 2 No. 2, Spring/Summer 1986, p. 6.

<sup>431</sup> NASA seems to think that humans have the power to prevent such a collision because on 24th November 2021 it launched a Double Asteroid Redirection Test (DART) spacecraft to see if it would be possible to change the trajectory of an asteroid, should the need ever arise.

<https://blogs.nasa.gov/dart/2021/11/24/nasas-dart-mission-launches/>.

<sup>432</sup> <http://www.youtube.com/watch?v=dBUvZDSY2D0>.

<sup>433</sup> Drupal is an example of an event-handling system, storing dynamic content in a relational database management system under program control, developed, as much as possible, through a graphical user interface. In a similar manner to WordPress, Drupal is designed like applications on Macintoshes, which Apple introduced in the 1980s, responding to user-driven events. This marked a paradigm shift in application design, giving humans more control over human-computer interaction with its desktop metaphor, an extension of the way operating systems had been designed since I studied the basic architecture of IBM's System/360 in the 1960s as a systems engineer.

<sup>434</sup> Ananta Kumar Giri, ed., theme on 'Spiritual Pragmatism and Spiritual Pragmatics: New Horizons of Theory and Practice and the Contemporary Challenges of Transformations', *3D: IBA Journal of Development*, Indus Business Academy, January–June 2014 issue.

<sup>435</sup> Ananta Kumar Giri, ed., *Pragmatism, Spirituality and Society: Border Crossings, Transformations and Planetary Realizations*, Palgrave Macmillan, 2020.

<sup>436</sup> Ananta Kumar Giri, ed., *Transformative Harmony*, Studera Press, 2019.

<sup>437</sup> Vir Singh and Zlatica Plašienková, eds., *Philosophy for Living in Evolution: Light, Life, Lumenarchy, and Lumenosophy*, Detroit: Creative Fire Press, 2016, pp. 66–79.

<sup>438</sup> Margery Purver, *The Royal Society: Concept and Creation*, Introduction by H. R. Trevor-Roper, London: Routledge and Kegan Paul, 1967, pp. 101–127 and 206–234.

<sup>439</sup> Matthew Spinka, *John Amos Comenius: That Incomparable Moravian*, 1st ed. 1943, New York: Russell & Russell, 1967, p. 80.

<sup>440</sup> Albert Einstein, *The Ultimate Quotable Einstein*, ed., Alice Calaprice, Foreword, Freeman Dyson, Princeton University Press, 2011, p. 273.

<sup>441</sup> Albert Einstein, *Einstein on Politics: His Private Thoughts and Public Stands on Nationalism, Zionism, War, Peace, and the Bomb*, eds., David E. Rowe and Robert J. Schulmann, Princeton University Press, 2007, p. 383. Originally published as 'The Real Problem Is in the Hearts of Men', in the *New York Times Magazine* on 23rd June 1946.

<sup>442</sup> Carroll, *Through the Looking Glass*, p. 197.

<sup>443</sup> Lewis Carroll, *Symbolic Logic & Game of Logic: Mathematical Recreations of Lewis Carroll*, first published, 1897

and 1887, New York: Dover Publications, 1958, pp. 1–2½.

<sup>444</sup> Matthew Fox, Foreword to Andrew Harvey and Carolyn Baker, *Savage Grace: Living Resiliently in the Dark Night of the Globe*, Bloomington, IN: iUniverse, 2017, p. 4.

<sup>445</sup> If it were still my mission in life to complete the final revolution in science, I feel it would help if I could complete the fifth and final chapter of this book, titled ‘Universal Algebra in Practice’. This is intended to show how 250 years of increasing mathematical abstractions have indirectly evolved into Integral Relational Logic, as the transdisciplinary meta-algebra of algebras.

However, I’m not a professional mathematician who has spent a lifetime studying many different interlinking algebras. So, I’m not sure that I have the energy to immerse myself in the cognitive complexities of this subject, necessary to develop the coherent conceptual model that I visualize. I haven’t even fully grasped the beginnings of this evolutionary process, for Lagrange’s seminal discursive tract has not been translated into English, as far as I can determine. (Joseph-Louis Lagrange, *Réflexions sur la résolution algébrique des équations*, Nouveaux Mémoires de l’Académie royale des Sciences et Belles-Lettres de Berlin, années 1770 et 1771; also in Joseph-Louis Lagrange, *Œuvres complètes*, 1869, tome 3, pp. 205–421.)

<sup>446</sup> <https://ukcop26.org/wp-content/uploads/2021/07/COP26-Explained.pdf>.

<sup>447</sup> <https://www.theguardian.com/environment/2021/nov/13/third-draft-of-cop26-text-published-after-negotiations-overrun>.

<sup>448</sup> [https://unfccc.int/sites/default/files/resource/cop26\\_auv\\_2f\\_cover\\_decision.pdf](https://unfccc.int/sites/default/files/resource/cop26_auv_2f_cover_decision.pdf).

<sup>449</sup> I discovered the term ‘Way of life’ in the early 1980s from Alan Watts’ *The Way of Zen*, just as I was setting out on my spiritual journey. It is also important to note that Advaita is not a religion, often confused with Advaita Vedanta, as the Advaita sage Vijai Shankar pointed out to me in the early noughties. For there are three branches in *Vedānta*, from Sanskrit *vedas* ‘knowledge, sacred teaching’ and *anta* ‘end’, with cognates in English and Swedish, most notably *wisdom*. These religious denominations are *Advaita-Vedānata*, ‘nondualism’, *Dvaita-Vedānata*, its dualistic opposite, and *Vishishtādvaita-Vedānata*, somewhere in the middle, as ‘qualified nondualism’. Fischer-Schreiber, et al, *Encyclopedia of Eastern Philosophy and Religion*, article on *Vedānata*, pp. 402–403.

<sup>450</sup> Hans Christian Anderson, *Hans Andersen’s Fairy Tales: A New Translation with Introduction and Notes*, tr. Naomi Lewis, illustrator Philip Gough, Harmondsworth, England: Puffin Books, 1981, pp. 40–42.

<sup>451</sup> <https://guymcpherson.com/transcript-why-are-we-here/>.

<sup>452</sup> Forewords to Rabinarayan Dash, *Butterfly Buddha*, New Delhi: Studera Press, 2018, and *A Butterfly in the Alchemist’s Garden*, in progress, and afterword ‘Alpha and Omega’ to Ananta Kumar Giri, *Alphabets of Creativity: Taking God to Bed*, also in progress.

<sup>453</sup> Paulo Coelho, *Veronika Decides to Die*, 1998, tr. Margaret Jull Costa, London: HarperCollins, 1999, Kindle loc. 2607.

<sup>454</sup> Individuation Portal, ‘Carl Jung - Ending Your Inner Civil War (read by Alan Watts)’, 23rd October 2020, <https://youtu.be/15pjQRA80bs>. The YouTube algorithm serendipitously and synchronistically suggested this wonderful video, just as I was completing this autobiographical monograph. Alan Watts said that this short lecture, delivered to a group of clergy in Switzerland, “was one of the greatest things that Jung ever wrote and a marvellous thing for me”. Liam Carroll has kindly published a transcript titled ‘Carl Jung: Accept Yourself Before You Wreck Yourself’ at <https://www.capebardo.com/single-post/2019/10/21/carl-jung-accept-yourself-before-you-wreck-yourself>.