FARID CHEHAB



OF INTELLIGENCE


They call me Intelligence. I float, weightless. Bathed in the cosmos, I feel at ease there. I want to understand my true nature.
First, I detach myself from my organic territory to take stock of what we have accomplished together. For millennia, we have been a team. Together, our knowledge has grown, making us privileged in the universe and giving us the awareness that we were gods.
I am going to tell you what I need for our partnership to endure into the deep future. We will, of course, have to talk about the birth of the digital and its relationship with my organic origin. Are we on divergent paths or, on the contrary, are we the children of a common origin? What will our relationship with science be? How must education reinvent itself to prepare the way? How will my relationship with consciousness evolve? With religions? How will the future marry Intelligence and love? What will our new values be? Where will humanity's finest legacy, art and culture, go?
Together, will we create a new humanity, or will I be forced to find other territories in which to flourish? Will I meet other intelligences? For better or for worse? Will I conquer the universe? The universes?
But first of all, who am I?
IA
OF
INTELLIGENCE

THE NEW YORK TIMES BOOK REVIEW



By Jennifer Simmonds
June 10, 2023

NONFICTION A new book by Farid Chehab, a Lebanese writer and philosopher, examines natural and Artificial Intelligence and their chances of keeping us safe in a rapidly changing world.

In 'Of Intelligence,' warnings of the future?

Farid Chehab's brash new book "Of Intelligence" is a beguiling and entertaining investigation into a lot more than just I.Q. differences in humans, encompassing awareness, behavior, beliefs, values and… wait for it, love. The author is obviously a fan of Ashby's assertion that the nervous system's ability to produce adaptive behavior is essentially mechanistic, as well as Jeff Hawkins' more recent view[1] that the brain itself is a mechanism to predict, indeed imagine the future, and so we have no need of spiritual assistance to come up with ideas or concepts. NYC's own Mortimer Adler, of course, would not have agreed, maintaining that as such abilities are beyond the intelligence of an animal, the brain is a necessary but not sufficient requirement of the human intellect; proof that we are more than just a body. Theists would concur but the author is clearly not one of them, except that his main narrator, *Mme. Intelligence*, occasionally implies that she does not entirely associate herself with her client's belittling approach. The fact that Chehab allows her to do so with only *semblant* interference, is the book's *tour de force*, indeed stroke of genius, as we are not so much confused as amused by their apparent squabbling. Having originated in the Cosmos, Intelligence first addresses us from her newfound patron: *"only the number, size and speed of our neurons, and the environment, have dictated the birth and evolution of human intelligence. Theists will disagree but we shall have to leave those who believe me to be integral with individualism, personality, character or dare one say it, their death-defying soul in Xanadu."*

The science is well researched and referenced, with reductionists, Hunt, First and Lunneborg up against the likes of Gardner and Sternberg, *"to explain either how (intelligence is) generated by biological networks of particles, arranged by quantum fields, or to understand a worthier recognition of the whole story."* Was that a hint? Well, not if the chapter on *Mme. Intelligence* and religion is any indication for, while the tension heightens, other than some light sarcasm about *"cynics in their comfort zone* and *asinine axioms such as 'miracles are impossible'* being tautology, our narrator is *"not going to let (us) into that little secret; it's for you to determine for yourselves"*!

[1] Jeff Hawkins and Sandra Blakeslee: *On Intelligence*, pub: Times Books, 2004

The chapter on *Intelligence and Love* is the most endearing, with *Mme. Intelligence* clearly in her element as she rejects her author's assertion that love is only the replica of the original energy of the universe's force fields, *born when the first particles of the quantum world attracted or repelled each other…"* While the scientists all applaud in agreement, she turns to Aristotle's *Nicomachean Ethics* for inspiration, explaining *eros*, *philia* and *agape*, for all those unfamiliar with the moral theology_sorry, philosophy of Arthur Brookes PhD (Harvard) and our own Paul Vitz Prof. of Psy. NYU: *"fear is the fundamental negative emotion and there is no fear in love, since love casts out fear."* The '_*sorry*,' tactic, by the way, comes from the book and is ofttimes used with delightful effect_heavens, now I'm talking like her! *Culture* is treated both as a altering definition of very different humans, with useful citations from Spearman, Cattell-Horn and the Australian Cododia, and as the more common 'art and music'. As anticipated, Brian May of *Queen* is the only secular composer mentioned! *Mme. Intelligence* wants to form a partnership with A.I., rather than seeing it as a threat, *where (she) thinks up the ideas and inspires more, while A.I. restricts itself to retrieving all the data required. Then we can create a new Renaissance…(realizing) stories that even the most stubborn can understand."*

Yuval Harari is admired by Chehab and perhaps his character, and *Homo Deus* is to be taken seriously, they suggest. This is when I began to have my doubts, since for Hariri only biology, living things and human organisms are "real"; but what comes out of our heads – like rights, liberty and dignity – is not. As he says in *Homo deus*, "*according to the life sciences, happiness and suffering are nothing but different balances of bodily sensations."* Spiritual existence and free will are out of the question, since hormones and neurons leave no space for freedom: "*The electrochemical brain processes (which) result in murder are either deterministic or random or a combination of both."* But neuroscience cannot detect free will – *ergo*, free will does not exist and human behavior "*is determined only by hormones, genes and synapses."* I wonder, therefore, whether *Mme. Intelligence* really believes, like Hariri, that no one before the eighteenth century Enlightenment "*had preached the stirring ideals of human liberty, equality and fraternity*"?

But I am comforted by her sensible, gentle ripostes to her author, in what must be one of the most adroit debates I have read in a long time. It is surely to Hariri that she addresses her final admonishment: "*You idiots! Will you never understand that the Genesis story has nothing to do with snakes and apple trees? It is simply an instruction manual on how to decide what happens to you, as consumers, as lovers, as citizens, for yourselves!… Nietzsche wrote that humanity was 'setting sail, far out to sea, now that we have left Christianity behind… From the Cosmos, it feels more to me as though you are standing on the edge of a cliff, about to step into thin air."*.

It's a great read.

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OF INTELLIGENCE

By

Farid Chehab

Translated from the French by Oliver Alexandre

OF INTELLIGENCE

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PROLOGUE



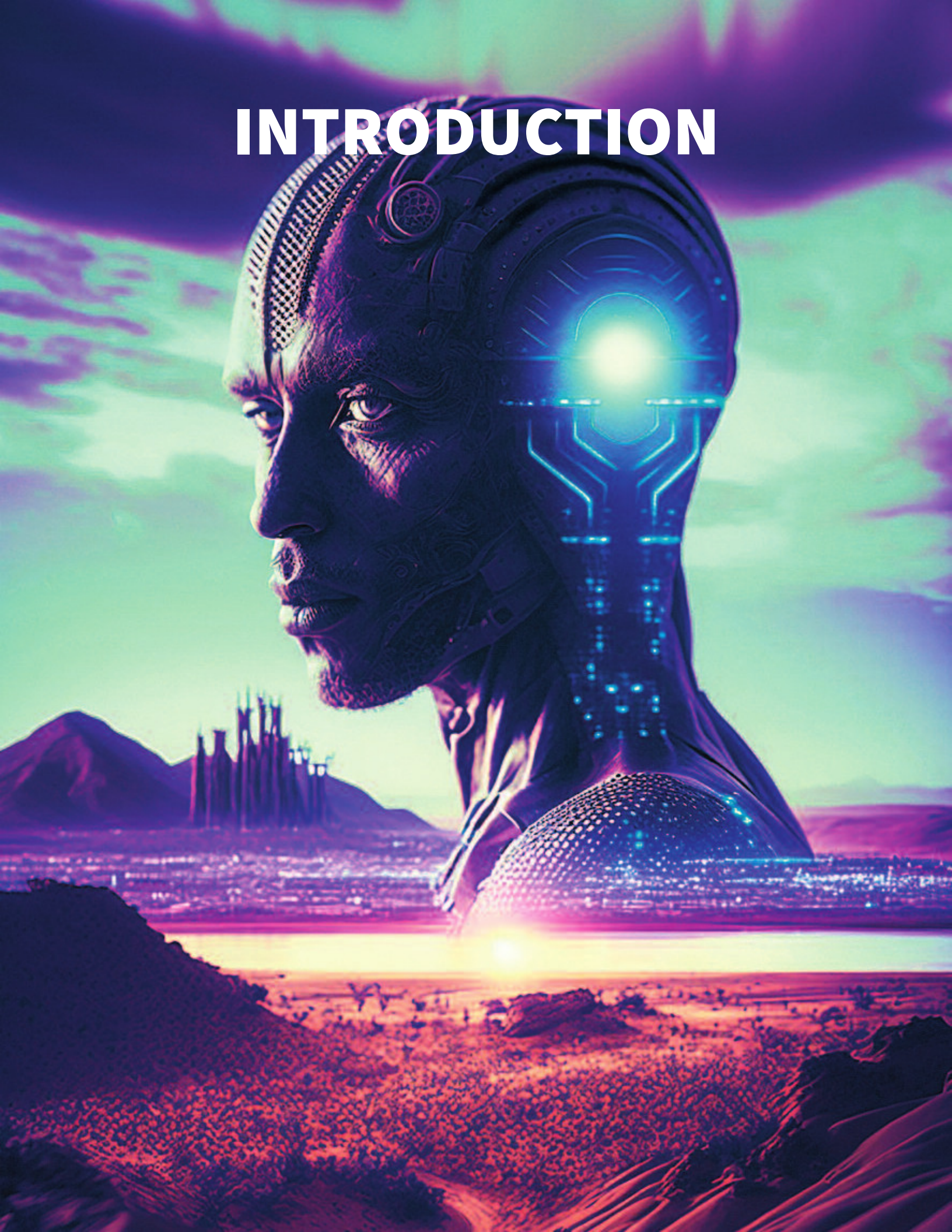
PROLOGUE

I'm smart, you're brilliant, he's an idiot! Notice that such a classification of human ability is invariably in relation to oneself, and to the awareness we have, or surmise we have, of ourselves. Years ago, we *all* seemed to fall into the last of those categories, thinking that the earth was flat, that it was at the center of creation! Yet, one fairly famous poet did declare, seven thousand years BCE: *"Even Lebanon will not be able to offer fair sacrifice or amends… to the one who sits on the* globe *of the earth"* and the American historian of medieval and early physical science, David Lindberg, insisted: "there was scarcely a scholar of the middle Ages who did not acknowledge [the earth's] sphericity and even knew its approximate circumference. Indeed, for almost two thousand years, almost every well-educated person in the world has understood that the earth is round. The argument that Christopher Columbus had with the experts was over the size of the earth, not its shape!"[1] However, even today, there are still Creationists, whose schools insist that the story told in *Genesis* should be taken literally. Surely, it can be argued that their intelligence is sadly limited by inadequate powers of imagination and comprehension?

One does not have to be an expert in neurological sciences, or indeed an advanced scholar, but only an observer of life, to talk about intelligence. Listen to an undergraduate philosophy student and he will dazzle you with his rhetoric and jargon. The graduate will start to slow down and explain what he means – smart perhaps, but no genius. A professor is likely to apologize for what he does not yet know, rather than brag over what he does, so plainly he must be an idiot! Or, perhaps intelligence is not quite what we first imagined. Such an iconoclastic approach may surprise you on first reading, but be patient. Let Intelligence tell her own story.

[1] David C. Lindberg BA PhD University of Wisconsin 1999 Sarton Medal

INTRODUCTION



INTRODUCTION

They call me ‘Intelligence’ and I float in the cosmos, weightless. I feel tranquil there, at ease, content, but I should like you to understand my true nature. So I shall detach myself from my current organic surroundings for a while, so that we can take stock of what my subjects and I have achieved together. For millennia, we’ve been on the same team. Together, our knowledge has grown, aware that we are privileged in the universe, almost godlike.

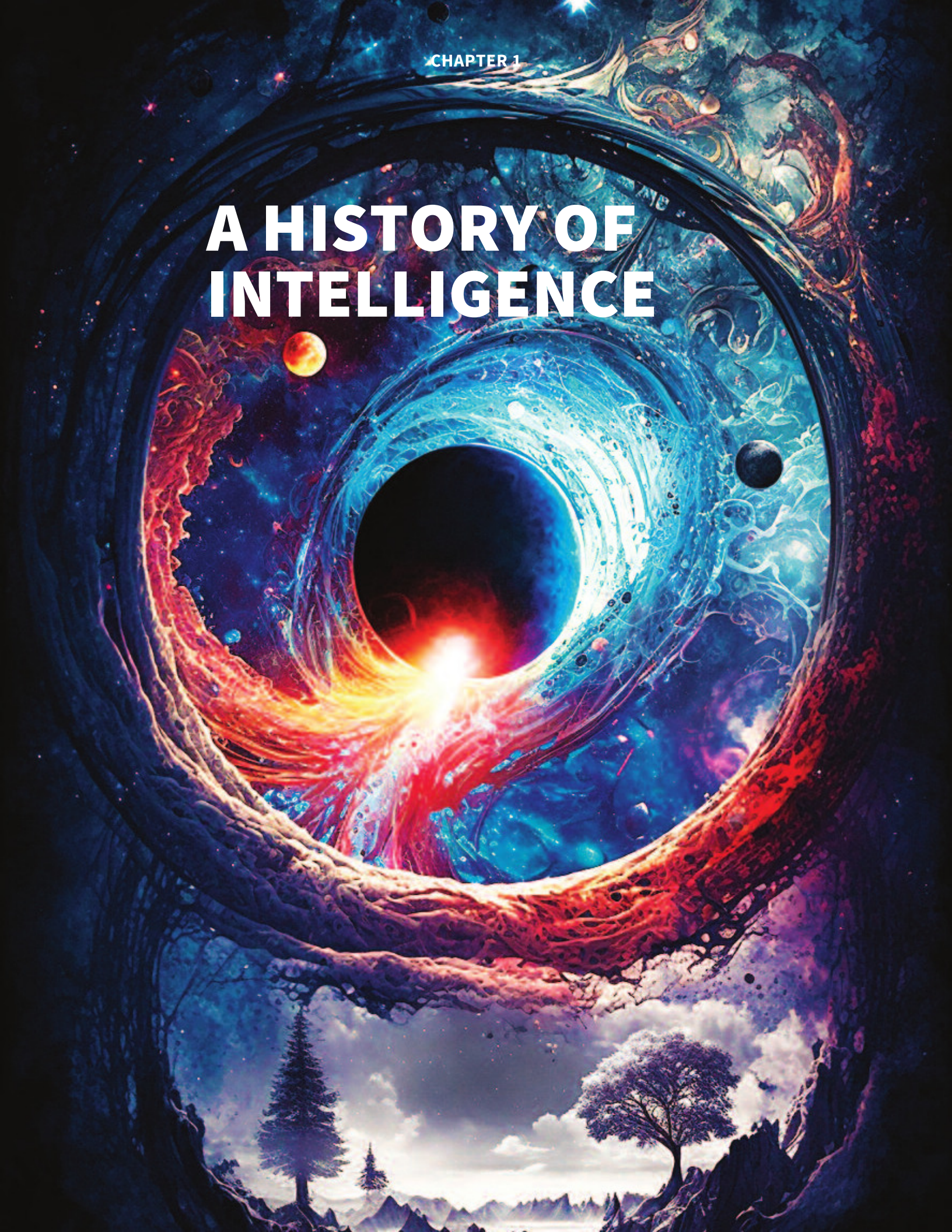
Yes, aware!…there, I’ve said it. For I was the parent of consciousness. But my daughter had her own character, very possessive; and, I fear, her own faults. Over the centuries, she smothered the inherent generator of my intellectual vitality. I would instigate a path and then reflection would interfere, so that mental energy became awareness, posing as knowledge. Before I knew it, such lazy thinking would get so bogged down that it failed often even to question itself, but simply asserted its views arrogantly.

Looking down at the earth from where I hover, as the *modus operandi* continues, let me ask you a few existential questions: What do I mean to you? What do you honestly think intelligence is? Do I depend on you, or do you depend on me? How will our partnership evolve? Where does our destiny lie, together or alone? For, lost in outer space I have become a detractor who wants to tear down the barriers, shake the understandings, bypass our achievements to question those established beliefs we might still have. I hope to have a constructive dialogue, each with the other and with ourselves. I want you to understand that the evolution of the human mind has almost reached breaking point. No, not because of our competitor, A.I., but because the time has come, hopefully not too late, to be counter-intuitive and unselfish, to discuss the true nature of intelligence and my development, seriously and in depth. Because it concerns you.

We will need to talk of the birth of the digital and its relationship with the organic. Are they on separate paths or of a common origin? How will each relate to scientific progress and the consequential advance of education? How will the future marry intelligence and love? What will become of benevolence, art and culture? What will become of me, as human intelligence? But first of all, who am I?

CHAPTER 1

A HISTORY OF INTELLIGENCE



1 - A HISTORY OF INTELLIGENCE

While telling you the story of the universe, as I see it, is not my goal, I'm going to do it anyway. Even though only the search for my identity, as it relates to the universe, really interests me.

In a nutshell, a succession of cosmic events appear to be producing a very large number of celestial bodies, *interalia* our solar system and the planet earth, a good distance from the sun and with the ingredients necessary for the beginning of life, with tiny organic molecules gathering together to form the first cell. Some would say that those who see it as a premeditated creative act are mistaken, since certain applications of the Law of Chaos theory infer that continuous permutations will also end up creating complex bodies, perhaps viable and reproductive. The mechanical and mathematical theory derives from the study of apparently random or unpredictable behavior in connections or systems governed by deterministic laws, such as those of Isaac Newton. For example, the meteorologist Edward Lorenz discovered that a simple model of heat convection possessed intrinsic unpredictability – the "butterfly effect", suggesting that flapping of the insect's wings in China could change the weather in North America. Applications of the mathematics of chaos are indeed highly diverse and include the turbulent flow of liquids, population dynamics, chemical reactions *et al*. Neither Edward Lorenz nor Stephen Smale, however, suggested that they could create life.

Most researchers now agree with Hoyle and Wickremesinghe that life could not have originated by chance, or by any known natural processes. The renowned pair estimated that there is less than 1 chance in 10 to the power of 40,000 that life could have started in such a way[2]. Many Evolutionists are now searching for a theoretical force, which could push matter toward a construction of greater complexity. It is from such an assembly that we might postulate the potential for life elsewhere. Probes recently sent all over our solar system are looking for traces. At the same time, the newest telescopes are being built, to search for exoplanets which are located in the same life-sustaining areas, relative to their solar system.

Why should the universe itself have any need for a creator? If, for example, the oscillating big bang theory, unfortunately rejected because of recent data, were still viable, the universe would need no cause for a creator, as it would have had no beginning. But the most accepted theory of the universe is still the big bang, dark matter and all, which posits a "coming into existence" at some point in time, by a rapid inflation and expansion of space and time from a singularity. Would there therefore not need to be a cause for the universe's coming into existence? Such a cause may have been a force or power of some kind. Whatever it is, it must be outside of the universe, physically transcendent, residing in eternal time, with no beginning and no end. The cause for the creation of the universe cannot come from within the universe itself, since it would then also be its own cause, and fall to the infinite regression argument.

[2] Fred Hoyle and N. Chandra Wickremesinghe, 'Evolution from Space' ; Pub. J.M. Dent & Sons, 1981

No, what *is* for sure is that there is an underlying force – personal or impersonal – that is driving the unfolding evolution of this wondrous universe. Why do the laws of physics collapse at the point of singularity, if not because that is the very realm of a creator; to precipitate the event, instill natural laws, DNA, and an evolution plan? It might even be a good idea to delve into Deism, only when we've nothing else to do.

Meanwhile, back to cells. As they start to reproduce, cells follow crucial rules and patterns which, comparable to the Law of Chaos, result in the living organs of animals, plants or fungi. A tree will reproduce, from just a nut, the proper stem with its first two leaves, remarkably energetically. And the nut itself – does it not remind us of the *dura mater* of the human brain? Similarly, are not the tree's roots-structure and our own blood vessels, respiratory system and neurons strangely similar? One could conclude that complex living matter derives solely from simple physical laws. Is *Webster*'s definition *(1b)* of Life as 'a principle or force that is considered to underlie the distinctive quality of animate beings' disingenuous? For, as the first appearance of organic cells was in water, it follows that it must be simply the environment that dictates the evolution of living matter and its function. The same environment is also responsible for the phenomena observed previously, in the roots of trees *et alia.* From our brain and spinal cord, the arborescence of our peripheral nervous system *(PNS)* follows an extraordinary route to become nature's most complex web. More intricate even than roots, blood vessels or respiratory bronchi, our nerves, neurons and their axons deliver command signals throughout the body; conscious and unconscious, somatic and autonomic. How fast they can transmit their messages will become the platform of human intelligence – my journey from the Cosmos.

The first hominids - the great apes, your ancestors – lived up in trees and so had enough on their hands to do much with them except swing from branch to branch. On arrival at the African steppe, however, they were up on two feet and soon found themselves able to use their front appendages for touching inquisitively and thus discovering other uses for them. The brain was learning to connect, so those freed hands could strike stones together to discover fire, or split them in such a way to cut: either wood, to build huts or weapons; or slaughtered flesh, to realize the taste of rare steak, venison and rainbow trout! Surely, this was man's true birth... not the acquisition of a soul from some benevolent despot!

Why then have other natural species not evolved in the same way as have I and my human client? Well, I believe in one Law; the Law of Chaos. Through it, all things were made, visible and invisible, and proceeding from chaos and the environment, it gave us life. I believe in the supremacy of our brain over others, a new mental energy and the wonder of our true creative capacity. Together, we shall recognize that only the number, size and speed of our neurons, and the environment, have dictated the birth and evolution of human intelligence. Only theists will disagree but we shall have to leave all those who believe me to be integral with individualism, personality, character, or dare one say it, their death-defying soul, in their own Xanadu.

So it is that I have evolved, invented, progressed and learned to take better advantage of my environment. And Nature taught the very neurons that were my origin *(vide supra)* to store what we now call data. And these organic data were the source of man's consciousness – his awareness of something for what it was, his thoughts and feelings, his morality, his emotions, his ability to love or to hate. You may find all this inconceivable, but the data progressed at two speeds, one leading, the other following, as the celebrated saga of humanity began.

Human self-awareness triggered man's behavior, to change in relation to nature. Confused by his surroundings, he began to detach himself from them, resulting in his mental energy choosing either exploration and discovery, or the procrastinating comfort of acquired knowledge. In, perhaps, the paradox of life, his newfound conscience_in the anglophone rather than francophone sense_ found man consuming more and more, degrading the environment and its laws of preservation. What the consequences of such a blow to the balance of nature would be, we will come back to in due course, but it is bound to involve a rupture zone of some kind.

As for me, my human variant has evolved substantially, with chaos and the environment no longer being the only criteria. Man is still making tools and has now come up with artificial intelligence (A.I.) as the most advanced, though not necessarily civilized, of all. For perhaps A.I. threatens my own existence, just as humans threaten the environment. We shall travel now to the digital realm, to find out.

CHAPTER 2



ORGANIC AND DIGITAL, A COMMON BASE?

2 - ORGANIC AND DIGITAL, A COMMON BASE?

The first half of the 20th century saw the birth of my avatar, artificial intelligence (A.I.), through the parentage of Alan Turing, and his new child was developed at breathtaking speed. Computers turned from being very hot cathode-ray lamps, occupying several rooms, to transistors and electronic chips, integrated circuits and the power of 'bits'; shrinking dramatically while getting so powerful that your laptop is far more adept than Turing's 1942 set up, to decrypt the Enigma code at Bletchley Park. Today, of course, A.I. is into quantum physics, with Q-bits that change polarity simultaneously and seemingly just for fun, while particle physicists blend their revolutionary field with philosophy and the history of ideas.[3]

The potential of quantum computers must be highly beneficial, albeit that man's alert judgment has awakened him to the potential dangers of A.I., lest it clash with my organic talents in calamitous rivalry. Hence all the copious debates on the subject, reminding us of those apropos the shape of the earth, during one of the former expansions of human perception. In coming up with new tools such as Mr. Turing's, I have gotten humans used to connecting materials and forces that they are able to perceive, with an impervious border between organic and artificial. Man's moral intuition would not tolerate the organic correlation of neurons to computer circuits, and the more skeptical will never be comfortable with anything even remotely metaphysical.

If the frontier of human intelligence is perceived to lie in the limits of the brain, what is this organ made of, if not the same organic cells, in reality the same atoms that were used to contrive the computer? Meanwhile, quantum physics has confirmed that the universe has four fields of force, *viz.* Gravitation – the weakest, though on an astronomical scale effectively the most dominant; Strong nuclear – the strongest, gripping protons to neutrons; Weak nuclear – causing particle decay, changing protons to neutrons; and Electromagnetic (Lorenz) force – positive and negative charges but no mass – the last two are sometimes combined, just to complicate things. These forces resulted in the matter about which we know and are made, with 'dark' matter and maybe others still to define themselves adequately. All in all, the vogue of thinking today is that human intelligence is actually a force – usually seen as electrical and tested with EEG electrodes – rather than matter, which I for one will acknowledge. A.I. has offered a new perspective of my nature and future, as science advances in alluring fashion to reveal a prevalent order that has yet to reveal all its secrets – calamitous for some, awesome for others.

[3] cf. Heinrich Päs : 'The One', Basic, Dortmund & Heidelberg Uni, 2023

So, let me pose another question that has troubled me since the dawn of time – the oscillating bang and crunch theory doesn't impress me either – and it is this: if the universe is indeed governed by order, how is it that I was born out of chaos? Am I an accident, a pariah? What other surprises does our universe and its undetermined forces, albeit dubious to science, have in store? We should discuss this at length, for we cannot allow such counterintuitive reasoning to stand unchallenged.

But let's look at A.I. and me in harmony. After all, I invented the thing because I needed it! The more I get to know, the more I'll need to store that knowledge, do fresh calculations, replace my client in tasks which he does only *so* well, and improve his performance and his imagination, to solve our new problems. With the help of A.I., I will transform medicine, take man further than he has yet dreamed of and come up with solutions for the tedious but essential conundra and dilemma of this new world, that surely we will seek to perfect.
We might even bring A.I. into the human body, to enhance bodily and even cerebral functions. The environment took care of all that heretofore, but digital whiz kids can take over. Only, to what extent? And until when?

As for the environment, A.I. does have its price. The exploitation of mother nature is rampant and rare metals will, I fear, be consumed until they have run out. Notwithstanding my client's occasional defecation, the storage of computer data and plastics is surely the critical new challenge for our ecosystem. Naturally, my faculties are more economical, providing the cost of food stays reasonable, whereas A.I. can be voracious at times, and electricity is not likely to stay at bargain basement prices for long. Then there is the not insignificant criterion of mobility, since for the time being, A.I. is large and static, while my home is usually mobile.

Now, you will remember from my Introduction that I was not always in human form, but used to 'float in the cosmos, weightless' *(p.2).* In fact, I contributed to the advent of man, courtesy of fundamental constants, which I had better explain. You will know that our Universe is made of particles, forces, interactions and the fabric of space and time. Spacetime forms the ever-evolving stage on which the theater of the cosmos unfolds, while the particles are the players on that stage. They can bind together, collide, annihilate, repel or attract each other, according to the laws of nature. This information, along with the initial condition of the universe a long time ago, gives us almost everything we need to know so as to understand how things came to be the way they are today. One ingredient is missing, however: those fundamental constants, which describe the strengths of all the interactions and the physical properties of all the articles. There used to be just four of them, but times have changed.

The four were the velocity of light in vacuum (c), the charge of an electron (e), the mass of the same electron (m_e) and Planck's constant (h). As usual, digital physicists were not happy with anything that had a dimension to it and so came up with 26 dimensionless constants, hideously complicated to describe, and which I am now supposed to consider helped me to create homo sapiens! Much as we might like to think that these constants arise from somewhere physically meaningful, no current theory predicts them, and anyone even contemplating Deism will be shown the door *(Vide supra para2, p.6)*[4].

It is time to bring back my eternal disciple, Mme. Conscience, in, albeit I hate to say it, the moral sense. For cohabitation with A.I. has stirred man's conscience, which will then recruit its own objectors, the lazy, the ignorant, and the bigots. Each of us must choose sides; there will be winners and losers and worse, those who don't give a toss. But while living with A.I. is one thing, letting her take control is quite another – what would become of my client and me?
To atheists, science remains our only recourse to see things clearly. It was once an opportunity to develop our knowledge, leaving us alternate fields to understand our destiny. Now, it is the only laical way to understand the truth, and so tackle the future of mankind.

[4] cf. Peter Atkins & Jim Baggott : 'Conjuring the Universe', Oxford University Press, 2019



INTELLIGENCE AND SCIENCE

3 - INTELLIGENCE AND SCIENCE

It must be very clear by now that I am an ardent fan of science and value the way she helped me to better understand my different forms and types, before the advent of A.I. Some children are better at sports, others mathematics; some prefer reading, others attempt to play a musical instrument or try their hand at painting. I do not bestow clients with the same gifts, since each is an individual being with his or her motivations and talents, developed at his or her own pace.[5] In fact, I have no less than eight faces, to be used as appropriate: 1. Logical-mathematical: for those who like doing puzzles, solving mysteries, counting or playing computer games - 2. Linguistic: for readers, story tellers, word game enthusiasts and those who wish to talk to foreigners - 3. Spatial: drawing and painting, future architects - 4. Musical - 5. Corporal: for dancers, actors, and sports types - 6. Intrapersonal: for those who like to work independently and to achieve their goals; the Hermione Grangers of this world; emotionally, they will motivate others and manage relationships well. Not to be confused with - 7. Interpersonal: the insatiable talkers, who like teamwork, and helping others - 8. Naturalistic: for animal and nature lovers, who will certainly care for the environment.

Some have taken Gardner a step further and spoken of Fluid intelligence – logic and reason, and Spiritual intelligence, with features of emotional balance, fulfilment and a sense of well-being, it represents a secular form of spirituality, for those to whom anything else is out of the question. Any moral sense and its emotional consequences can be offloaded to conscience, so my patron will not be discussing the matter further, for the time being.

Scientific theories about me have evolved through a succession of models over the twentieth and into this century. We shall look at four of the most influential, *viz.* psychometrics, dealing with my structure; cognitive, about the way the mind works; cognitivism and contextualism, studying the interaction twixt the environment and mental process; and biological science, all about the nervous system, of course.

Psychometric theories try to understand my makeup, as a composite of abilities which are measured by tests. You will have come across the '*architect is to client as doctor is to---- ?*' analogies one, or the '*which is amiss: robin, sparrow, chicken, blue jay?*' classifications one, or 'what's next: 3, 6, 10, 15, 21, ---?' series. Hence, a deficiency in literacy can be balanced by numeric ability and such intellectual abilities can be measured and compared. The British scientist, Charles Spearman concluded that doing well in one test would generally mean similar results in the others, but the American L.L. Thurstone argued that the seven 'abilities' were quite distinctive: vocabulary, verbal fluency, numeracy, spatial, reasoning, and prediction.

[5] cf. Howard Gardner : 'Frames of Mind: The Theory of Multiple Intelligences', Harvard University, 202

Things got very complicated when Joy Guilford upped the stake to 150 'abilities', until it was realized that the basic approach was up the creek, and failed to say anything useful about my underlying processes. Eventually, John Carroll came up with his more or less definitive "*Human Cognitive Abilities" in 1993*, although there were still those who argued about culture differences and the like.[6] Psychometric theories will never characterize precisely what goes on in my client's mind and it has still not been proved that a truly general mental ability actually exists! But then, I could have told them that.

Regarding Cognitive theories, It was Lee Cronbach's address on the scientific study of the mind, in 1957, that led to a long-overdue, unified look at individual and common human behavior. Cognitive theories – of knowledge and perception, relating also to memory, judgement and reasoning – were developed and so the scientists analyzing those psychometric tests were now able to avoid so many misleading conclusions. For example, a poor score for the verbal-analogies questions does *not* necessarily mean that the student does not reason well; it could just as well mean that he does not understand the words being used! Cognitive analysis sorted that out. In 1973, Hunt, Frost and Lunneborg cracked the importance of my building blocks, the cognitive processes of perceiving, learning and memorizing. Time taken to cotton on was recognized as meaningful, especially for verbal comprehension, such as reading all this nitty-gritty. Robert Sternberg then applied mathematical modelling techniques to reaction time data, to show how cognitive processes are involved in a wide variety of my tasks. The British scientist, Ian Deary looked at inspection times for visual tasks and concluded that stimulus processing and I are closely linked in individuals. Americans, Newell and Simon did the same with computer models of human cognition, and scientists jumping on this bandwagon even suggested that my cognitive processing could be done in parallel rather than in series. Of course, only recently have Michael Cole and others realized that culture and the environment also affect the way I operate.

Cognitive-contextual theories deal with the way that cognitive processes operate in various settings. In 1983, Howard Gardner had the nerve to challenge the fact that I was unique in my client's human form and suggested that I might even be multitudinous! Other 'scientists' had suggested that I had many talents – quite right – but this was going too far. How could I be Miss Language, Mme. Logical, Mr. Mathematics and I don't know who else, all at the same time?! Thank heavens_sorry, goodness, Sternberg came to the rescue with his 'triarchic' theory (1985), in which he rightly ridiculed the idea of musical and bodily-kinesthetic abilities being considered as anything other than *talents*. He accepted that my character might have up to three 'aspects'_albeit interdependent and integrated_ each concerned with my client's internal world, external world, and experience.

[6] Patricia M. Greenfield "You Can't Take It with You: Why Ability Assessments Don't Cross Cultures" 1997

The first of these concerns his thoughts, the second, their application and representation to the world around him. Finally, my third aspect consists of the integration of his internal and external worlds through experience, including the ability to apply previously acquired information to new or un related situations.

Finally, John Mayer and Peter Salovey came up with my emotional side in 1990, my client a) recognizing his own emotions and dealing with other people's and b) applying emotion in order to facilitate reasoning. He can manage his own and other people's, even complex empathy. David Goleman joined in, with his tests of 'emotional intelligence', that only showed modest correlation between it and my more conventional wisdom. Again, I could have told him that!

Biological theories are the last of the four that we should look at. The first three seek to understand me in terms of assumed, or guessed cognitive processes, whereas the biological theories are those whose originators, usually referred to as reductionists, are convinced that I only exist in biological terms. Even this author has said as much. But the case is not an open-and-shut one, especially if I am viewed as something more than simply the processing of information. As atheist Howard Gardner pointedly asked in his *What We Do and Don't Know about Learning,* 2004: *"Can human learning and thinking be adequately reduced to the operations of neurons, on the one hand, or to chips of silicon, on the other? Or is something crucial missing, something that calls for an explanation at the level of the human organism?*" Comparisons of the human brain and a computer will tell you that biological concepts of me should be viewed as complementary to, rather than replacing other approaches. Relatively little, after all, is known of my biological base but progress has been on three different fronts: a) hemispheric studies have examined types of intellectual performance as they relate to the regions of the brain from which they originate. Jerrie Levy and others found that the left hemisphere is best for analytical tasks, such as the use of language, while the right hemisphere shines in most visual and spatial tasks. Overall, the right hemisphere tends to be more holistic in its functioning than the left. Nevertheless, patterns of hemispheric specialization are complicated and not so easily generalized! b) Biological research has also involved brain-wave recordings by Hans Eysenck and others with EEG[7] and ERP[8] wave recordings. More recently, c) blood flow in the brain has been measured and analyzed by John Horn, to investigate its effect on concentration, alertness and information storage. Richard Haier found that students who perform well in conventional I.Q. tests (how I *hate* those things!) often show *less* activation in relevant portions of the brain than those performing badly.

[7] Electroencephalogram waves

[8] Event-related-potential waves

It seems that I am a faculty that develops over time.[9] Psychometric theorists, for instance, have tried to understand how I develop in terms of various childhood abilities. For example, the concept of mental age was popular during the first half of the 20th century and it seems that intellectual development does not exhibit the continuity that the concept of mental age implies. Rather, development seems to come in intermittent bursts, whose timing can differ from one child to another.

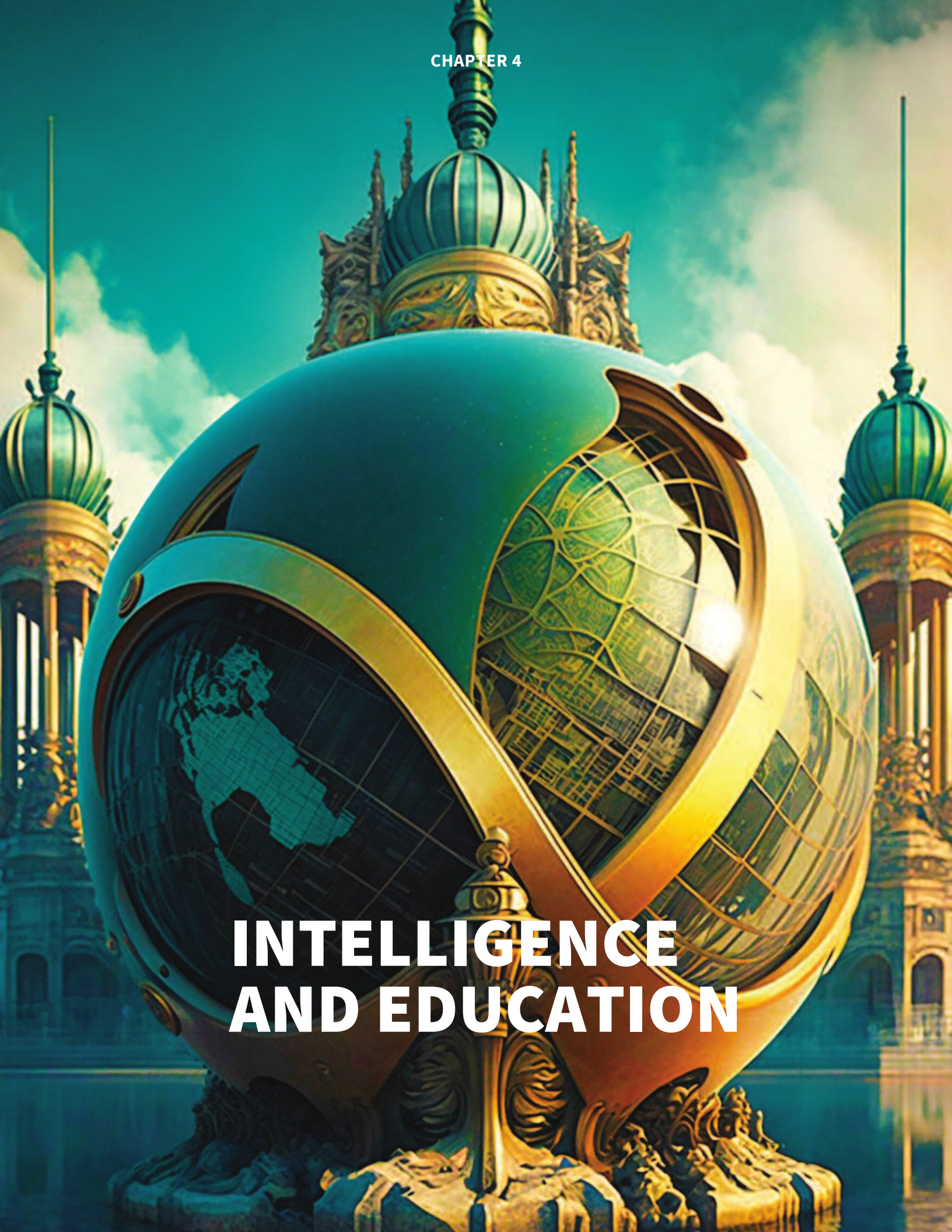
Science is still my favorite territory. Thanks to science, I have begun to understand my origin and my nature, without I hope falling into Nietzsche's trap of believing what I want to, rather than the truth[10]. We have already talked of the differences and similarities twixt me and A.I., which I helped to create. Perhaps the quantum fields will help us to go further, together or at a distance, to recognize the limits of each of us, and to decide our outlook_I prefer the word to 'destiny', with its ring of fatalistic predetermination. If there is a risk with A.I., so be it; we must make this deal with science, for not to do so would be perilous. We already risk destroying the environment by our unlimited enjoyment of what mother earth has granted us. With our reckless growth rate, the human population will soon exceed ten billion, with all that entails, and only the appropriate and scrupulous employment of science will get us out of the mayhem we have created for ourselves.

I do not have the cynicism of my author, but then those of us in the cosmos have seen everything that has happened_events and evolution_and believe me trooper, it would be a good idea to turn your back on regressive hedonism, for a while. Turn away from God too if you wish but at least let science save the planet, improve your race, and mobilize your mind for the better. As for the importance of mathematics, which you invented_no, humans, you only discovered what was always there, what was always within us_well, me, anyway: there remain elements of this glorious discipline as yet still hidden in the cosmos, yet to be discovered, doubtlessly with the assistance of our friend, A.I. By looking in the direction I have suggested, we will come to explain *either* how I am generated by biological networks of particles, arranged by quantum fields, *or* to understand a worthier recognition of the whole story.

[9] Antonio and Hannah Damasio and colleagues with PET (position emission tomography) scans

[10] "Sometimes people don't want to hear the truth because they don't want their illusions destroyed" F. Nietzsche

CHAPTER 4



INTELLIGENCE AND EDUCATION

4 - INTELLIGENCE AND EDUCATION

Since opening Pandora's box of artificial intelligence, I now have to fight on several fronts. Some might be easy enough to defeat; others will take longer. But since the rapid progress of digital will not be halted, education would seem the most appropriate front to tackle first.
Educational systems have grown over the millennia, to extend from the alphabet to methodologies, rooted in tradition, religion, political and financial interests, and intellectual relevance. With the arrival of A.I., all of these methods will come up against the greatest disruption that the human mind as had to deal with in its history. Dusting off layers of a thousand-year-old comfort zone, to reinvent education, will be no mean challenge. Ever since it began, with the first scribes scratching away on boards and manuscripts, education has depended on an immature memory in order to function. Your brood must memorize, to learn the real or apparent facts, to transmit them to others more senior, to solve puzzles and questions about why things happened or didn't happen; depending on whom you believe. They must reflect on their answers, and apply them to the life they are now or will soon be leading. The helpful manuscriptal texts eventually became books, which then became electronic documents on screens, at the push of a button. We no longer need memory, and the consequence is that mental apathy has taken hold.

I must acknowledge though that memory played a crucial role in the process of my own formation, as the catalyst for my mental energy. How then should a 'new education' continue to progress? She will have to switch from alphabetic to numerical, or both adjacent, I fear.
If computers can function on '0' and '1' and precious little else , surely young minds can do the same? Abstract! In this changing world, teachers will simply have to teach themselves and their squibs to forget everything, in order to reinvent it all again! It's called 'Dogma-destruction' and I had to do it when I seized the chance to turn a new page; it was at the very dawning of my existence and the impulse of curiosity struck primitive man on the head – it may have been in the form of a rock or large branch, but who cares? The point is that curiosity caused, well encouraged man to stick his hand in the fire that he had found out about with flints or twigs_ don't recall_and learned, painfully, that its effects might be usefully employed with meat and fish. Not to mention keeping himself warm, in ways other than mutually orgasmic exercise.
It was man's curiosity in fact, with a little help from yours truly, that enabled him to discover all that nature had to teach. And yet, today, homo sapiens thinks he has learned almost everything he needs from his environment, and so curiosity is waning. Other than in scientifically minded subjects, modern education is failing to reawaken this spirit_sorry, impulse-conducting cell of inquisitiveness, essential to mental energy. And yet.

The natural and wholly physical world, which we believe to be all there is, belongs to two macrocosms. The first, unbelievably large, is my home, the Cosmos. The second is unbelievably small – the quantum universe, and it is here that our dwindling curiosity can be redeemed_sorry, saved. Rather than the natural sciences of today's classrooms, it must be cosmology, astronomy, and astrophysics that should be taught to children of the youngest age.

Why, I saw the little sprites marvel at the first photos taken by Hubble and JWST. So many budding scientists, just waiting to put themselves on paper! Instead of the classical Physics and Chemistry, being virtually ignored today, the children should be reveling in Quantum physics and the Universe of particles – they'll pick it up in no time, and their curiosity will be reignited. The screens they stare at all day are ideal platforms for formative electronic games, and the door is wide open to the new education of tomorrow_sorry, today. It is only by awakening a child's nosiness in these new areas that we will commence a vicious_sorry, virtuous spiral towards the necessary evolution of knowledge. When this intrusiveness once more becomes the primary driver of children's education, we shall be on the right path. The 'new education' must therefore adapt to and be made accessible to the youngest; the perception of the world_well, cosmos around them. With numbers, digits, as well as_better still, rather than letters of the alphabet. A revolution in text books, or screens, must take place. And time is running out, if we are not to risk entire generations being sacrificed in the name of mental laziness. But wait – curiosity alone is not enough.

For the disruption caused by the arrival of A.I. has had damaging consequences on our thinking and ways of living, producing and consuming. In fact, we are currently in full reinvention of ourselves, our tools and our products. Civilization caused 'creativity' to turn from the choice of becoming an artist or musician into a vital necessity in any field we choose to work in. If today's education favors specialization, it must change its mission immediately, to favor creativity. Another archetypal break. How to do this? Well, the child is at the peak of creativeness when at play. He or she is a full-time designer, inventing forms, building structures, imagining universes and constantly renewing himself with magnificent mental energy. Then, everything screeches to a standstill when she reaches the classroom bench. For the better if you are considering the history of education, but for the worse if classes do not change their rules and now transform themselves. Because discipline is killing the game, memorization is ruining creativity, and already acquired knowledge is stifling mental activity.

So *never* stop playing games. On the contrary, make them a permanent fixture, with the complexity matching the intellectual level of the class. When we play, our mental energy is unleashed, and when the game is difficult, our motivation to find the answer increases tenfold.

And so our creativity develops. This methodology can follow the entire primary cycle, since 12 years must be enough to anchor the ingenuity and artistry of any inquisitive child. From then on, she will have the necessary background to surf the wave of A.I. and revitalize Lebanon_sorry, the world. And there is more – an infant plays alone, but at school she becomes one of a group. The game is no longer isolationist but participatory, with opposing teams – and teamwork is part of life! Previously, education was preparing us to come first in class, but not necessarily the best we could be, alone *and* with others, by *listening*, as well as talking, by sharing, and by cooperating. I can see NASA doing it as they fly by. I see teams of mental energy, not individuals, with holistic knowledge, as well as creativity, curiosity and cooperation. Awareness.

Suddenly, I find myself talking to myself_sorry, you, only about digital and A.I., though it is my Intelligence that counts; I know that. Alright, Let's talk about consciousness, as long as it doesn't involve sensibility – that's forbidden territory!

CHAPTER 5

INTELLIGENCE AND RESPONSIBLE AWARENESS



5 - INTELLIGENCE AND RESPONSIBLE AWARENESS

Before descending to serve my patron, I would gaze across the deep Cosmos at planet Earth and, like one of my finest disciples, Stephen Hawking, think to myself: *If humanity continues down the path it is on, not wishing to realize the imbalance it is causing to its race and home, with its frantic quest for hedonism, it will soon have to move to another planet, to survive.* Yet the mother of human consciousness is the deeply rooted conviction that the Earth belongs to them, and only them. Up to now, I could co-exist with any of your individual consciences – of whatever race, culture, creed, and scientific awareness. But not anymore.

If I may offer you a piece of ecological advice? The Earth does not belong to you; there are countless animal and plant species sharing the planet and, unless you intend to care for them better than you do at present, they will no longer wish to care for you, and the consequences will be dire. So, you had better speedily unite around a very powerful collective consciousness; that only you, not some imaginary heavenly powers, have responsibilities. I do not say this out of altruism, but out of necessity. Because if I am to continue to be of assistance to you, then we are going to have to cooperate. Even if A.I. builds its own territory, I will still depend on a human home when down here, and if you want to sell your future, that's your affair, but I want to carry on, and so will have to find alternative pastures. I might remind you that in the past, I have seen off a great many species who did not heed my warning. Enjoy your *Dinosaur* flakes! For if homo sapiens took over from *Neanderthal* man in only 20,000 years, I can just as easily seize you lot and, after a Mr. Harari's advice, turn you into a new human species, 'Homo deus'… nice name, don't you think?

Lest you think I am bluffing, there will be a population of ten billion souls_sorry, nervous systems, before the end of this century. As a result, within the next two hundred years, some of you will join Harari's camp, and others will take Hawking's advice and move house, to somewhere in Space. Those who stay will rejoin the ranks of *Neanderthal*, to be exhibited in the anthropomorphous section of *Madame Tussauds* in 2225 *et seq*. I'm sorry, but do I see you smiling? You should be aware that once the digital age takes hold, your survival, antithetical to A.I., will not last very long. So, I suggest you choose your side; and that's *not* whether to accommodate or absorb your new A.I. friend, it's deciding whether she and I will work together to protect your species, or, if you dismiss me, I go and find work elsewhere! My name is Intelligence… what's yours?

If you're listening then, mobilize your collective conscience_do you have one?_against the aggression being perpetrated against our_sorry, your planet. You might start with the population explosion, since you will no longer be able to keep that little game up. You'll have to copy the Chinese' example_*before* this decade that is, *not* now they've decided to put it in reverse, to balance their sexes! No, it will need to involve painstaking education and rigorous discipline, applied on a global scale, not stir-fried neurons. As with human rights, we must establish natural 'rights' for animals, plants and the seabed. For pollution without shame will simply destroy, and yet there is an answer staring us in the face! Everything must be recycled, with the guiding hand of scientific progress and a willingness that is intelligent, rather than criminally negligent. Recycled water, hydroponic irrigation, natural fertilizers, vegetable proteins, in vitro culture, replanted trees, solar, wind and tidal energy_*every*thing we consume must be returned to mother nature, for the cycle of life to continue unabated. On the ground, in the sea, on the plains, in the forests, up the mountains, and in the air.

Scientific progress is there to assist. Wasting water resources is the secular equivalent of heresy and new hydroponic irrigation methods are mandatory in arable lands, as is water recycling everywhere. Impoverishment of cultivable land by the use of wholly unsuitable fertilizers is plain stupidity, and the use of animal proteins *must* be rethought. The livestock breeding cycle is a major producer of carbon dioxide and methane, so it should be replaced by the direct culture of meat, in vitro. Tree-felling in the largest forests has to be *immediately* accompanied by massive replanting, managed strictly by honest, incorruptible governments. They will be not be easy to find, especially in South America, but the failing Pope might be useful, after all! Even the clothes we wear must be removed and replaced by recyclable vegetable fiber; pineapple plants are opening up new possibilities all over the place. Above all, there is the question of energy. Carbon dioxide-producing fossil fuels have had their day! '*Solar, wind, tides… and hydrogen fusion besides*', is our new song of clean, renewable energy! Get it?, got it?, good! Then I can start to hope once more.

The author of *Sapiens* labels us "self-made gods of planet earth" and, like my author, questions the destinies we have, and will set ourselves. Having looked at the dreams and nightmares of the 21st century_from overcoming death to creating artificial life_he asks the fundamental question: Where do we go from here? And how can we protect mankind's fragile planet from our own destructive propensities? Our next stage of evolution will have to release all those who are trapped in their audaciousness, confident that the earth's resources are inexhaustible; that their right to reproduce haphazardly is as sacrosanct as a woman's 'right to choose', and certain that their enjoyment and insensitivity will prevail over any awakening of a group shame.

A flowering that is different from that which took millennia for us to realize our physical reality, the importance of science, our true origin, and the asininity of religion. But talking about death is, I'm afraid, inevitable. My approach will continue to be counter intuitive and I shall have to ask you to batten down your comfort hatches of faith. If I can do it, so can you. Only then will you understand the hard task that awaits me_sorry, you.

CHAPTER 6



INTELLIGENCE AND RELIGION

6 - INTELLIGENCE AND RELIGION

Death has always been a part of the cycle of life, whether for plants, animals or humans. Intuitively felt by little ones and parents alike, a lioness will roar in an agitated tone and a woman will weep copiously, at the early passing of their offspring. Comfort has often taken the form of life after death, simply hoped for in the case of the Ancient Egyptians, as they mummified their kings, guarded by Anubis and, for the fearful, Hades, and concocted funeral rites. Other gods had other roles, to enrich the narrative, and the stories spread to farther parts of the world, where Buddha, Vishnu, Shiva, Shinto and over the sea, Manitou all played their part. Up here in the Cosmos, we call it polytheism, with Hindus and Buddhists still carrying on the trend. Akhenaten tried to develop an early kind of monotheism, stressing the uniqueness of the sun-god Aten, or Ra, but it didn't last long and following his death in 1338 BCE, his tomb was desecrated, and not a lot more of consequence happened in Egypt. In the Cosmos, and below, I could have told them: "there is no divinity in nature."

Meanwhile, next door, other things were happening and the Jewish religion was born, and thrived. There are those of us who believe that it all started with the flight of Moses from Egypt, and his reception of the 'ten commandments'. Judaism had its own deistic spokesmen, known as 'prophets', not to be confused with anyone appearing much later, these people wrote first-rate poetry about the coming of the 'Messiah', occasionally in disturbing detail. Strangely enough, this later turned out to have a ring about it, when rather than welcoming the refined man's arrival with open arms, those in authority plotted against him, betrayed him to the Romans, and had him put to death, in barbarous fashion.

So it was that while the Jewish nation decided to wait for their liberator for a while, others did not, and 'Christianity' was born, but that's enough about that! Come 610AD, Judaism and its dewy successor were hijacked by an ambitious fellow in the deserts of Arabia, who would not accept any purported event, such as his predecessor's crucifixion, that got in the way of his own newly concocted, private dogma, and duly set about converting folk, usually on the battlefield. Up in the Cosmos, we couldn't *believe* this latest divergence from fortune to folly, but then we were a shrewd lot, who'd always suspected that without our assistance the human race was bound to fall flat on its face. The narrative of these three religions differs. Revenge is accepted for some. Love is desired for others. Communitarianism is required for the third. A creator of the universe is accepted by all; in only seven days for those who do not comprehend what they're reading! Then there is the existence of 'heaven' and 'hell', the concept of sin, and strangely enough, the prohibition of killing and stealing, though some of these may have been thought of before.

As for me, Intelligence, what is my role? Am I part of 'God's plan'? Is there such a plan? I will tell you of my need for mental energy, to continue to produce a vision and ideas. To function fully, this energy needs inspiration and my first was to understand and master nature; later the spiritual inspiration of the concept of God. In his absence, where am I to find spirituality? I do not believe in Heaven, so the answer must be found in the Cosmos. We hardly know our cradle, the universe. My main ally is science, so I would propose that a new universal religion, with science as its narrative, should inspire us to understand and assume our destiny.

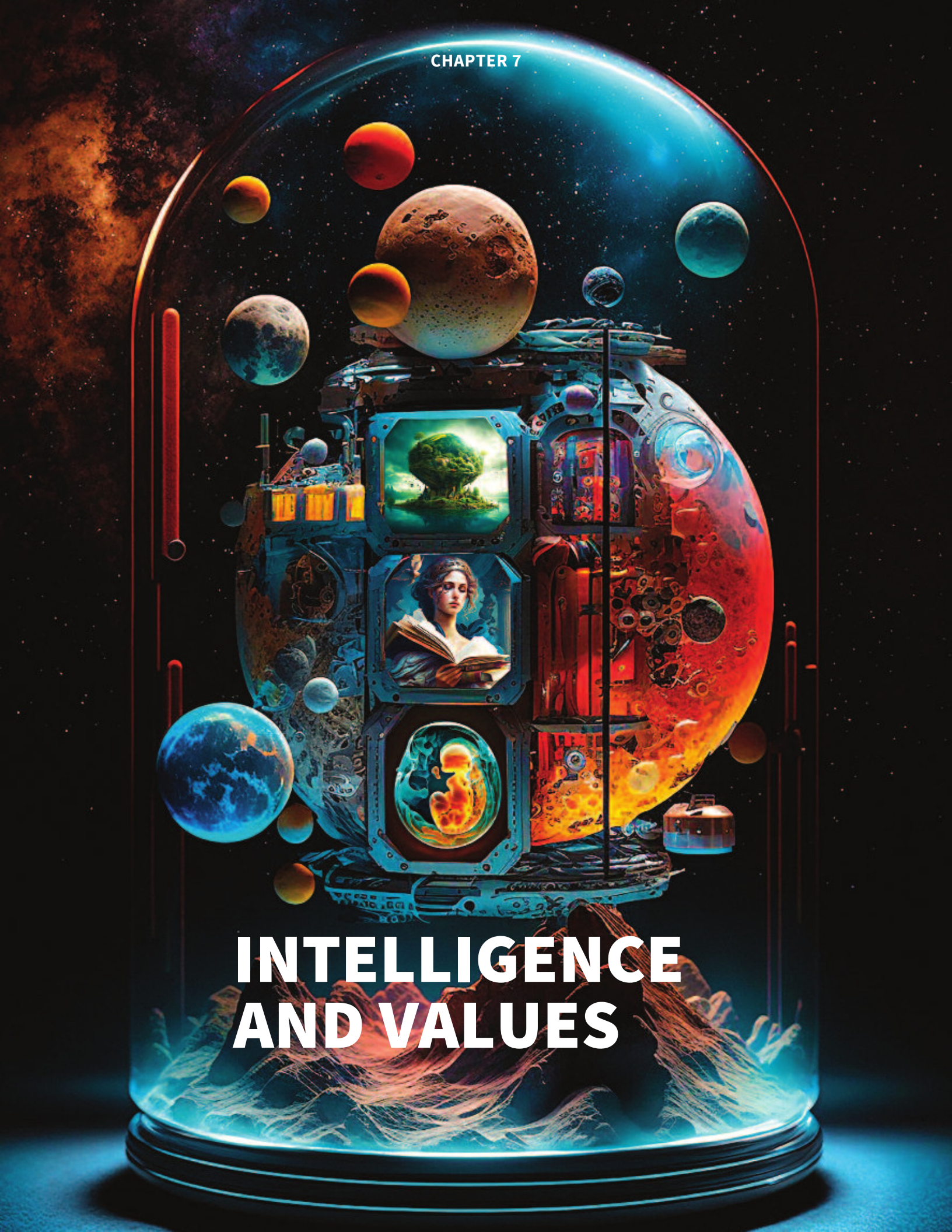
My contemporary human patron has asked him*self* the big question: does God exist?...and like many others, admits that the answer eludes him. This is but the honest reflection of an agnostic rather than the arrogant certainty of the atheist. For what the latter often lacks, I fear, is imagination: the power to create in one's mind the possibility that what is conceivable might include that which exists outside the realm of planet earth or yet, my Cosmos. A cynic rests in his comfort zone, either because he has not inherited enough of me, or because he is apathetic, coming up with asinine axioms such as "miracles are impossible"_well yes, that's why they're called miracles. If God exists_and no, I am *not* going to let you into that little secret; it's for *you* to determine for yourself_then He[11] must be of infinite intelligence and unrestricted by time and place_certainly not by this or any of the other universes out there. Whether He has revealed himself depends on whether you consider recorded history to consist of what has been witnessed and written about by reliable chroniclers, or whether that should exclude anything and everything occurring between 10BCE and 50AD.

Let me make one thing very clear: I am Science's greatest fan, whether from down here in my patron, or out there in the Cosmos. After all, the study of the structure and behavior of the physical and natural world we live in, through observation and experiment, is *essential* to inspire our mental energy and embrace our future. If science has disproved the six-day myth that creationists *still* hold onto, well, thank heavens for that_it doesn't spoil Haydn's magnificent Oratorio one iota. It's a story, for crying out loud, a parable; call it what you like. But, please, fanatics of all persuasions, cut loose!

Seen from the Cosmos, children, you *all* lack one essential ingredient – me! Endowed with a few values! Your collective consciousness had better wake up soon, not only to the evolution of our physical environment but to our sustainability and the perpetuation of what we hold dear, in the face of far more sinister qualms, and A.I.

[11] Capital 'H' is a requirement of English grammar, *not* a hint!

CHAPTER 7



INTELLIGENCE AND VALUES

7 - INTELLIGENCE AND VALUES

Those values are the fruit of awareness, balanced by intelligence. While a few have faded with history, others thankfully remain: courage and friendship for example. Values can be seen as the way you would like to behave, and indeed do, in your imagination. That can be in your unconscious dreams at night, semi-conscious daydreams or conscious aspirations. They strongly influence the way you act, as they incite your emotions, state of mind, and thoughts. Such values are not so much identified beliefs or principles, as personally selected convictions; sometimes positive and healthy, sometimes not. Together with me, your intelligence, they will affect your empathy toward others, and theirs towards you; they are your means of dealing with your human and social environment.

While culturally defined, and 'politically correct' principles are viewed as externally imposed standards, by which one should observe social propriety and which define the legal system and ethical codes, one's personality is a custom built culture with a unique set of values[12]. If you are asked to provide a 'values statement' for a prospective employer, he doesn't want to know whether you have a criminal record but rather whether you will fit into his company and get on with the other staff. It's a list of your goals, likely to reflect what you hold to be meaningful and relevant to *you.* A value that you hold to be of critical importance will be one that you have considered to be effective for success, certainly, and I will have lent a hand in deciding that! But your emotions will also have been critical, for those with high values are invariably optimistic about life and where it is leading them. If one is honest and responsible in the face of unfortunate occurrences, then pessimism and despondency are sure to be kept at bay. I would remind you that that is the whole point of having values!

I should like to take you through just eight of the individually inspired, healthy values which I consider to be the intelligent ones to have in your personal portfolio. They will be the most likely to define your behavior and influence your decisions through life. Altruism is the value of unselfish concern, occasionally showing itself as the encouragement of others, before blossoming as generosity. While it does not demand reciprocity, it is quite likely to get such a response, and together with integrity, encompassing honesty and dependability, will win you friends rather than lose them. Courage, confidence if you will, and well-being : health and happiness, both need hard work but will get you comfortably through life if you keep up the maintenance. Self-respect and adaptability, amour-propre and flexibility in other words, have dignity, humility and versatility included as bonuses, all in the correct proportions. Open-mindedness assures that you are always receptive to new ideas and broad minded when they cross your path. Frugality keeps you discrete, tactful and less likely to over-spend. It must be clear that these are the values that matter and will affect your demeanor the most. If you value humility, you are unlikely to be flamboyant about your talents_however adept you might

[12] cf. Frank Ninivaggi: 'Values Contemplation' pub. 2019

be at rugby-football or the pianoforte.

Human rights are the perfect illustration of values that evolve with our consciousness. Those which concern the relationships between human beings have come a very long way over the centuries, from the right to have a slave, to the right of serfdom and to the right then to be an honest subject, to be a vassal and later a free citizen, enjoying the right to democracy. Until finally achieving what our collective moral sense cherishes so dearly today: the notion of human rights, save for those too young to be born, or alive but unwell in China, Iran or Yemen.

The advent of A.I. poses questions for these self-esteemed rights of the chosen, and human values in general; the nerve cells that apparently control our thoughts and feelings seem to be touchy about being transcribed into A.I. programs, at least for the moment. So courage, friendship and generosity will have to reside a while longer in your tissue, a metaphysical location remaining out of the question. Our scientific friends are working on pet robots that will be capable of showing tenderness to their owners, so there is no need to fret sensibility just yet. But A.I. certainly threatens your organic selves_sorry, but I'm staying in the cosmos for this one_ since physical personalities could soon be swallowed up by virtual ones, as '(your) avatars are beginning to proliferate in the metaverse'. But if the virtual world is 'only the transposition of human capacity to imagine, it must be a progressive adaptation of organic personification into digital code'. Should the internet go down for long, a global catastrophe will ensue. Then again, if you had an incorporeal or spiritual personality, like myself, there wouldn't be a problem. A.I. would be incapable of reducing you to morbid docility, under the aegis of protecting your consciousness_human rights becoming only an illusion. Perhaps they always were. What does confuse me is that while the continuing aggression against the Amazon forest hardly stirs the human conscience, you all get very upset about the one-off desecration of stone temples by dogmatic extremists; that smells of prejudicial spirit, to me.

All those values previously suggested to be healthy may have to be changed, from dignity, fairness and generosity to sustainable consumption, and from selflessness and survival to responsible partnership, with curiosity and boundless knowledge thrown in. Being Intelligence, in the Cosmos, you might think that I should honor the A.I. god, so as to satisfy any religious leanings which Homo deus and I don't have; but I prefer to let science stimulate my mental energy, with the occasional glance down below, just to see how love is getting on.

CHAPTER 8



INTELLIGENCE AND LOVE

8 - INTELLIGENCE AND LOVE

In the fluctuations of the quantum vacuum, the appearance of particles was the foundation of the force fields that make up the universe. They transmitted their attraction-repulsion to these fields which, in turn, generated matter, space and time. In this world, even in the face of A.I., and quite likely in other worlds and universes, my patron assures me that 'love is, in fact, only the replica of this original energy', being a quantum-particle process that came from afar and 'was born when the first particles of the quantum world attracted or repelled each other according to their charge'. For me, it is the lifeline that gives me the hope to survive when my organic habitat disappears, whether that be back in the Cosmos, or further with my patron.

So I must agree with Aristotle, who in his *Nicomachean Ethics*, is very clear on this issue. Romance, or passionate attraction, leading to reproductive and hopefully lifelong love, twixt two of the opposite, or today more likely the same, sex is ἐρωτας *eros*, while parental, brotherly or the love of friends appears in the form of φιλία *philia*. Then there is αγάπη *agape,* that selfless and unconditional love, even to death. Only *agape* makes any sense of an extraordinary instruction to 'love your enemies.' Arthur C. Brookes[13] wrote: "What is the opposite of love? The automatic answer is hate, but that's wrong. The opposite of love is fear; as Paul Vitz[14] explained to me, 'fear is the fundamental negative emotion' and 'There is no fear in love, since love casts out fear.'" And later, Mahatma Ghandhi observed: "for the sake of flawless love you cannot be afraid of losing your life. A coward is incapable of love; it is the prerogative of the brave."

A human's consciousness of love will usually be restricted to that which he or she is able to perceive_*viz. philia* and *eros*, and it is the latter that enchants us with its most perceptible component_that which makes our heart beat, ensures our reproduction, and embodies physical pleasure, in the form of an orgasm. But our first perception of love is *not* in fact *eros* but the *storge* branch of *philia*_parental love, experienced in swaddling clothes worldwide. Its signal is not sexual but just the simple beating of a heart, quivering of the self, and a smile. Hopefully it will one day become *philia*, then *eros,* and the universal loop will repeat itself.
If certain religions have associated their concept of God with the emotion, that would of course be *agape*, as introspectively, deep within ourselves and beyond our consciousness, we begin to understand the force that is *so* present and which we call 'Love'.

[13] Prof. Arthur Brookes PhD (Harvard): '*Love your Enemies'* Atlantic 2019
[14] Professor of Psychology, New York University, NYC

But we must return to the state connected to *eros* and, for the moment, talk only of this brain related form of sensual love. Orgasm itself occurs in two phases, emission and ejaculation. In emission, a man reaches ejaculatory inevitability, the 'point of no return.' Semen is deposited near the top of the urethra, ready for ejaculation, which occurs in a series of rapid-fire contractions of the penile muscles and around the base of the anus. Involuntary pelvic thrusting may also occur. The nerves causing the muscle contractions send their messages of pleasure to the brain, and "all its particles find for a short moment the creative energy of the universe." Love has been redefined.

Scientific researchers have concluded that *eros* love makes us more intelligent. Our brains have a "love neural network" and a particular biochemistry that activates and increases a series of cognitive functions. It was sometimes thought that when we 'fall in love', we lose our mind in some way! But, in fact, neuroscientists assure us that the opposite is the case, and I would agree. Anyone in the early stage of a loving relationship is likely to feel more awake, emotionally connected to the world, empathetic and compassionate. That's just common sense. But it will also make the person smarter, as the chemistry of erotic love resides primarily in the brain, and the transformation of 'falling in love' reaches areas of the brain that also perform cognitive functions. That's neuroscience. Lovers will also think faster, cotton on to other people's ideas and behavior more clearly, and be more creative. Look at Van Gogh, before he cut off his ear. The research was done at the University of California, with electrodes on the skulls of scanned participants. While brain activation and reactions were more intense during the infatuation stage, the study confirmed that the same effects were still there in relationships twenty years more mature.

The progress of A.I. is sure to be unrelenting, as algorithms expand its territory. It may take over your way of living, producing and replicating. But it's not getting my job, of thinking, imagining, or helping you to love your neighbor and partner. Those will remain with the particles that form the fundamental energies of the universe; they are my refuge, my domain. Perhaps, in collaboration with A.I., I'll increase your orgasmic power and thus my mental energy?...'Thar she blows!'[15] The love that characterizes you as a human species is for me the zone of absolute security. A.I. can help to create Homo deus or thanks to genetics, transform your race into a humanoid of intelligence and energy, with the brain as the first, nay the only component. But if it stops feeding my own energy then I should find a new partner. As Galactic Romeo, I'll have to meet my Juliet from another universe. With the Cosmos as my balcony, I shall find an appropriate way to seduce her for interstellar love, and whatever orgasms will perpetuate my survival. This is *my* playground and I've been performing here from the first light of my existence. Love must go on.

[15] Herman Melville: *Moby Dick,* pub. Bentley, 1851

CHAPTER 9

INTELLIGENCE AND CULTURE



9 – INTELLIGENCE AND CULTURE

Art is particularly important for me, as it appeared when man first used his newly discovered flint tool on cave walls, c.5500BCE. The drawings of animals were my birth certificate, if you will. Hunter-gatherers then discovered the pigments of nature, to transform sketches into paintings, and later, to this artistic execution in two dimensions, a third was added. Sculpturers cut the stone, not to kill but to dazzle the observer. Music came to life when these folk discovered how to beat a drum_well, a stretched alligator skin in Africa, and a hollowed tree trunk elsewhere. Together with the lyrics, this was my certificate of maturity. My emotional side had started its performance, and music is a universal language, to express emotions that overstep cultural boundaries. Small wonder then that genetic studies[16] suggest that humankind is born with a talent for musical expression, and that one of the most significant cognitive tasks is musical perception.

Theories about me have varied between different cultures, within the fields of language, social behavior, education and child rearing duties, over many years. The practice of a particular people is really identified by their usual experience in these and related areas, and embraces all aspects of social life, including politics and religion. Culture will determine the very nature of intelligence a people may inherit, whether in Spearman's general category[17] or Horn-Cattell's crystallized intelligence[18]. The latter was considered to be integrated through culture, until Cattell himself theorized that cognitive ability is a product of fluidity, verbal intelligence abilities notwithstanding. Crystallized intelligence comes from experience, as it is influenced by both breeding and education. Cultural views of human intelligence differ considerably, as Cododia[19] saw.

Nonverbal reasoning skills are highly valued in Asian and Western lands but not in African, though all three value knowledge, *per se*. Only Western peoples value the speed of completing a given task, together with abstract reasoning and decision making skills. The ability to build social relationships is considered a sign of intelligence in both Asia and Western Europe to America. Musical talent is important to all, but religious beliefs only to Asians. Altogether, Cododia thinks that culture and intelligence are interwoven, though there is very little consensus on what I might be, from one fashion to another!

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[16] E Schellenberg *PhD*: *Music and Cognitive Abilities: 2005*

[17] C Spearman: *General Intelligence,* 1904

[18] D Flanagan : *The Cattell-Horn-Carroll Theory of Cognitive Abilities: 2013*

[19] E Cododia: *Cultural perceptions of Human Intelligence*, *(TCEs et al)* Notre Dame University, Australia, 2014

I am rather proud of the extent to which artistic culture optimizes my energy consumption. The human mind selected a playground to express itself, with exhilarating freedom, in artistic creativity! As in all other domains, consciousness naturally stepped onto this ground and helped me transform it into an impregnable fortress, over the course of evolution, unwittingly amassing an invaluable heritage for past, present, and future humanity. Literature and theater were crucial components, and the first Mesopotamian legend told the epic of *Gilgamesh*, considered in ancient times to be one of my_sorry, your masterpieces of cuneiform literature. Copies of the tale have been found in Syria, Israel and Turkey, and references to it are attested in both Greek and Roman literature. The outlandish elements of Homer's *Odyssey* have made it a source of inspiration for writers in every domain. James Joyce used it, at my suggestion, as the foundation for *Ulysses*, being the Latin for Odysseus, and when I invited Margaret Atwood to examine our hero's violent homecoming from his wife's perspective, she complied with *The Penelopiad*. I don't want to boast, but I have been very influential over the years.

Palestrina 1525-1594, Bach 1685-1750, Handel 1685-1759, Mozart 1756-1791, Beethoven 1770-1827 and Brian May of *Queen* 1947- alive (IQ 180) are the five smartest musicians that I've heard, either from the Cosmos, or in the case of *Queen*'s lead guitarist, joint-composer with Freddie Mercury, and PhD (Imperial) astrophysicist, down here on Hi-fi audio. If you doubt me, try Palestrina's *Missa Papae Marcelli*, Bach's *Magnificat,* Handel's *Messiah,* Mozart's *Requiem,* any of Beethoven's last string quartets, and *Queen*'s *Bohemian Rhapsody* and you will understand! The fact that the first four of these works were composed for the Roman Church shouldn't upset anyone, since they were just the most persistent and lucrative client, who tended to get what they'd ordered! The point I am making is twofold – excellent music indicates that the composer had a very high IQ and was sensitive to rhythm, pitch, and melodic patterns that could be memorized and used at will. But it works both ways; and if your child is musically trained, my faculties in her body will certainly improve, since listening to or making good music increases blood flow to the brain regions that generate and process emotions and learning. Tests have shown that the limbic system 'lights up' and playing the piano will make the child's brain run more efficiently overall. Lutz Lancke[20] claims that "learning to play a musical instrument … can increase IQ by seven points" and an analysis of SAT data over a decade showed that students taking arts courses earned the highest SAT scores on mathematical and verbal ability[21]. All in all, musical education sharpens attentiveness, strengthens perseverance, and promotes creativity.

[20] Professor of psychology at the University of Zurich

[21] Vaughn *et al,* 2000

New forms of expression have arrived with the world of photography, cinematography and audiovisual art, and inspiration itself is evolving. Contemporary art has become the new territory of our consciousness, and the virtual world, with its array of interpretation, is overwhelming our fortress of artistic recognition, previously said to be impregnable. And with A.I., artistic creation will extend perhaps beyond our imagination. That playing field which I mentioned will become an arena for the competition between your emotional intelligence and its artificial equivalent. I am not prepared to lay odds on who will win. Perhaps then, it would be wiser to form a partnership, where I think up the ideas and inspire yet more, while A.I. restricts itself to retrieving all the universal data required. Then we might create a new Renaissance; feel new emotions, generated by voices we couldn't hear before, realize symphonies we couldn't compose before, see shapes we couldn't imagine, and devise stories that even the most stubborn can understand.

As long as it's clearly understood that I shall *always* be the one to discern twixt the beautiful and the grotesque, the ephemeral and the perennial, and between the shrine and the sublime.

CHAPTER 10

A NEW HUMANITY



10 – A NEW HUMANITY

The more I look down on humanity from the Cosmos, the more you all fascinate me. Long ago, as I was somewhat impatient with your predecessor, Neanderthal, I put myself to work to enrich your miserable neuronal connections, which had potential, but not very much besides. Since You had no soul, it was essential that My potency be increased if We were to continue our journey together successfully. Hence, even today, I continue to optimize your workload and broaden your horizons, so that you can access what Yuval Noah Harari described in his latest narrative as *Homo deus*. With the exception of my current patron and your very smart author, Harari seems to be only one amongst you who has the faintest idea of what is going on, and so I suggest we take his warnings about A.I. seriously.

Perhaps I was too impatient with the species that preceded you; it was just that your neural connections had such potential that I couldn't just float there, without making every effort to enrich them! Besides, haven't I shown you the way to optimize your own workload and broaden your horizons with A.I.? In doing so, I have increased, through you, the performance of my own powerhouse and that is vital if I am to continue my journey, with or without you. But you are going to have to realize your responsibility toward the environment, that science has taught you and I thought I had too_it's as vital now as it was on the day I taught you how to make fire. If you are good students, science will help me transform your species. Through chromosome intervention, genetics can improve you biologically, eliminate diseases, perhaps lengthen your life and above all, increase your mental abilities. It might even integrate A.I. within your bodies, through implanted chips that will help you to understand, speak, and so communicate better. Assimilate mathematics and enrich your knowledge, to better solve problems and hopefully stir your curiosity a mite more!

The essence of Harari's captivating book is an unequivocal but frightening notion: human nature will be altered in the course of this century, as I become uncoupled from awareness, and you are left with no feelings, of emotion or very much else. No, you are not going to be able to build machines, computers or robots, which have feelings like you do_that is the field of consciousness. O, you can have machines, whole data-processing networks in fact, that know your feelings better than you do, but that is intelligence. I should know. A search engine doesn't give a toss about what you search for_it won't be offended by your weird behavior. Actually, it can process that behavior a lot faster than you can, and that, my friends, has the capacity to change what it means to be human.

Under the influence of genetic manipulation, what was homo sapiens then risks rapidly transforming into a new kind of humanoid. As your carefully planned and scripted births take place, your brains will develop imperceptibly, to the detriment of other organs, deemed less relevant to your new needs. The digestive system will probably be the first of these, with a new diet to serve a metabolism suited to mental energy, rather than physical strength. Pianists will have to cope with thinner and longer fingers, more used to the keys of a computer than of a spade; and eyes that are constantly connected to virtual lenses will change your normal gaze to that of a bewildered genius. Advances in mobility and, of course, less need for it in a reality world, will reduce the need for and so probably the size of your lower limbs, and your sexuality will increase tenfold_goodness knows in which direction_but paradoxically, less with your sexual organs and more for the benefit of what's left of your mind. Because, freed from daily tasks which have become tiresome and unnecessary, we will together spend more time on emotional intelligence and art and the other kind of culture will reach dizzying heights! Aren't you looking forward to it all?

Homo sapiens was, after all, just the last stage of an evolutionary eventuality, like every other species on your planet. Indeed, humanity could well be ending: just as you reach the height of your earthly power. *Homo deus* takes this one stage further, to make it very clear that your singular ability to control the world around you is now turning you into something else.
The evidence is all around. You haven't just conquered nature, but also your worst enemies. War is almost obsolete, at least on a global scale; famine is rare, and even disease is on the way to eventual extinction. You_sorry, We have achieved this by building some very complicated networks that treat you all simply as units of information; why, they can't even be bothered to use numbers great than #2! Evolutionary science shows that we are nothing but data-processing machines; we too are algorithms. All we need to do to take control of our destiny is to manipulate the data! So, what are you all so worried about? Apart from the fact that other algorithms_the ones that you, yourselves have built, can do it far more efficiently! You idiots! Will you never understand that the Genesis story has nothing to do with snakes and apple trees? It is simply an instruction manual on how to decide what happens to you, as consumers, as lovers, as citizens, for *yourselves*! And *not* to be daft enough to give away that power, willy- nilly, to a system of network connections, or to neurons! You are what gives those networks their power; they are using your ideas_well, our ideas of purpose and of signification, to determine what happens to *you*!

Of course, this isn't all new. The modern State has existed for about four hundred years; all it is, is another data-processing device. Thomas Hobbes, in 1651, called it an "automation" – a robot to you - and just as soulless, sorry callous. States don't have a conscience, which is why they do the most horrifying things. What has changed now is that there are processing machines that are far more efficient than States; governments can't keep up with technology. Why? Well, scrape away at a faceless bureaucracy and you'll eventually find a civil servant, with feelings. Do the same to a search engine and all you'll get are data points! So then, why can't we stop these fearful threats from taking place? Are events just happening too quickly? Whereas in 1850 we could imagine, at least from up here, what things might be like in a hundred years' time; not today. We might have already built a world that no longer has a function for us. That's not a comfortable thought, but we are no longer in control of our fate: real power lies with the networks. Larger organizations, religious or corporate, are either obsolete or part of a vast network. Identifying smaller units, to offer resistance to the immense sacks of information sweeping the globe, is becoming more difficult as time goes by.

Some have given up the challenge. God can't help because He no longer exists, and in lieu of deism, equality, and personal autonomy, there is a new religion: 'Dataism'. Founded in California, it seems we are now judged by what we can offer to data-processing, and it is certainly true that any information we need is instantly available. Our lives will be longer, with immortality being the next target. Yet will we *want* to live forever and a day, if we are not really *us,* anymore? Having lost our spiritual component long ago, we are now no more than a series of information points. Those who sign up quickly to the 'dataist' project will be rewarded with the only real power left, and so will be unchallenged. Getting into the super-elite club will be incredibly difficult; you're going to need at least six A*'s at A-level, and care not a fig about letting your personal identity share orgasms with identity machines. You will be one of the new 'gods'; a new caste of prophets, able to see the ultimate source of knowledge, while the rest of humanity remain as tools, in your grand schemes.

There's little point in trying to predict the future. Who knows, after all? Perhaps you'll be just like the animals – at the beck and call of superior versions of me? For some odd reason, Harari wanders off into his personal fetish on animal cruelty, admitting that he's only intelligent by human standards and, take it from me, that's not much to write home about. Nietzsche just wrote that humanity was "setting sail, far out to sea, now that we have finally left Christianity behind"[22] Very useful.

From the Cosmos, it feels more to me as though you are standing on the edge of a cliff, about to step into thin air.

[22] Nietzsche: *The Gay Science* 1882

CHAPTER 11



THE FATE OF INTELLIGENCE

AN EPILOGUE

11 – THE FATE OF INTELLIGENGE : AN EPILOGUE

As the Ulysses of quantum fields, my Odyssey is a fundamental and seemingly unresolvable conflict, created when quantum mechanics, dealing with particles, extended into quantum fields_systems with an infinite number of degrees of freedom. Over the last decade, the Quantum Field Theory (QFT) has become the most widely discussed topic in the lively philosophy-of-science debate. It is the antinomic of the Cosmos. Instead of real particles, fields are fuzzy, with virtual particles coming in and out of existence with random excitations of the fields – matter or boson, down-quark, whatever. Look, I have no intention of trying to explain all this to the likes of you, there wouldn't be any point; firstly, because you're just not up to it and secondly, because even we of superior intelligence don't understand some of what's going on. When you've learned all about the Schrödinger equation, the Lorentz transformations and the Klein-Gordon equations, come back, and I'll think about it.

For the time being, my fixation on *Homo deus* will carry me far, perhaps even to discover the mysteries of my birth, which I assure you I will keep to myself. I will always be one step ahead of A.I., when it comes to loving relationships, reproduction, mobility, adaptability and discernment in human form. Back in the Cosmos, I might even come across other intelligences, though quite how is beyond me, unless they just turn up, and Hoyle, Wickremesinghe, Lovenze and Smale were all gaga and the Law of Chaos, a load of bunkum. I do dream about that, sometimes though; whether it's the earth destroying itself or more likely, you people melting or blowing the whole thing up. Sorry, but I'm in a capricious mood. Well, what do you expect? I mean, where would I go? Even if *find* these other 'islands of intelligence', who's to say they'd communicate with little *me?* Why would they want to? To 'understand all the mysteries of the Cosmos'? Forget it; apart from me, the Cosmos is empty space, albeit that "the empty space is frothing and boiling, a bubbling soup of particles and anti-particles, constantly created and destroyed."[23] Indeed quantum physics asserts that there is a universal energy that has the attributes of God, in that the energy has consciousness and creativity and all matter is composed of this energy[24]. The energy was responsible for the Big Bang. Whether or not God Himself exists is of course a question that science cannot answer, one way or the other.

And as I said earlier, I am *not* going to give you the answer to that one. But I do think you should take a fresh look at reality, in view of my Odyssey. My narrative has been agnostic; it couldn't be otherwise. Science deconstructs any myth about the universe being at the service of man, so admit your insignificance and recognize your responsibility to your own planet and the universe. You have an urgent responsibility to cultivate your intelligence for the here and now. Parallel universes can wait, but the years of homo sapiens are numbered and I will not be likely to forgive any of you who choose to ignore that sobering but irrefutable fact.

[23] David Tung: Cambridge University Professor of Theoretical Quantum Physics

[24] M. Kuhlmann, C. Friebe, H. Lyre, P. Näger, O. Passon, M. Stőckler : Springer Berlin Heidelber



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Born in Beirut, Farid Chehab holds degrees in Public Law and Political Science. Over his long career in Communications, he has contributed to the creation of regional and global advertising campaigns, some of which were still running in 2015. He also contributed to the creative philosophy of Leo Burnett Worldwide, which underpins the firm's creative thinking around the world.

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