

The Flying Termite

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In honor of the book Ghost in the Machine by Arthur Koestler

To my elder brother, István.

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PREFACE

I am not a scientist or any kind of expert - I am a poet. But to understand what this means, you need to forget the generally accepted – and partly true – contemporary idea that poetry is just so much sentimental and pleasant goo, what sad people do with a grievous face hoping that somebody will love them. As one of the greatest Hungarian poets, Attila József, wrote: “lyric poetry is logic.” Ask Raymond Smullyan - he would agree.

Alternatively, think on music. Music can be nerve-racking sometimes, or unbearably shallow - but when you hear Bach, you will feel that music is science. It is not a coincidence that Einstein loved to play the violin.

Poetry is one of the most interesting things done by human beings because it has enormous power to make understandable our strangest capability, the perceptiveness of things. Language itself is based on poetry and - believe it or not - most of our stern scientific terms come from metaphors. Poetry in some sense is philosophy, and vice versa, and in my opinion philosophy is about questions not answers. Every answer raises new questions. I shall leave answers to engineers, scientists and most of all, politicians.

However, I have another secret. When I write, I ‘see’ my thoughts and ideas swimming in a strange space, as if they were fish. Colorful, frightful, playful or curious fishes are darting around me. Indeed, it is not just my own thoughts – it includes every great person’s ideas who I know about. As such, I do not know which fish is mine; moreover, I think perhaps that none are mine. I am just an observer.

In the process of writing, I always have a sad feeling. Why am I doing this? It’s as if I want to catch some fish and kill it. I do not intend any harm to them. They are nice, or at least interesting. Thus, I want to write in such a way that my book will serve as a document about this sea of ideas.

Chapter 1

THE MACHINE IN THE BUG

When you hear the word termite, you might see with your mind's eye a few ants yet not know that their closest relatives are cockroaches. Termites have over two and a half thousand species on Earth, and the number of the individual insects today is probably greater than the number of stars in a star-chart. Their supreme occupation is to eat, and sometimes this can cause problems with our buildings. However, they can also create large structures, towering up two or three meters above the ground and even more underneath. Scientists say that they have lived on the Earth for over a hundred million years, so they have seen it all. Except that... they are blind.

Not all of them live in darkness, without vision - I wanted to use blind termite because, in this parable, their perspective makes the picture more dramatic. We human beings tend to forget our boundaries. We can admire dogs for their incredible sense of smell, but because it is so unthinkable we just do the same as we do when someone accomplishes a silly Guinness record - smile and forget. We cannot take it seriously. We cannot imagine their world. Blind people can understand this situation better than me.

The blindness of termites makes the question more complicated - how do they do what they do? They make large structures, they can repair them if something goes wrong with them, they can ventilate the air, they can defend their hive, breed their offspring, and they raise mushrooms. All these activities require reason. It must be provided for somehow, so there is a need for leadership and organized labor - but how? Termites have no minds. We know about other insect species with similarly organized societies; ants, bees, wasps are amazing, yes, but they have eyes at least.

Evolution has an answer, you know, because it has all the answers. It says that, somewhere at the beginning of time, there lived a cave termite-queen which was exposed to genetic alterations and which began to produce pheromones that could decide what each individual termite should do - "And She saw that it is good." This may be true, but how could it work? What information is needed to build mounds and where might that particular information come from? I think that experts on evolution

claim that the first attempt was a little - perhaps a two-storey - structure of dirt, which was pushed up from below the surface by worker termites and, as they evolved, their buildings became skyscrapers. Just because they did not see each other, they went up above previous steps without any information about what they were doing. We cannot know how they did it, but one thing is sure - they found their way blindly.

Some scientists say that the termite colony is the 'Termite' itself (1). Individual insects are only its parts, and they behave in an almost similar fashion to the cells in a vertebrate, as if they were hemoglobin or something. This idea is the most interesting idea since the discovery of gravitation - 'Termite' has a virtual body. Not only is it invisible but it has no other particles - just the individual (and blind) insects.

This virtual 'Termite' is not a spirit, but it has some similarities to ghosts. It has no eyes or well-developed brain - the only way to collect information is in a heat-tactile-odor sensory manner. We do not yet know if they have any other kind of sense. For example, can they perceive electricity or magnetism, or might they have a direct sense of gravitation, or some kind of GPS? One thing is certain, their activity seems to be smart even though they do not have well-developed brains. Thus, the virtual 'Termite' is the brain of the insect. It works as a rational creature, certainly, but is it smart?

The essence of 'Termite' is almost like a program in a computer. A program has no body, but it works. Computer programs are designed, termites are not, but we cannot say that their behavior is just a coincidence either. It is like a scale model of the universe, the universe without consciousness.

The case of brainless termites is a good opportunity for us to use our brains and try to imagine creatures without a well-defined body. Doing so is not as easy as you might think. You may know that inside your body there live many useful and necessary microorganisms. Indeed, within your body there are more bacteria than the total number of cells constituting yourself. What do you think - where are the inside boundaries of your body? We also cultivate our bacteria to help digestion, as termites are raising mushrooms inside the nest. Which program controls this behavior? Where is the particular program? Do you know how computer programs work? Do they have any perceptible body? They are just a set of orders without any apparent or palpable host.

At this point, I need to introduce the term 'holon' coined by Arthur Koestler, which means that every noticeable thing, from light or atoms, to philosophy, is a "whole and a part" at the same time (2). We cannot perceive the universe in itself, so we do not know whether it is a whole and part at the same time, but the 'Termite' individual is a holon which cannot exist without the colony. Termites can act individually, to a limited extent, which means that they may choose what they should do at a given moment according to the stimulus at that time. Inducements launch complex behaviors. We call this instinct to discern it from simple reflexes. Instincts are encoded in the genes, no doubt, but the question is: how? If we try to compare instincts to a computer program, they are obviously more complex and flexible. But it is important to know that the same instinct exists in each termite, depending upon their role in the hive.

These behaviors are coded on another level. The 'Termite' has a spectral body - or more precisely a peculiar program without any visible hard drive. Termites and insects are not the only examples of this. Have you ever wondered how a huge flock of flying birds can change direction in a split second? Some fish do the same thing. They are more complex than termites, but still they can act as 'one body'.

Vertebrates are more evolved creatures than individual insects. Their behavior is not as fixed or unchangeable as those of termites. However, they also exhibit a lot of encrypted behaviors - difficult, differentiated sequences of commands - guiding them through life. Moreover, they can listen, learn and think. I almost wrote that they also could lament, and yes, they can do this too.

The metaphor of computer programs is not perfect, as we shall see later on, but it is useful now because a computer program can be considered as a work of intelligence. When I compare instincts to programs, I mean that instincts are also smart. However, we should not confuse things - when we perceive something that is seemingly intelligent, this does not mean that there is a God, does it? After all, we all like to see ourselves as intelligent beings - *honestum exceptis* - which means that our intelligence is a part of nature, in a way; yet atheists will immediately cry "Devil!" if anyone calls anything intelligent other than humans. Nonetheless, a few of us can shake-off anthropomorphisms. Most religions - alas, my favorites are no exception - have no religious notion about Nirvana or Heaven for insects.

Science, in the past half-century, has convinced us that there are other species on Earth with consciousness. One of the most famous experiments was when they painted the face of a chimpanzee while it slept, such that

when the researcher gave a mirror to the beast after waking it, the 'animal' groped its own face in fear (3). We know that dolphins can communicate difficult things in a language that we cannot fully understand at present, and we know that dogs feel guilt... and so on. Thus, not only is intelligence but also consciousness and culture common among us here on Earth.

Why can we not accept the idea of general intelligence? Because 'plane-materialists' believe that materialism means that everything come from atoms? Science denied this long ago (4). The idea of the behavior of matter is a puzzle that has been accepted for some time, for example, the movement of photons through an optical grid. Science cannot explain Einstein's theory as an effect of the movements of atoms. Nothing can come from outside of the Wholeness; therefore, intelligence is a part of the Universe at a higher level, regardless of whether we are willing to accept it or not.

And yet we stick to the idea of human intelligence as more advanced than other forms of intelligence. Dolphins can communicate in their own language, but they have never published a book of grammar. Dogs can learn difficult tasks, but they have never founded a dog school. We do not have the slightest idea of their intelligence because they live on a different level, yet who knows how much information they have regarding those things that we cannot ourselves perceive? We simply cannot accept the idea of pluralistic intelligences.

I want to say that intelligence is a general notion - we know only our own and we know almost nothing about that of others. However, in nature we can see the results of intelligence, and intelligent species recognize human intelligence. So, if intelligence is probably driving the movement of material, then it should be the driving force of evolution.

Chapter 2

THE BUG IN EVOLUTION

The word 'evolution' is a tricky one. It means that "each new life form comes from changing of a previous life form." However, they have not convinced me of the lizard egg with a baby stork inside to hatch. I know that they say that the first new creature was "a lizard with some stork-like features", the second was "almost half-stork but mainly lizard," and so on, but they forgot the fact that all the "half stork, half lizard" creatures will die before they can hatch. The issue of mutation in a genus is another question, though it has similar problems. I cannot understand why they cannot evolve their jokes about evolution with interesting ideas on parallel development or cyclic devolution. Why have they clung to the idea of lineal descent? I think that it is because they believe in 'atoms'.

Evolution has many interesting possibilities. Begin with the unicellular. Such entities can multiply in proliferation, but the question is whether the first single-celled creature lives forever, or whether it died when the two new 'individuals' began to form? I know this question is like asking what color a photon has, but it is interesting.

Asexual reproduction is another difficult puzzle. What is the trigger of such reproduction? Moreover, asexual reproduction exists among the most complex animals as well, and it involves a strange method, by which sexual and asexual reproduction may alternate during the life of an individual. In 2010, a female boa constrictor produced 22 female offspring with WW chromosomes (5) without mating with males (which has done several times previously). There are many interesting forms of asexual reproduction among amoeba, amphibians, reptiles and birds (6); and fission is not the only way of doing so (7). Plants can reproduce with a method that seems to be a form of growth at first sight, but which is more than that. It seems that sex is not necessary for reproduction initially. The Bible made a mistake again - God did not create Adam first, but Eve.

It raises a question: why did sexual reproduction come into existence? Given that it exists, why do only two sexual categories exist? Why not three, or more? Moreover, how do some species undergo sex-changes? If sequential hermaphroditism among slugs is a successful and practical method, why is this means of reproduction not more commonly used?

Sexual reproduction is advantageous because, if two DNA sequences have merged to create a new being, its chances of survival increase. Yet the process of creating a single - or half of a - DNA sequence is the same as the proliferation of single-cell DNA, at least in general. How does unicellular reproduction create a new, full DNA? Why can they not reproduce the fusion of DNA of two individuals? Furthermore, how do the plankton *Dictyostelium* do this, or more precisely, how do they reproduce in a crowd? (8)

Let's pretend that we know the answers. However, what will happen after two strands of DNA have become one being? This little thing will have to become large in order to survive and produce more descendants. It starts to grow, of course, and to take the form of its parents. How does it know that form? By its genes, by its program... from the blind DNA.

The process has many interesting forms. They say that the human foetus is completed after the first three or four months - until then it is labelled 'an embryo'. In its first stage, the embryo displays superficial similarities with other species. Although I do not think that anyone has ever sought to transform a human embryo into a bird (or at least I hope not!), nonetheless, it would be quite interesting if we could get a human baby with wings. I hope, you will find this idea not only stupid, but terrifying. Forget humans: can we alter a kangaroo embryo to become a jumping eagle, like *Pterodactyloidea*? But they say that lizard embryos could become storks.

I do not care much about the theory of evolution, but I cannot waste the opportunity to note that the concept of the selection of viable mutants by the environment requires numerous two-headed animals as a result. We know that calves, snakes and humans can be born with two heads. Two-mouthed animals would have an advantage compared to normal animals with one mouth because they can eat more. Maybe mammals would not survive this, but why not mantises?

The process of changing into an adult individual from a fertilized egg has other interesting dimensions, such as metamorphosis. Insects change their body during development three or more times, and many of them become airborne even though they were born as crawlers. It is obvious that the process is controlled by DNA, which creates the organs and glands to regulate hormones and other things along the way. But what creates the DNA? The individual insect or DNA itself?

The problem with the Theory of Evolution isn't that it can't be true. It is, I would argue, the fact it can't explain the question of ultimate cause.

Let's see the famous demonstration of the evolution of eye. Professor Dawkins, with his strictly materialist world-view had shown us how as an incredibly complex thing as a human eye could have evolved from simple light sensitive cells, as some kind of biological machine. (9) But *that* was not the question.

Dawkins argued that the eye, as it evolved over successive generations, could provide a more and more detailed image of a predator to the host animal, including human. I can't help it, but I must smile again, even though I've heard this argument more than once. How the poor animal could make distinction between predator and food without some kind of inbuilt ability to tell one from the other, in other words with some kind of knowledge? The evolution of the eye is the evolution of consciousness.

'Plain-materialists' have a tendency to forget to offer a detailed explanation how they themselves could think. If it's true their mind is made of atoms, molecules, cells – as the brain is – they must say material can think. Maybe it is also true, but you know, the atoms in your brain are changing constantly, so how do you know your thought remains constant? The materialist perspective requires a well-developed pride of humankind stating nobody can think just us.

But this isn't the case. Consciousness starts with distinction. The poor eyeless earthworm knows perfectly the distinction between 'me' and 'outside world'. It has other senses, not eye, of course, but the main thing is its knowledge about being. I can agree with you this knowledge is not too much compared with ours, but it is there, which is shown by its behavior, exhibited during eating, multiplication or escape. More complex animals show incredibly evolved consciousness, not just vertebrae but mollusks too. Lions have an inbuilt urge to hunt, but they teach their youngsters to ambush, to pursue, team work, and to kill. There are huge differences in these methods amongst lions, not to mention the behavior of monkeys and primates. And have you ever seen a hunting dragonfly?

I explore the question of whether an animal can lie, in another chapter, but I think I must write here something about it too. When my cat has done something wrong and is then busted, its only lie is pretending "I wasn't there". It can't lie in advance, unlike us, because cats have no knowledge of time. Their consciousness isn't on the same level as ours, but it exists.

Thus knowledge of being - or our adored consciousness - is a common thing in the animal kingdom, but there are interesting exceptions. I don't think a 'Termite' has the same knowledge of itself as a lion or a mollusk has. They do not have any kind of consciousness as a *self*, but I think they have a 'hive-consciousness'. And, it is interesting that their eye is a compound one.

I intend to write more about consciousness in another book, but for now I would argue that human consciousness has several layers (at least six). Not in the meaning of 'unconscious' or 'über-self', but in our alert behavior with parallel conscious acts. I think that in most of animals consciousness is simpler.

So the mechanical concept of evolution can't explain what really happened in the past, because its proponents do not take into account the fact every phenomenon in Nature requires some kind of non-material blueprint in order to exist. This is true as much about DNA as for elementary particles. It doesn't just happen to be true, but is the only intelligent world-view, in principle. (10)

Chapter 3

THE BUG IN THE ANTIMATERILISM

Materialism is the oldest world-view in the world. I would argue it has expired a long time ago. It had created religions which, irrespective of their effort to be “spiritual”, induced idolatry. Materialism does the same today. Idolatry is when somebody says to you what you must think referring on some ‘authorities’. While I am not the first who tries to transcend it, I know transcendence is a translucent word. We’ve seen Plato, Parmenides, St. August, and many more great thinkers trying to do it, including Einstein. But materialism has an inbuilt stronghold. Our words are embedded in materialism at the end of the day.

I think you can find the scene in Peer Gynt by Henrik Ibsen, when somebody wanted to find the essence of an onion, started to peel it and when the onion was completely vanished understood sadly he couldn’t find the core, its “Ding-an-sich”. That is the fault of the materialist perspective, trying to find the core. Instead, if we try to understand the whole onion we have a chance to gain something more.

Let me to try to enlighten you with a parallel from Buddhism. You may have heard of the concept of Chi or Qi, originating in oriental thinking. (11) It is an energy force, as they say. Now, western Buddhists think it is some kind of current between Earth (Down) and Sky (Up) where people are the light bulbs. This is eastern thought in western interpretation. But oriental Buddhists add to this the most important idea: Chi is in every existing thing and everything exists in Chi. I like this idea, but if it’s true, how we can explain the process when Chi becomes gravitation, light or electricity? If Universe is a complex thing there must be a reason for that. Accepting it as such is too simple a view of spiritualism. I know, of course, Chi is some kind of self-suggestion, but for that we need something outside of our conscious, thus it must be real. When I set an alarm clock and I awake before it starts to shriek, I know I had not set the clock, but my mind. But how can it be possible if my mind isn’t more than I know?

Buddhism was and *is* the most advanced system to get rid of materialist superstitions. But they had to fight for that. Some Buddhist texts you find arguments with some kind of “four-valued-logic”. For example:

“And so, Anuradha — when you can't pin down the Tathagata as a truth or reality even in the present life — is it proper for you to declare, 'Friends, the Tathagata — the supreme man, the superlative man, attainer of the superlative attainment — being described, is described otherwise than with these four positions: *The Tathagata exists after death, does not exist after death, both does & does not exist after death, neither exists nor does not exist after death?*'” (12)

Western logic was born with only two-valued system, a statement is either true or false, there isn't any other possibility. In everyday life we tend to use this method, meanwhile the science of logic went far away from that. The only reasonable meaning of the sentence above, *what not* Tathagata is, trying to express some impossible to understand possibility of things without The Core. Tathagata is something that exists while not existing, that lives and while not alive, and so on. This sentence means our categories, like time and space are meaningless regarding existence. Proponents of this perspective had to make these complicated and debatable arguments to express something other than our words contain.

But this isn't alien to our western thinking, even though we don't know it. The Cartesian Coordinate System is well used in mathematics, but in philosophy it is contradictory. I think you all are familiar with it from your school years, so you know there are four squares, and one of them (on the right upper side) is positive. But the others... Let's name this positive square A, then the B, to left from it will be negative. C, below A also will be negative. Okay, but what is the case with D, opposite to A? It is double negative, despite the trick of mathematics “minus times minus is plus”. You can use this trick for an A in tests at school but in real life it's nonsense. Two of “nothing” will also be “nothing”. Descartes' effort was a fair attempt to make useful something un-imaginable, but without success until the Mandelbrot-set was born. The Cartesian Coordinate System is similar with Yin-and-Yang showing nothing exists by itself only with its opposite. The upper right square couldn't be positive without the others.

To rid of materialist background of our words we need to face the fact that the meaning of our words billows like a cloud. Moreover, there was time when some accustomed senses of our words didn't exist at all. Jesus said a striking sentence to his disciples about John the Baptist:

“Verily I say to you, there hath not risen, among those born of women, a greater than John the Baptist, but he who is least in the reign of the heavens is greater than he.” (Matthew 11,11)

How come? John the Baptist was the greatest man on Earth, but in Heaven he will be the more insignificant? Maybe I, myself, can be bigger than him? It’s nonsense. But the error of this text wasn’t made by translators, as in many other cases in the Bible, but by Jesus himself. But it wasn’t his fault, in his time no language had a word with the meaning of ‘egalite’. He wanted to say in Heaven everybody will be equal, but not only Aramaic, but Greek and Latin couldn’t express this idea only circumstantial. ‘Egalite’ was a French invention.

But what if we can rid of materialism? Spiritual, religious systems mostly are materialist with invisible forces, spirits, demons and angels. In this sense they all are extensions of the good old materialism, only, they have no body, and not just in physical sense. It all has an imaginary core while in reality nothing has, including God, Allah and the others. And please don’t be so conceited, you also do not have any.

But now let’s see another thing.

Chapter 4

THE EVOLUTION OF PHILOSOPHY

The puzzle "Which came first, the chicken or the egg?" is an ancient riddle, long before Aristotle (13). Modern scientists believe that the problem is solved by evolutionary theory, but they tend to overlook the question. When we ask "Which came first, DNA or the egg?" the answer is always "DNA". But DNA cannot walk alone in the street, or swim in the ocean. The RNA of the virus also cannot function without a living animal. They need a host, or a parent. But what DNA created this parent of a new born without another parent? I know that all living things on Earth are only a 'DNA carrier', but this is not the answer to the question as to how the first DNA was created - by nature without a 'parent' or vice versa?

Let us consider the blind 'Termite' again. Do you know that a worker termite has the same DNA as a warrior and as the Queen? If not, they would not be the same species. If so, why does the Queen control workers by pheromones and not the other way around? It seems that DNA has a complex system above individual insects, connected by invisible links. It is like a program.

As I wrote, my metaphor about computers is far from perfect. In computers, there are microscopic particles which can do only one thing - let the electrons go or they stop them. Theoretically, this movement is visible, but the program is not. You can see the image of a computer program on a screen, with numbers and letters, but that is only the image of the program, not the program itself. You can say that the program is in the head of the designer, but then where would it be after its designer dies?

It is the same for DNA. The program has no physical form - chromosomes can do one thing, connecting each other. DNA is just the vehicle of the program, just like a hard drive in a computer or a punch card in Jacquard's machine.

In nature, programs may change. In addition, animals can learn - as governed by their DNA - and have the capacity to be raised above the existence of a pure automaton. The new generations of computers can do the same thing, or at least almost the same. The use of 'almost' relates a

long distance at present, but this is not relevant. Learned information can replace instinct to a limited level - the question is why has evolution banned this opportunity to increase the chances of survival by the heredity of learning information? It seems that there is a strict line drawn by nature between species and individuals. But of course, this could exist only if there were individuals or personalities, and termites have neither of these. Interestingly, some squid - the cuttlefish - seem to have individuality. They are not vertebrates, yet they can learn more than a fish, a reptile or an amphibian. Their life is pretty pathetic - after having 'sex', both male and female die.

Learning can help us get rid of some of the limitations of instincts. The question is: is this freedom? This question is more philosophical, so let us consider a little philosophy here. Allegedly, one of the root definitions of 'freedom' was imputed to Robespierre, the French revolutionist: "Freedom is not when you can do what you want, but when you do not have to do what others wanted you to do." Robespierre was not a philosopher - he was the man of practice. Hegel, on the other hand, was a philosopher, and he turned it upside down, saying: "Freedom is the appreciation of the necessity" (14).

Let us consider computers. The definition of 'freedom' by Robespierre would suggest a huge and touchy computer, for example, refusing to add 2+2, as in a story by Stanislaw Lem (15). Meanwhile, Hegel's definition relates an individual in a computer, who recognizes that he should add 2+2, and cannot deny it. I think you would agree that the last case is not freedom while we can recognize freedom in the first case. Therefore, it also has personality, regardless of its intelligence.

When you take a termite out of its nest and force it to go in the wrong direction, it will try to run elsewhere. However, it does not do this because it is a free person; instinct says to it: "Go with your program!" When a normal computer (not the one in Lem's short story) is doing something else, that we want, we say "it went kaput." No program in the world can be free. Freedom is to extricate from determination. Yet freedom would be nonsense if everything in the universe were to run by programs. There is no program for freedom.

The programs - and do not forget that DNA is only the vehicle of the genetic program - which are driving every living thing on Earth, and perhaps on many other planets in the universe, must come from another level of existence, apart from the material. They cannot exist without the material, and material cannot exist without programs. If you do not want

to get lost in a particle accelerator, try to tell me how a hydrogen atom born from the bustle of elementary particles without some unseen code? You can call it 'a law of Physics', but not you are who created that law. Can you explain how particles induced those laws by themselves? Laws of nature, like gravity and any other force without a visible body are at work. Moreover, if the law of the formation of elements seems to be too elusive to achieve today, how can we exclude the 'force of intelligence' as a general rule of existence?

I use the word 'intelligence' regarding every recognizable activity with purport. Yet it is a slippery issue. Individual termites have no purport whatsoever. They simply do their 'job' without hesitation. However, this 'job' has purport - to maintain the colony for the future. Termites cannot predict the outcome of their work - and not just because they are blind - but they can hardly do anything which will not cause a particular effect, namely the survival of the hive.

Let us take other species. Birds work hard to build incredible nests in order to hatch their chicks and to feed them. I think that this is a rational activity, yet birds cannot decide whether or not they want to do it. Their inbuilt program makes them do these things regardless their own 'personal' fancies. So, this is also a form of intelligence, which the bird itself cannot comprehend.

There are many interesting forms of intelligence in animals. One of my favorite observations was when I was watching an Apocrita (I do not know its precise scientific name) for more than two hours while it hunted other insects. It was hovering about 6 meters above the ground, precisely behind the line where the shadow cast by our house diverged from the lighted area. When it tried to catch a bug and failed, it returned to the same spot of the shadow line, which was meanwhile receding continuously. I think that this insect did not act like an automaton - it needed to reconsider its own chances for every action.

Finally, do you know whether a bat can perceive colors? Ultrasound waves may have the same scale as the light, but bat's 'sight', with ultrasound, displays significant differences to our vision. The source of their sonar scanning is located within their head, with individual overtones varied by species and individuals. Imagine the case when you look at somebody, and see them differently, depending upon the character of your own sight.

Chapter 5

ANIMALS CAN'T LIE

I have had pets - dogs and cats - in my life, so I know that they can pretend otherwise when they misbehave. Their attitude seems to be human – seemingly, they can lie. Moreover, lions and wolves, can act in teams using difficult, almost strategic patterns of behavior. Moreover, many insects and other species can use camouflage, whether they do so deliberately or not. What do you think, chameleon knows it?

Lying requires self-awareness such that you know when you are lying. What this means is that you cannot lie to yourself. Lying starts with misleading your consciousness (16). You know about it, but you do not want to recognize the fact. Lying does not require anybody aside of you, so you are a 'doubled' person from the start. It is the definition of consciousness; you are the subject and the object at the same time. It is not just self-awareness, as in the case of animals, however - it occurs on another level. No, animals cannot lie. They cannot be sadistic or vengeful; they cannot hate. Do you know where the DNA of lying is?

People today mostly regard human thoughts or ideas as an excretion of the brain, as an excretion of a gland. They admit, of course, that thoughts are not material, but they say that the building is a bodily form of the idea of the architect. But show me the mathematical point, without any kind of dimensional attribute, which was born in the head of the mathematician.

A huge part of mathematics and logic comprises simply conjuring tricks. It is not coincidental that one of the greatest philosophers of logic, Raymund Smullyan, was a magician as well. Let us consider some examples.

Many of you have heard about Zeno's theorems (17). You know... the turtle and Achilles... or the fired arrow which cannot move. These are just tricks. The trick is similar to the famous example of when the magician saws in half a women in the box. Something is not clear in the picture.

The first paradox states that "while Achilles reaches a given point, which is half the original distance between Achilles and the turtle at the start, the turtle will also reach half of that distance." What does this mean? What distance? Is it the original interval of the two runners? In that case, the

turtle has doubled its speed. In another variation, the problem states that “the turtle also reaches some distance.” The word ‘some’ does not mean any particular measure. Moreover, what is meant by the term ‘at the same time?’ We know that any movement can describe with three components: time, distance and speed. If we do not make clear the correspondences, it could mean anything. For any given instance of movement with the same speed, the components will change abreast. In this case, the description of the race is like a slow motion slowing to the still frame when Achilles reaches the turtle.

In the second paradox, the case is much worse. It states that “the arrow goes from A to B and needs to reach a point between them. However, to reach that point, it needs to go through in another point, ad infinitum.” The only problem is that the philosophical ‘point’ has no particular extent. Accordingly, the meaning of the “distance between points” is nonsense, without any kind of measure. The notion of ‘section’ in geometry is determined not just by points but by the distance between them. This paradox should be called ‘the un-launchable arrow’.

There is another example. One of the less popular contradictions in mathematics is the “Brouwer fixed-point theorem” (18). This says that if you can stir a cup of coffee without changing the upper or lower parts of it, you will inevitably find a particle which stays at its original place. This theory maybe true in mathematics but it has two flaws, because it cannot determine the meaning of ‘particle’ or ‘place’. In the physical world, such a particle can be a molecule, an atom or an elementary particle. We know from scientific studies that they tend to be motile without any force from outside, mostly in fluids. In this case you need to try determine the meaning of the word ‘place’, so let’s put the whole parable in a river. A moving coordinate system, such as a river, is equal to the stirring. If one ‘particle’ is to stay in the same place, this means that its position needs to remain at the same point between the surrounding particles. But for that, its surrounding particles must also remain in the same place, connecting with their surrounding particles. This leads to a discrepancy, the original particle and its surrounding particles cannot stay at their original places at the same time in a moving coordinate-system.

This is valid for some logical problems as well. Perhaps you are familiar with the famous sentence “This sentence is false.” It is also a trick, because it exploits the weakness of our linguistic capabilities. To see this, you might substitute the word ‘sentence’ by X and the word ‘false’ by Y. It would be ‘*This X=Y*’.

That is an obvious nonsense. Meanwhile, the equation $-1=+1$ is true if you think of exponentiation. So, these seemingly false theorems are not stupid - they have a meaning. Our thinking is far from perfect - we cannot understand the universe. In other words, the understanding of the universe requires the acceptance of contradictions.

I think one of the most famous contradictions is represented by Gödel's incompleteness theorems (19). They mean – in short – that nothing can be confirmed by itself. This is not a new idea but it is more precise than any previous one (mostly in the sense of mathematics). Mathematicians do not know that the first person who said it was Buddha, saying: “I mean the Universe is void in the sense that there is nothing in the world which is a self, or which has self-reliance” (20).

Gödel's theorems exhibit notable similarities with the famous Set-theoretic Paradox (21). This says that if we distinguish between the sets 'normal' and 'abnormal' we will have a problem. A set is normal if it does not contain itself and abnormal if it does. If we take of the set of all normal sets, the question is: is this set normal or is it abnormal? If it does not contain itself, then it is normal; however, in that case its description is false because it does not contain every normal set. Equally, if it does contain itself then it becomes abnormal, and so its description is also false, because the set of all normal sets contains an abnormal set. Meanwhile, the set of all abnormal sets might contain itself, but this does not say anything about normal sets. It seems there are no normal sets in the world.

If we take the sets of 'all true statements', this set might be true; but in that case, this set is part of its own set (the set of all true statements), and therefore it cannot be provable. Every proof requires at least one independent statement. This is the same problem as that of consciousness.

Nonetheless, aside of this tiresome line of thinking, set theory also has an interesting side. Whether it is true or not, is the set of 'all red things' is red? Don't laugh! I know the question “What color has a set?” is too colorful. However, many of us tend to forget the items of a set can be real but the set itself remains virtual.

If you read the article “Mitochondrial Eve” on Wikipedia (22), you will find that it is proven by mathematics, because – as they say – we know that every superset is smaller than its 'host set'. Therefore, if you try to follow

the mitochondrial genes of women, inevitably you will reach the point where the first set will contain only one woman.

Yet mathematics never said that - it is just the old superstition of 'plain-materialism'. If we take the set of 'all natural numbers', it is infinite, but it contains two sets, the set of 'even numbers' and the set of 'odd numbers'. Both of them are precisely half the set of 'all natural numbers', but they are equal in number - infinite. If you think 'infinite' is a tricky word because it is not countable, you are wrong, because real numbers are countable – *per definitionem*.

I owe you with the explanation of Gödel's Theorems, and the set of numbers gives me the perfect opportunity to do that. It says in a consistent order of arguments we inevitably will find at least one argument, which is true but not provable. He used a method when he gave a number to every possible statement in mathematics. We don't need to use this here, because numbers already have number. We know the set of all natural numbers are infinite, so we know for sure that always can be found a number, what exists but doesn't numbered yet.

But it's problematic. Gödel has an idea, the "ontological proof of God's existence" (23). It is the variation of Anselm's idea of God's existence. But existence isn't provable with anything else aside itself. Existence is not an attribute in that way as – for example – greatness, or dumbness. With Gödel's proof we can prove anything except existence. You can't prove the number of numbers is infinite, but you can't think other way. This is called 'a priori knowledge'. It is axiomatic. But the statement "there must be something better than anything else" is not axiomatic.

It was Immanuel Kant, who used this argument against Anselm's proof of God's existence. Gödel and Kant could not agree in the question of existence of God, but their system was very similar. If you try to understand the theory of "Ding an sich" it says there are true statements which aren't provable. (24)

However, if you do not want to believe me, please solve the following problem. You know that you have two parents, and that they also have two parents, and so on. Therefore, the number of parents in total is $2n$, where n is the number of a given generation. If we say that one generation is equal to 25 years, then the number of your ancestors in a thousand years is incredibly high. However, this is cannot be, and so a scientist came up with the theory of 'pedigree-collapse' (25). This means that in every fourth generation there occurs incest, so we do not need such an enormous

amount of ancestors. It may be true, but the number will increase nevertheless. Furthermore, what is the case for mayflies? They will die after copulation, so they cannot engage in incest. How do you solve the problem of 'wheat and the chessboard' (26) in sexual reproduction? The existence of every individual insects requires incredibly high 'valid copulations' in numbers with fermentation of two gametes, what do you think, how many copulation was needed over the course of the past hundreds of millions of years to exists one insect today?

Chapter 6

PHILOSOPHY IN THE BUG

Who do you think was the greater scientist: Thales or Einstein? I think that most of us would immediately say "Einstein, of course." Yes, the theory of relativity and other major revelations by Einstein are much more difficult to understand than the ancient 'Thales theorem'. Every schoolboy and schoolgirl on the planet can understand, learn and forget it before the age of 14. Moreover, very few of us know that Thales predicted a solar eclipse, and he succeeded to prevent a fiery battle by it. I know that the Thales theorem seems to be a piece of cake compared to science and modern technology, but Thales gave a magnificent titbit to us - he was the first person on Earth who stated that in nature there are recognizable laws which we can understand and use in practice. These laws are immutable - you cannot draw a triangle with the two endpoints of the diameter of a circle, attached to the circle line, which is not a right-angled triangle. This law cannot be changed by priests, wizards or gods... Bankers cannot bribe it away: "It was one small step for a man, but one giant leap for mankind" (27). This was the first instance of the recognition of the natural intelligence of the universe.

Did you know that the Thales theorem is a law, a rule or a necessity? It is not changeable, so it cannot be a rule. Yet in the system of non-Euclidean geometry, the sum of the angles of a triangle is not necessarily equal to 180 degrees. However, this does not mean that the Thales theorem is false. There are other dimensions, you know, not just a plane with two dimensions. Accordingly, when we want to validate a rule in the three-dimensional world which is otherwise valid in a plane, we must discover the rules of conversion. Moreover, this conversion has strict rules, so the sum of the angles of a triangle remains a rule. Spherical triangles are only the application of this law by the trick of complicated methods using π (28).

If you want a more precise view of the question regarding these rules, try to imagine the universe without triangles. You cannot, of course - when you look up at the sky at night, you will see triangles between the stars, even if unawares. Nonetheless, the triangles are not there in the sky, they hide in your mind. The question is whether or not the rule regarding the angles of a triangle exists without any existing triangle? Can this law exist

without the further existence of a human (or another evolved species) in the universe? I can imagine a universe without human - or human-like - intelligence, but I cannot imagine it without intelligence itself.

But how does intelligence work? Let us go back to animals.

The individual termite cannot comprehend freedom. Yet we know that the 'Termite' is much more than the sum of its component individual termites. Apparently, it has a program from the very beginning, though ultimately this program comes from outside it. Nonetheless, everything is a part of the Universe.

If we can accept that the first and most significant force of Nature is intelligence - in that general, non-anthropomorphic sense, which I spoke about - we could be free from some of the chains imposed upon our thinking, including religions, schools of philosophy and materialism in particular.

We can see instincts, programs have intelligence, but we cannot locate the body or the material of these programs per se, only their props, the punch card or the DNA. Meanwhile, it is clear that the program becomes increasingly integrated with the various species on Earth.

Here is an interesting fact - the spine and bones take shape later than the bodily form of the embryo. The skeleton has little connection with intelligence, yet it is also true that vertebrates are smarter than molluscs. Nonetheless, there is a particularly intelligent mollusc - the common cuttlefish - which can memorize its prey in their own embryonic phase (29). Moreover, this animal has an intra-osseous structure, the sepia. I do not think intelligence is in the bones - I mentioned it for joke. However, it is an amazing fact that the brain is placed in a particularly protected spot in animals while their intelligence grows. By the way, I want to ask you: do you think that your skeleton is a part of you, as a person, or not? It can 'out-survive' you for a long time.

With intelligence, freedom grows, which means personality. Remember, only intelligent beings can act dumbly, like the dumb computer in the story mentioned earlier. As the rules become increasingly integrated, the freedom of the individual can develop. But can we build artificial intelligence in the form of human intelligence? We do not know. Moreover, I do not think that we would want to know. An intelligent computer would not do what we told it to do - it would decide what it wanted. The first problem with the possibility of an intelligent computer is that we would need to understand intelligence in general, yet we cannot

do this. We can see only our own intelligence in its particular form, and yet we cannot fully understand it; how then can we understand dolphins, birds, chimpanzees or dogs? Most of us can understand the intelligence of our own babies less than the solving of an equation in school. One of the first conditions of freedom is awareness, which is something of an erotic interaction just as we can see in the difference between sexual and asexual reproduction. Self-awareness means recognition of others. I think computers will not be intelligent until they can reproduce sexually. Or at least they program can multiply by proliferation. I am curious what Bill Gates would think of this.

Multiplication exists without sexuality in nature - I think that the number of living organisms reproducing without sex is much greater than the number of individuals engaging in sex. The English word 'individual' is not precise enough to express the distinction between an insect and a dog. Every individual termite is recognizable as 'a thing', but it is not an *individuum*. However, dogs are individuals in that sense. Computer programs have no individual mind; moreover, they cannot multiply by themselves. As such, they are not living beings. Nonetheless, they work by intelligence on a high level.

As I said my metaphor of programs in a computer or a of weaving machine seems to be useless. But of course, it is not completely true. As I mentioned we can find the works of intelligence anywhere - but I never said that intelligence is a program. If the universe were to be made by a programmer, we would be in a very sad situation.

Chapter 7

THE BUG IN THE ROSE

This theory of universal intelligence has a dark side. How can intelligence be cruel? Plants eat bacteria, cows eat plants, men eat cows... and moreover the chain of eating is not so peaceful as you like to think in the supermarket - unconscious cruelty is prevalent in nature. Why does the African wild dog start to eat their prey alive? How peaceful are the insects which put their larvae in the nose of reindeer, causing asphyxia? Are they blind, or what?

Yes, they are blind in a sense, regardless of the fact that they have eyes. Vilmos Csányi, my favorite professor of Ethology (30), asks: how can we consider this whole landscape of pain as the creation of God? Can we see it as the work of somebody? But what is the other option, as suggested by atheists? There is no kind of intelligence in nature, and it is as cruel as it can be. But then, how can swallows love their chicks enough to kill the innocent butterflies to feed them? How can a masked weaver build magnificent nests to raise their nestlings? Why can't be the universe peaceful and pleasant place where "wolves and lambs and lions along with grazing cows eat grass" as the prophet Isaiah dreamed in the Bible? (Isaiah 65, 25) (31)

Atheists asked similar questions many years ago. For example, Voltaire asked, in his work *Candide*: how can God allow senseless cruelty, such as when a natural disaster kills thousands of innocent babies? He was angry with Leibniz - the mathematician and philosopher - who said this is the only perfect creation of all the various kinds of potential creations. Leibniz was better at mathematics than at philosophy.

However, Voltaire and his followers have made a mistake, because they cannot understand the problem. They bothered only when something unruly happened in the seemingly perfect Creation. Yet the real question is: how can the 'harmony of nature' be cruel? How is it possible that divine harmony lies in cruelty? How can intelligence be so insensitive? How can reason be so inordinate?

I must say that the theory of intelligent design is not just missing the point, but is a sacrilege if somebody believes, or says he or she believes in

God, because he or she identifies God with a clumsy creator. (32). The Bible says that God created certain things, for example, the stars and animals, and saw that "It was good." But if any kind of god says that cruelty is good, then it is no God. Nonetheless, this does not mean that the theory of a supreme intelligence is false, because it not necessarily a person - it is not necessarily an individual. The aforementioned God cannot exist as a self.

Religions were born from a pure materialistic basis. They all spoke of gods and spirits, symbols and ethics, but none of them could go beyond the boundaries. They cannot imagine spirits without some material, without an ethereal bodily form - rest assured, there is none. However, they all fall into the trap: "God created the world." As I know it, only two Christians – Saint Augustine and Meister Eckhart - have noted that this is nonsense (33). If God works in time, He is not God. The great Thomas Aquinas tried to solve the problem with a rather abstract idea, saying God created the Universe as it was there since eternity (34), but later he told his scribe "All my work seems straws to me" (35). He ceased to write. Unfortunately, he never told us the ultimate truth.

To understand my viewpoint, when I say that religions are materialistic you must understand that I am convinced that materialism is genuine idealism. Think of atoms, as coined by Democritus. They are everlasting, indivisible things, governed by coincidence (of course, in an everlasting, linear framework). What is it if not the most spiritual way of thinking, only it is more difficult than the good old idealism of Plato. If you think that modern materialism is not the same, think of the never ending numbers and names of the 'elementary' particles. They are all trying to find the desired 'Ding an sich'.

Buddhism and other oriental schools have said that the idea of creation is absurd. In Buddhism, the 'eternal circle' is widely accepted, but with a strange addendum - there is a path to free ourselves from this eternal misery. This is the case in the board game Pachisi (36) (or Noughts and Crosses). What is not clear in this idea is the role of time. You play the game in real-time, but what will you do after your victory? Become bored to death? Accordingly, these oriental religions developed the idea of an 'afterlife' similar to Heaven, though in an abstract sense.

If you are familiar with Buddhism, you will know that The Master developed a notion of interdependence - or in other words, 'dependent formation'. This is hard to understand for European people, because it states that events do not have causes but rather conditions. Western

thinking uses the concept of causality, which states that two plus two is four, meaning that if we put together two numbers this will cause an exact number. $2+2=4$ is valid in Buddhism also, but the starting point is the opposite. They say that if there is a 4, there must be $2+2$, or $1+1+1+1$, or two-squared, or $5-1$, and so on. Accordingly, 4 is not an effect, but it has conditions.

What is the difference between theology and philosophy in general? Not much, but theology cannot be totally objective because it must maintain the idea of some eternal Being. Philosophy, on the other hand, can ask the question: "What if there is nothing?" Thus, if I were to want to be a true philosopher, I must raise the question: "What if there is no 4?" In another words, the idea of dependent formation cannot do anything with the universe in general, only with existing forms of it.

Dependence and casualty are mingled in the existing world. They are two faces of the same Möbius strip (37), or Yin and Yang. However, it cannot rule out the necessity of a cause, and that is existence itself. It is the 'thing' that nobody can bypass, just as nobody can jump over their own shadow. Descartes was accused of falseness for his famous declaration "Cogito ergo sum" because he made a mistake regarding causality (38). However, nobody can deny if somebody is thinking - thinking exists. Moreover, if thinking exists, this means that something or somebody is doing it - perhaps not Descartes in particular but somebody at the very least. You may say that this is a tautology - "I'm thinking so somebody is thinking" - but the result is the same; things are dependent, not caused. Formal logic and syllogisms can never prove anything because causality always remains accidental. Dependency, on the other hand, does not require verification because everything has its own existence – yes, the seven-headed dragons of fairy tales also have. If I know that I am thinking, this means that I know about the existence of thinking and of 'somebody' – in this case, myself, maybe – because nobody could doubt their own existence. However, dependency also is caused, eventually, only by its existence.

Hegel and Kant could not solve the problems of existence and of cognition. They remained idealists, what means a teleological way of thinking. Hegel believed in some sort of definitive or absolute form; Kant believed in 'thing-in-itself'. Furthermore, and whether you believe it or not, these are still forms of materialism. More precisely, the theories of perfect forms or 'Ding an sich' are materialist concepts. The concept of

'shape' of perfect beings, in a teleological sense, is a form of materialism, which believes in 'self'.

A curious exception is solipsism, which is a true and genuine form of anti-materialism. It has two variants. 'Objective' solipsism states that everything is in the imagination of someone above us, while 'subjective' solipsism states that everything is a vision of our own. In this way, they seem to be dumb, but solipsism has a significant advantage in that it does not cling to preconceived ideas. It is almost science.

The other scientific approach was positivism (39), which tried to solve the problem with pure logic, stating: "We do not know how things are possible, so we must stick to solid facts." However, we cannot be sure what solid facts there are, aside from the existence of something, which cannot itself be described with watertight reasoning. As Heisenberg said in his work *The Part and the Whole*: "the positivists have a simple solution: the world must be divided into that which we can say clearly and the rest, which we had better pass over in silence. But can anyone conceive of a more pointless philosophy, seeing that what we can say clearly amounts to next to nothing? If we omitted all that is unclear we would probably be left with completely uninteresting and trivial tautologies" (40). Yet many modern scientists cling to positivism, forgetting Zeno' paradoxes.

Science is a new way to approaching old problems. This is not philosophy, let alone religion. Unfortunately, many scientists are trying to convince us of old and archaic philosophies - for example, materialism in the name of science - and they fight for them with religious fury. Meanwhile, science is nothing more than a pure effort to understand what we observe, including the observation itself. Science can replace old preconceptions, but that does not mean that every scientist can do so. Indeed, there are in science many interesting theories to explain amazing contradictions, for example, how we can perceive the rules of chance.

My favorite subject relates to the contradictions of the theory of evolution, because they exhibit the oldest expired preconceptions. This indicates that the laws of nature lie in random mutations. As I know, they think that everything is explained with 'enough time' and 'gradual escalation'. Yet the theory of evolution is a dated idea of casualty, without any effort made to understand dependency. The exuberance of living things cannot be accidental. There must be a system in this madness which exists prior to its encryption in genes. If it does not exist, everything impossible would not only be haphazard but also mandatory, precisely because they have a lot of time to be so.

Going back to freedom, Hegel's definition is almost perfect if we swap the word 'necessity' for 'rules'. Freedom is recognition of the rules. Rules and necessity can be distinguished by a tiny little thing - rules can be changed, necessity cannot. It is hard to believe, but there is no requirement for a recognizable event in the future. We cannot point to a law that could force the occurrence of the sunrise tomorrow. The Earth might be hit by an asteroid and the world itself might cease to exist in a fraction of a second. I know it has seemingly illogical aspects, but we cannot prove otherwise. If this is true, then there is a cardinal rule: each rule is changeable. If we put the idea of Hegel in the form "Freedom is the appreciation of the rules", then we have a basic rule: "Freedom is in appreciation".

Freedom requires chances, or 'odds'. One of my favorite philosophers is László Mérő (41), a professor of mathematics and psychology, who has made clear in his book that there are miracles (42). There is a chance at every moment that something may happen which has never happened before, regardless of time and space. Mathematics, economics and the theory of chaos cannot rule out those things that have never happened before. Mathematics cannot say that something is impossible or that it has zero probability, because dividing with zero is illicit. This which has never happened before is a zero in the equation. Yet chaos isn't chaotic completely, because we can prognosticate its occurrence. Because there is a system in the madness, or chaos. This system is intelligence.

Simple causality does not work in computers or in the Jacquard loom. Their programs must exist in a prior sense in the form of an idea, born in their users' minds. This is dependence. However, the idea of a super designer is also wrong, as proven by many of the mistakes in the world, for example, the wisdom tooth. It is most likely a redundancy of the program, whereby the widely accepted continuous tooth-change was alternating and produced a set of permanent teeth. Perhaps this thought is not particularly wise, but you cannot eliminate the fang - the universe is full of bad teeth. What do you think, does nocturnal insects sleep during daylight, meanwhile they are attracted by light, or not?

There is a strange passage in the apocryphal Book of Thomas, which represents an interpretation of the Buddhist idea of material by Jesus, or at least by his disciple, Thomas: Jesus says: "If the flesh came into being because of the spirit, it is a wonder. But if the spirit (came into being) because of the body, it is a wonder of wonders. Yet I marvel at how this great wealth has taken up residence in this poverty" (The Gospel of

Thomas 29; 1-3) (43). In my translation, it means this: “If material was born from spirit, it is a wonder; but if spirit was born from material, it is a wonder of wonders, and I am wondering how took place the great wealth of spirit in the barrenness of material.”

I will not try to solve the problem of thinking - do it yourself! I just want to open a box – I hope it is not Pandora’s – to see if some interesting fact emerges. If you look at the Möbius-strip, you will see that it has two sides, though both are the same and only surface. Therefore, you cannot be sure which side you see - it will depend upon your preconception.

Chapter 8

THE BUG IN THE MACHINE

Intelligence in itself cannot be conscious otherwise it would be some kind of evil demon of material. But wait! Before religious people shout out “Haha! I always told you there was a Satan!” I need to make clear - demons also have no *individuum*, and Satan has the same problem as God; it cannot exist as a ‘self’. Or, as I see, they cannot exist at all.

We can see the presence of intelligence in a bee hive, a dog or in a triangle, and perhaps we can understand it because we are the only beings on Earth, driven by intelligence and with a highly developed self-consciousness. We are aware of time and space, life and death, and - most importantly - we know about our faults. We can think, and think on our own thinking at the same time. We can do many things at the same moment. For example, you might think of your horrid dream at night; meanwhile, you turn on the lights while going into the kitchen for a drink, and in your head you hear a tune, which is dumb and boring, but you cannot get rid of it. You do these things automatically, involuntarily, and you cannot stop them.

I want to tell you three stories relating actual events, though there are many other similar stories. Each of the three relates to driving, so they do not relate anything that we could have inherited from our animal ancestors.

One of my friends once ran over a deer at night on a rural road with her car. She saw the deer standing next to the road because the car before hers had shed light on it. She thought that if the deer had waited for the first passing car, it would wait for hers too. It did not. The scene lasted for only a second or two, while she did everything that she could to minimize the consequences. She knew she would have to crash into the deer because, if she were to try to avoid it, the car would go out of control and they end up in the ditch or else crash into a car coming the other way. She hit down on the brake and saw that the speedometer indicated 40 kilometers per hour (24 mph) when the car hit the deer. She saw the deer thrown into the air and then limp back into the woods. A few seconds later, she managed to stop the car and then passed out for a moment. The whole event had

lasted less than 10 seconds, and all the while she knew what to do without cogitation, and she could remember all the phases thereafter.

In another case, my other friend was hit by a car - which was over the speed limit - at night. My friend was talking on his cell phone while he crossed the street at the crossing when he heard the sound of the car. Just then, he turned right to see the car and he just in time managed to jump on top of it. He rolled over the car and fell onto the road; he then picked up his cellphone and said to his friend: "Sorry, but I have to go now, they just ran me over." Again, it lasted no more than two or three seconds, but he knew what to do to survive. He had no time to think, but he did what he would have done if he had had time to analyze the situation, and he could recall every moment of the scene.

The third case was my own. When I was 19, I was crossing the street - jaywalking - thinking that I could go between two cars traveling down the road. However, a third car - a cab - wanted to overtake the second car, and I saw that it might hit me. This lasted for two seconds at the most, and all the while I was thinking: "I did something stupid, I'll die at a young age, and maybe if I firmly stand on the line between the lanes, the wind, generated by the cars will not sweep me down." Reading this sentence lasted more than three seconds. If you're curious whether I survived or not, I'll tell you - the taxi stopped.

So, I know there is an inner aspect of our consciousness apart from my own experience. You can feel it sometimes - they have called it 'speed thinking' (44). It seems to be an instinct or reflex, but it is not. It is not a program but a sudden cognitive action. It is logical and legible form of thinking without words. This is the same as with intuition, or the recognition of truth. I think we can understand difficult mathematical problems and philosophy with it. Furthermore, we use it in music, art, sport, war and in exchanges on Wall Street.

Animals also constantly use it - of course - and so it is not something particularly special. Yet it is. It is the work of intelligence in an intelligent life form. It is not instinct - instead, it is a form of super power such as that of a Superman... or a Superlion, a Supereagle, a Superdeer, etc. Why could the deer not use 'speed thinking' to avoid the accident on the road? Because she lived on a different level of intelligence, one which does not contain cognitive thinking. After all, no deer created cars.

Intelligence is a general law of nature, like gravitation or electromagnetism, but it can evolve, creating more and more intelligent

forms of life - or rather, its forms may evolve. If you can understand that there is nothing in the universe that comes from the outside because there is nothing outside of the world, then you must accept that intelligence - or ethics and conscience - are also laws of the universe. Simple laws can be understood more easily than others. But it has some hard parts also.

Some call this inner intelligence a 'guardian angel' or 'presence of mind'. So, is there a soul within us? Please, spare me of it! We have not anything which is a 'self'. Our body and our soul are made of the same Möbius strip. Our flesh and our soul come from 'outside' and will go back into the infinite universe, for example, our atoms or our mother tongue itself. Nonetheless, there is an interesting phenomenon regarding your eyes.

When I wanted to build a new kind of telescope, I wanted to understand the power of the human eye. We can see the light from the objects of the world if the angular diameter is greater than one minute of arc. We can see two points separately from 10 meters only if their distance is 3 mm. When you are walking on the street and want to avoid colliding with other people, you will look at least five or 10 meters ahead so as to have enough time for the needed manoeuvre. Sometimes, you can see that the other person is doing the same thing, and there is split second when both of you know that you have looked into the eyes of the other person. It is a feeling what is proved by your reactions in the next moment, but the sensation comes first. You cannot explain it using the rules of optics, because the angular diameter of the movement of the eyes is much more little than 3 millimetres. Moreover, you will not believe it but I have experienced this in one instance when I and the other person both wore sunglasses. I think that all of you have had the same experience many times in your life, such as when an officer of the U.S. Coast Guard said in a documentary: "I could see the fear in his eyes from 60 feet." I do not think that this brave man was a philosopher or a scientist, nor a psychic. The eye is the mirror of the soul, as the old saying goes, but do not be afraid, animals have eyes also.

Chapter 9

THE FLYING TERMITE

A priest and an atheist are playing with a beach ball in a pool, on a two-dimensional plane. They are rod people playing with a circle. What they cannot perceive is this plane is a part of a three-dimensional world, where the wind is blowing; as such, they cannot understand why the ball is continuously disappearing, or why it comes back at another point apparently randomly.

Next, both of them receive a hint - the ball is a sphere and the space is three-dimensional - but instead of trying to work as a team to understand the curious phenomena of the beach ball, they instead use the age old method: they begin insulting each other.

Imagine intelligence in nature as a game of chess. At the beginning, there is nothing mandatory. There are only pins, squares and rules. You do not have to play. However, after the first move the possibilities arrive, along with the limits. Can we say that the move of your opponents was caused by your first move? No, he had 20 choices. Increasingly, the match will begin to become more and more complicated; but in the end, one of the players - or both - will lose their chances and will die. The match will cease - *Finita la Commedia*. Nonetheless, throughout the entire duration of play, the rules, the cause and effect and their freedom were working simultaneously subject to dependence. I would recommend that you play along with Smullyan in his interesting book *The Chess Mysteries of Sherlock Holmes* (45). No one knew the outcome of the game at the start, so it is not predestined, but it cannot be played any other way - only by the rules of intelligence.

Freedom is what we can appreciate when we recognize the program. Forget computers, did you hear about the Jacquard loom? (46) It is a weaving machine which uses punch cards. Where is its program? In the holes of the cards or in their sequence? Can punch cards think? No, the program is somewhere else; it could be realized by multiple alternative instantiations of the product, but the program is 'there', without any particular linen.

If you want to comprehend the work of intelligence, the first problem is: “Why is there something instead of nothing?” Yet you know that there is something, so you cannot answer the question. Nobody could. Does this mean that the question is stupid? In this case, we have a problem: we cannot prove the utility of any questions. The only possible answer is: “Just so!” But, just as a two-year-old child would not be satisfied with this, nor should you.

As the great philosopher, Winnie the Pooh once said, nobody could say “I’m nobody” if he wasn’t somebody. What this means is that the universe cannot be the effect of “Just so!” If we want to understand the ‘Big Bang’, we must understand everything that started with it – or else with another Big Bang, so with something big – including time and space. Therefore, the question “What was before the Big Bang?” is a misunderstanding of the problem. Nonetheless, the theory of the “metric expansion of space” (47) contains an interesting idea. If the universe took the form of a ‘point’ at the beginning, then today every point in the universe would be the same starting point. I know that this is barely comprehensible, but is proved by red shift (48), since its rate shows no difference in any direction. Expansion, in this case, does not mean that something becomes bigger in the surrounding space, because there is no ‘surrounding space’ beyond the universe.

If we can agree with this, we must accept that the rule of expansion is also true for time. The existence of the universe cannot be elucidated with the idea of an outsider in relation to time either, so every moment is a starting point.

“How are these things able to happen?” (John 3; 9) (49), you may ask. “There wasn’t anything in the past? The past itself doesn’t exist?” This question indicates perfectly the thinking of the two-dimensional priest and atheist. If you have heard about the theory of a ‘scale-free network’ (50), and understand it more than I do, you will see that it offers a solution to this problem. The scale of time and space is not a well-built grid but rather a dynamic process.

Can you see a loom which has no weft? I think not. But what if there were a weaving machine where the number of wefts was always expanding while the distance between them remained the same? Let us imagine the pattern of a rug, on which a lion chases a gazelle. As the weaving process continues, the two figures could transform into a prince in a lion patterned robe and a maiden with a princess hat, kissing. The original pattern remains in the picture, but the rug as a whole changes. Time and

space are modulating simultaneously. We do not know how the weaving goes, how it can do it by itself, but one thing is sure - it could only happen by the rule of intelligence.

Do you know what the beach ball is? In an abstract sense, it is just a part of the air confined by a plastic sheet. If you leave it on the surface of a pond, it will transform the movement of air down into two dimensional movements on the surface of the pond. When it bursts, the air returns to as it was; equally, you can incinerate the plastic, so its atoms will also go back to nature. Atoms are infinite beings, isn't it? So, where is the beach ball?

There are individual termites with eyes, and they can also fly. These skills are almost inseparable. The individuals of the winged cast, the 'alate', go through incomplete metamorphosis and, in the end, they will become breeding individuals. In some cases, they can become a queen as well, not just a king (51).

Perhaps you can reach the level when your 'plastic ball' remains intact after bursting, or more precisely when your 'beach ball' is more than just plastic and air. Thus, I want to offer comfort to everyone who has concerns; science cannot deny the possibility of a very interesting 'complete metamorphosis' of all forms of intelligent life in the universe becoming the 'flying "Termite"' with eyes.

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