

Lessons taught by the 2020 Corona pandemic

What will we learn?

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Note

The first version, v1, of this manuscript contained the two chapters titled "Humanity's identity crisis" and "How to save the human species", respectively.

The added chapters beginning on page 16 are part of a Facebook campaign aiming to remind the world of the well-known — but seldom mentioned — fact that

we have two unlimited sources of fossil-free energy waiting to be utilized.

Exploitation of these readily accessible energy sources will enable humanity to phase out the fossil fuels in a few years, and thereby save the world from a seemingly unavoidable climate catastrophe.

Even more crucial for the long-term survival of our human species is that we inform the world about humankind's origin, history, and future by providing fact-based answers to the questions:

From where are we coming? What are we? Where are we going?

Only after learning how history began — how the universe came into being — can we understand and correctly interpret our history. And only after learning how to interpret our history, will we be able to make realistic plans for a sustainable future.

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1 Humanity's identity crisis

From where are we coming? Who are we? Where are we going? These questions have simple and logical answers which we have been prevented from seeing. Today those existential questions are overshadowed by the more urgent question “*How can we save our civilization from committing collective suicide?*” with an equally simple answer.

We live in exciting times. Will enlightenment finally win over unlightenment? Or will unlightenment persist? Will the rapidly spreading Corona pandemic that broke out in 2020 help us see what an enlightened intelligent species would have seen long ago? Or will we — driven by our primitive instincts — accelerate our race toward an imminent catastrophic end of mankind?

According to what I've read in printed newspapers, there are seven coronaviruses that can spread among humans. Four of them have long ago transformed into viruses causing comparatively harmless colds.

More serious influenzas are caused by the “severe acute respiratory syndrome” SARS-CoV-1 coronavirus that appeared in 2002, the “Middle East respiratory syndrome” MERS-CoV virus that spread among people in 2012, and the SARS-CoV-2 virus that causes the disease COVID-19 (short for “Corona virus disease 2019”), often written “Covid-19”, which in 2020 transformed into a global pandemic.

Luckily for humanity, the new SARS-CoV-2 virus isn't very contagious. Also, the Covid-19 disease has a short incubation period, and kills only a small percentage of the people contracting it. Therefore, the spreading of the virus and the disease can be tracked in real time, which makes it possible to control the rate at which they progress.

The pandemic could have been much more serious. It could have resulted from a virus as contagious as the Ebola virus and, in analogy with the HIV virus, causing a disease that, similarly to AIDS, has an incubation period of several years. Such a virus might decimate the planet's human population to a small fraction of what it is today, thereby making the survivors unable to reconstruct the advanced high-tech machinery our modern civilization has made itself dependent on. Since such a virus may appear and begin to spread any time (hopefully, it isn't already spreading among us), we should quickly take necessary measures to make sure that the next pandemic doesn't deal out a death blow to our human species.

To understand how it is at all possible for an intelligent species to collectively avoid seeing what common sense says should be obvious to everybody, one must understand the working of the *supreme law of nature* that governs everything that happens in the universe. 9

Note 1. Numbers in margin refer to page.

Note 2. The references up to [54] are the same as in *Book* [60]

1.1 When the screens go black

On my daily morning walk, I often lift my eyes from the ground under my feet and look up toward the sky. When I do so, I sometimes get a glimpse of the national power grid passing above my head.

A high-voltage line carries the electricity distributed by the power grid to a transformer station near the city center. There, the high-voltage electricity is stepped down to 400 / 230 volts and distributed via underground cables to me and other end users (400 is the voltage between any two of the three phases, and $230 = 400/\sqrt{3}$ the voltage between ground and one of the phases of the 3-phase alternating current of the mains we are connected with).

When I sit down on a park bench, I see in front of me one of the 4-legged poles that carry the transmission line. I am surprised by how extremely vulnerable the national power grid appears to be, everywhere reachable by a potential enemy both from above and below.

I recall an incident when I was twelve. I wanted to couple a device of some kind to a tractor battery via a thick iron wire. By accident the wire short-circuited the battery and to my fright the thick wire suddenly caught fire and burned into ashes that fell to the ground. I imagine that something similar might happen if a cosmic gamma blast hits the earth: the power grids on the hemisphere facing the flash will burn into ashes because of the strong electric current induced into them.

Now, the probability that a strong gamma blast (maybe caused by an exploding supernova, an erupting magnetar, or two neutron stars that spiral in toward each other and collide) will hit the earth in the foreseeable future, is very low. Very much higher is the risk that human beings sabotage the grid.

I recall what I had read in my morning paper some years ago: twelve persons in strategic places, each one equipped with a pair of bolt shears, may put out the country's power grid. I reckon that it would be an easy task to climb the pole up to the high-tension cables, and even easier to cut them off using a pair of bolt shears with insulating and sufficiently long shafts. But I also realize that the participants in the attack would be observed and arrested and the power grid rapidly repaired.

Even if the attackers chose a more discreet method, such as using spinning rods to throw miniature solar-powered circular saws doing their job with a delay up to the wires, at least some of the twelve participants would certainly be observed and caught in the act.

But why use such primitive methods when a single person can accomplish the same feat much more discreetly? You simply buy a few dozen remote-controlled drones designed for hobby use, program them to (on a given signal such as a timeout) fly up to the cables, deposit some kind of cutting devices on them, and return to the ground. Travelling by car you could hide the drones at a suitable distance from the national grid, and leave the country before they are automatically activated.

The internet consumes enormous amounts of energy. Without a power grid constantly feeding it with electricity, it dies almost instantly. Therefore a sabo-

tage against the national power grid will cause the screens it powers to go black. Also all battery-powered net-connected devices will become unusable. The net users will be left groping in the dark.

Increased vigilance and constant surveillance of the surroundings of the power grid will be of no help if swarms of drones begin to rain from the sky — maybe released from missiles launched by a hostile country.

In addition, the internet is extremely vulnerable in itself. The electronics of the satellites on which it relies may be destroyed any time even by a quite ordinary solar storm such as the one of 1859 (which caused the so-called *Carrington event*).

The conclusion can only be that an unexpected shutdown of the internet may happen any time. In fact, it may happen any second, and come as a total surprise to all its users (to whom belong practically all mankind with the exception of a few net evaders like myself).

I have many times tried to explain to people how vulnerable our electronic communications system is, and the consequences its inevitable crash will have for our high-tech society. But no one has ever listened to me. That's why I am now, in a final effort, trying to make people aware of how utterly senseless it is to demolish well-tried low-tech structures and replace them with net-based high-tech structures which anyone, given a few minutes of reflection, will understand are extremely vulnerable. Forming enormously complex systems that have no chance of withstanding serious attacks against them by the dead nature or by living beings such as bacteria or humans.

I'm writing this chapter in May 2020. I know that many enlightened people have tried to alert us of the untenability of our society's exponential growth (the Club of Rome was founded in 1968, and Thomas Robert Malthus published *An essay on the principle of population* in 1798), but invariably failed. So how could I possibly succeed in my efforts to alert the world about the dangers facing it?

1.2 Collective suicide or eternal life — our choice

In the previous subchapter I gave an example of how easily anyone can “pull the plug” and shut down the power supply we have made ourselves totally dependent on. If that happens today, we may still have the tools needed to reconstruct our society. But if it happens a few years from now, in a natural catastrophe or, let's say, in a war started intentionally or mistakenly by a superpower, our species will most probably face extinction. In other words, we are right now committing a delayed collective suicide that will take place at an unpredictable time.

Should we let that happen without making any effort to prevent it? Or should we use our intelligence to figure out how we can take control of the evolution of the human species and allow it to live indefinitely long?

1.3 The ultimate crime against humanity

To my mind, the ultimate crime against humanity is to let the present rush toward extinction of our species continue without attempting to halt it. We tacitly accept the teaching of commercial media, economists, and political leaders that we must all the time aim at a continued economic growth. This is all the more remarkable since anyone who knows basic multiplication should understand the catastrophic consequences of continued exponential growth. In fact, any school child who knows how to multiply numbers can easily verify that continued exponential growth is an impossible absurdity.

The term “exponential” is confusing. What is an exponent? What does exponential mean?

A descriptive name for the phenomenon that mathematicians call exponential growth would be “multiplicative growth”. Once we have understood this, it's easy to calculate its consequences. For instance, assume that a population — or if you prefer, your inflation-adjusted salary — doubles in 20 years.

This means that it grows $2 \times 2 = 4$ times in 40 years,
 $2 \times 2 \times 2 = 8$ times in 60 years, and
 $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 1024$, or for simplicity, 1000 times in 200 years.

A growth of 1000 times in 200 years in turn implies
 $1000 \times 1000 = 1000\ 000$ times in 400 years,
 $1000 \times 1000 \times 1000 = 1000\ 000\ 000$ times in 800 years, and
 $1000 \times 1000 \times 1000 \times 1000 \times 1000 \times 1000 \times 1000 \times 1000 \times 1000 \times 1000 = 1000^{10} = 10^{30}$
times in 2000 years.

At this point it becomes clear why mathematicians have introduced the concepts “exponent” and “exponential”. It's because these concepts provide a handy tool for abbreviating large numbers.

But let's see where two more steps lead:
 10^{30} times in 2000 years implies
 $10^{30} \times 10^{30} = 10^{60}$ times in 4000 years, and
 $10^{30} \times 10^{30} \times 10^{30} = 10^{90}$ times in 6000 years.

That no multiplicative growth can continue this far becomes evident when one notes that the visible universe contains roughly 10^{80} electrons and the same number of protons. Thus, starting with the extremely low energy consumption of one electronvolt (1 eV) and doubling it every 20 years for 6000 years leads to an energy consumption of the same order of magnitude as the energy content of the visible universe. (Note that the mass $m_p = 938\text{ MeV}/c^2$ of the proton corresponds to an energy $E_p = m_p c^2$ slightly below 10^9 eV).

Alternatively, if a religious sect started from two individuals and doubled its number every 20 years for 6000 years, its population would far exceed the number of mass-bearing particles in the visible universe.

And what is the primary goal of countries hit by the 2020 corona pandemic, one may ask. It is to rapidly return to the state of exponential (that is, multiplicative) growth that prevailed before the pandemic started. Then everybody will be happy according to our media, economists, and political leaders. The advertisers will continue to manufacture and market ever more intricate and energy-consuming gadgets and apps. The consumers will continue to finance these activities and be rewarded by getting free access to the internet which

provides them with unlimited possibilities of killing their time without ever understanding that they are contributing to the worst imaginable crime against humanity: elimination of the only intelligent species existing on the earth, and possibly in our entire galaxy.

To my mind, spreading of the lie that exponential growth can continue for any length of time is a crime that is worse than any other crime committed by humans. And the worst imaginable crime of all is committed by enlightened people who are aware of this fact and refuse to tell the world about their insight.

Personally, I feel it's my duty to do the best I can to inform the world about the insights I have gained — that is, how our history began, what the force is that has been driving our evolution, as well as how an enlightened and united humanity can take control of this force and redirect it to serve their long-term interest, thereby saving their species from a precipitate extinction.

If I don't do that, I will contribute to the worst crime ever committed by humans. And so will you, if have managed to open your eyes, and you refuse to spread your insight via your social network.

1.4 The media

Not long ago, the media was a stand-alone industry with the same goal as all other industries: grow as rapidly as possible and as much as possible. Media houses owned by media moguls set the agenda. The journalists formed a well-defined occupational group of their own with a strongly felt loyalty toward each other. It was in the interest of both media owners and journalists to maximize the industry's revenue. As a result, all persons engaged in the industry did their best to market the products of their advertisers.

Today, the situation is different. Media is simply the means via which we communicate with one another. We are all "journalists" working for the same goal: maximize our country's GNP. And just as the professional journalists seldom understood what their true mission was, we are unaware of the fact that we contribute to the growth in energy consumption and GNP every time we log on to the internet.

1.5 The mother of all lies

The fundamental misunderstanding — the mother of all lies that we build our high-tech society on — is our belief that we are telling each other the truth. When in reality we are predominantly spreading fake news and disinformation. And, when we don't spread fake information and gossip, we tell each other fascinating stories about real and fictitious persons and events, drowning ourselves in a torrent of irrelevant information that effectively prevents us from reflecting over our situation: what we are doing and why we do it. That is, prevents us from realizing that we have unknowingly been transformed into an unlightened flock behaving like driftwood in the stream of time.

1.6 The law that supremely guides our activities

To understand who we are and where we are going, we must find out where we came from. That is, we must learn about everything's beginning at time $t = 0$ when our world — the universe — started to form. And even more important, we must understand how a fundamental supreme law of nature prevented the newborn universe from disappearing back into literally nothing, and forced the elementary particles, black holes, galaxies, planets, life, and intelligent beings to form.

In an advertisement [61] that I recently placed in an internationally spread printed newspaper, I inform the world about the working of this supreme law of nature which I refer to as the *law of conservation*.

In the ad I explain that the “*simulation program that tracks the early evolution [...] can be understood and checked by anyone possessing fresh knowledge of basic mathematics, such as a student at senior high school who has an interest in math*”.

Now, the description of why and how the elementary particles were formed, and how the details of the process was governed by the law of conservation, are of little interest to modern humans confronted with their specific existential problems. Much more interesting to us is the discovery made by Eric Schneider and James Kay in the early 1990s, and described in an article they published in 1994 [20].

In the ad, I explain that Schneider and Kay show that the supreme basic law of conservation, which in detail controls the interactions of elementary particles with each other, “*gives rise to a secondary, all-encompassing law applicable to large collections of elementary particles; systems ranging in complexity from monatomic gases, such as helium and neon, to human beings*”. This law — which I refer to as the *law of change* — “*commands us to unceasingly increase our GNP, which is what we obediently are trying to do, ignoring the precautionary principle that our intelligence in vain tries to remind us of*”.

Finally, at the end of the ad, I state that: “*Crucially — provided it can be spread worldwide — knowledge of the working of the law will enable us to take control of the evolution of humanity, shape our destiny, and give our children, grandchildren, and great grandchildren a future.*”

The importance of the law of change lies in the fact that it can be interpreted in two ways. In its primitive interpretation, abided to by all non-reflecting living beings, it commands: *Increase your energy consumption as much as you can — here and now!* In its advanced interpretation, which only species endowed with intelligence are able to figure out, it urges: *Preserve your species indefinitely long so that you can continue to fulfill life's mission of converting concentrated energy into waste heat after the stars have burnt out!*

Note that the hydrogen content of the big gas planets Jupiter and Saturn can feed the human species for a long time, provided we lead an energy-conscious life and control the size of our population (which is a necessity for long-term survival). And, when forced to leave our solar system, we

can settle on a planet orbiting a brown dwarf and stay there an even longer time before we have drained the star of its hydrogen content.

1.7 The role of evolution

To fully understand what has driven humankind to achieve its present scientific knowledge, technical skill, and cultural development, it's not enough to understand the basic commandment implanted by the law of change into all living beings (and many non-living particles such as viruses). We must also understand why and how a climate change caused the evolution to transform us — that is, the hominines, to which *Homo sapiens*, Neanderthals, and Denisovans as well as our common human-resembling ancestors belong — from carefree rain-forest dwellers, who spent much of their time publicly enjoying sex and exercising wordless political wheeling and dealing, to hyperactive flock members restlessly searching the savannas for food to collect and carry home to their families — mothers with hungry and impatiently waiting children.

No doubt, it was through this activity that our fingers developed into multipurpose instruments, and we acquired our unique combination of efficient running and walking techniques that enabled us to (running fast) search through large areas of open land and to (via energy-saving power walk) bring home whatever edible things we could find. And doubtlessly it was now that the male adults developed their best defensive weapon against dangerous predatory animals: a strong and gruff voice.

Note that the ability to run fast at a young age was a result of nature's brutal selection of the fittest: To many animals, children playing in the ground were a tempting prey. Children who reacted fast and were speedy runners survived the attack, while slow children perished.

Also, the efforts of our ancestors to gather food as efficiently as possible was of crucial importance for the evolution of their brain and intelligence. Primitive languages were constructed because of the need for explaining the coordinates of known but still unharvested finding-places. And not least important, the tribe that could best solve the *traveling salesman* problem — that is, devise the most efficient route for bringing home food from a variety of places — got the upper hand over its less efficient competitors.

I remember that in the 1980s, I used the so-called *simplex* algorithm to solve the traveling-salesman problem. This algorithm was developed in the 1940s to increase the logistic efficiency of the army. My point is that the survival of the fittest of our ancestors depended on their ability to solve a problem that mathematicians devised an algorithm for as late as in the 1940s. And that, consequently, challenging problems causing their intelligence to improve have existed ever since our ancestors left the rain forests and became dependent on efficient methods of gathering food from a variety of locations within their reach.

Today, the physical restlessness of both children and adults has to a large extent been transformed into a mental restlessness that forces us to constantly click mouse buttons, read texts appearing on screens in front of us, and produce more texts by frantically pounding on keyboards with our fingertips.

Some other people are busily developing new gadgets and apps designed to steal our time and make us slaves under *Hyimon* [59] — the hyperintelligent

human-made monsterbeing, which is everywhere present, has taken control of the world's enterprises, and is working with a single goal in mind: grow as fast and as much as possible by taking control of every detail of human life. Its developers call it the *Internet of Things (IoT)*. And they are feverishly working to transform the monster into an *Internet of Everything (IoE)*. In 2015 I read a prediction that 50 billion (50 000 million) devices would be connected to IoE by 2020.

1.8 My life as a net evader

As a net evader — always paying my purchases with cash — I'm constantly reminded of the pressure on customers to abandon the use of physical bills and coins and switch to cyber money saved in the cloud. Money that will disappear at the same instant the internet is shut down. I don't know from where it comes, or how the incentive works, but it's perfectly clear that, not only the banks, but practically all enterprises save money when people use net applications instead of fingers to pay their purchases. Could it be that the simple truth is that we are unaware of what our use of the net actually costs in terms of energy consumption? What I know, is that experienced cashiers have nothing against my use of cash. I've also noticed that they know perfectly well how to handle it in a safe way: I drop my money in their (mostly gloved) hand, and they drop the change in my hand, without the need for any of us to touch the surface of the desk or some intermediate bowl the shop owner suggests we should use.

In sum, I can envisage that, when winter comes, the high-tech promoters will have achieved their goal and made even our purchase of food totally dependent on a functioning never-failing global electronic net. In other words, a cold winter day in January 2021 would be the ideal time for an enemy to bring down our power grids — a feat that almost anyone can accomplish without effort. See *subchapter 1.1*.

5

1.9 A brief summary

We won't have much time to prepare for an unexpected shutdown of the internet. In fact, we may have no time at all. If an intense solar storm or a gamma blast suddenly kills the global net, which we have become totally dependent on, it will come as a total surprise to all its users. However, more likely is a scenario in which the internet is brought down by humans.

But who would want to put out the internet? One group of people might be "friends of humanity" who want to save our species by preventing the disruption of our existing well-tested low-tech systems. Another group might be "friends of the earth" who want to save the planet's wildlife by eliminating the human species. In addition there are many potential enemies that simply want to cause maximum damage: lone scatterbrains taking revenge on humankind for real or imagined injustices, leaders of suicide sects who wish to be accompanied by all humanity on their last journey, a neighboring country wanting to expand its territory, a populist leader trying to draw people's attention away from his political

failures, a dictator with ambition to conquer the world, a data nerd wanting to demonstrate his programming skill, or somebody seeking to become notorious for his wicked deed.

Many people have an interest in hurting our society. And any one of our society's enemies may take action at any time. Maybe some of them will see a golden opportunity during the ongoing corona pandemic when more people than ever begin to rely on the internet? In anticipation of what might happen we should, without delay, react to these and other dangers threatening our civilization.

2 How to save the human species

What shall we do to avoid the catastrophic end to humanity that more and more people fear is rapidly approaching? The short answer is: *Enlighten the world!*

Mankind has been — and is still today — going on autopilot. Instead of navigating with the help of our intelligence we let our instincts, which have been implanted into our genes by the law of change, decide the course we are taking.

It's like you were sitting in a passenger plane. You suddenly wake up and note that all passengers in the cabin have fallen asleep while listening to the hypnotic voice of a preacher. You look into the cockpit and note that the captain and co-pilots are sleeping, too. You can also see that the plane is flying over a desolate island in the ocean and that the fuel gauge is showing red, which means that the plane may crash within seconds.

What should you do? Your first idea is to hurriedly put on a parachute and jump out of the plane. However, on second thought you realize two things. First of all, it's your duty to try to save the plane together with its passengers and pilots (who might still be able to make an emergency landing if you manage to wake them up in time). If you don't do your best to save them, you will commit a punishable crime against your fellow travelers. And furthermore, what will be your chances of long-term survival, alone on an uninhabited island, with no one to ask for advice, and with the plane's radio and other useful instruments destroyed in the crash?

The situation just described is directly comparable to mankind's present situation. Translate 'passenger plane' to 'high-tech internet-based society', and the parallel becomes clear. To keep them going, both require that large amounts of fuel is constantly pumped into their motors. If the airplane runs out of fuel it will either do an emergency landing or crash within minutes. When the power grid goes down, the net will crash within seconds. Also, it's clear that jumping with a parachute (that is, taking refuge in private bunkers) isn't a working solution.

2.1 Existing prerequisites

The necessary fundamental prerequisites are already fulfilled:

1. Humanity forms a homogeneous species without competing intelligent rivals and with complete freedom to shape its destiny.
2. We have a common language of science and technology.
3. Nearly all countries are using the standardized International System of Units, officially known by the name *Le Système International d'Unités (SI)*.

In fact, scientists all over the world have accepted SI as universal standard. Also, the media of nearly all countries are using the decimal metric system that was invented in the 1790s. The only exceptions are Myanmar (former Burma), Liberia, and the United States of America (U.S.A).

4. There exists a globally spread printed newspaper written in the universally used language of science and technology.

2.2 What remains to be done

Enlightened people can easily figure out what remains to be done if we decide to avoid collective suicide, and via united efforts begin to build an ideal society able to survive indefinitely long. The first obvious and urgent step we need to take is:

Introduce a global printed newspaper assigned with the mission of enlightening the world.

This could be done immediately by making use of the already existing globally spread journal. A modest beginning might be an advertisement that appears regularly in the journal and is financed by one or more of the many billionaires that donate money to projects aimed at saving mankind. An intermediate goal might be an entire journal dedicated to spreading enlightenment, available at all newsstands, and in addition distributed free of charge to political decision makers, professional truth-seeking journalists, and other important influencers. The final aim should be a tax-funded printed newspaper distributed free of charge to every household in the world.

The next task should be to inform the world of the U-turn that the human species must make if it wants to survive — that is, strive toward a maximally simple, instead of a maximally complex society.

2.2.1 The trade winds and geothermal heat

An important practical step should be to immediately begin utilizing two existing and readily exploitable sources of free energy that no global company can claim a monopoly on. Both sources are able to deliver many times more energy than mankind is consuming at present.

1. Fill the oceans with free-floating wind farms producing clean hydrogen gas

and artificial, fossil-free oil that can be directly used to fuel existing cars, airplanes, cargo ships, and tankers.

2. Harness the geothermal energy that is locally present in abundant amounts under our feet.

For details about the two methods, see chapters 31.3.1 and 31.3.2 in *Book* [60].

In v5 of *Book* posted on 31 March 2019, I described in detail how the two methods might be implemented in practice. During most of the summer and fall of the same year, I repeatedly tried to make people and companies interested in the ideas, but without success. I was surprised that people interested in clean energy who initially had demonstrated enthusiasm over my ideas suddenly lost interest in them. But soon I found the explanation: those people were engaged in companies producing biofuels and couldn't therefore advertise a cheap method of energy production that would draw the rug from under the feet of the enterprises they were promoting.

Less surprising was that none of the companies I tried to contact showed any interest in my suggestions. Previous experience had taught me that companies don't listen to suggestions from outsiders. They have their business strategies, which they stick to.

2.3 Vacation paradises and rescue biospheres

If we want to prevent the threatening collective suicide of our species, we must be prepared to isolate us from the “wild” life on earth with its viruses and bacteria, which develop all the time into new varieties, and which we can't protect ourselves from in the long run (as HIV, Ebola, Corona, and other viruses have demonstrated). That is, we must hurriedly construct self-supporting colonies in space — closed biosphere where life can go on as long as the sun is shining (and afterward be fueled by the hydrogen reserves of the big gas planets).

But first of all, we must learn how to construct such biospheres on the earth, and how to exploit the geothermal energy (available in abundance some 10 or 20 kilometers below our feet) to power them.

There exists already much knowledge about vertical gardening that will make it possible to grow all plants needed to complement the artificially made bulk food that — with minimum energy usage — can be recycled in the closed ecosystem formed by the biosphere.

Astronauts can contribute with much experience. Valuable lessons may also be learned from previous experiments with closed biospheres, such as Biosphere 2 [58] — the earth being Biosphere 1 — in the early 1990s.

A quick first step might be to let people “dock” their recreational vehicles (RVs) — also known as motor homes, caravans, and campers — to existing greenhouses. This would allow them to sleep and cook in the RVs, and from them step directly into the greenhouse, where they may spend the day enjoying its warmth, light, and floral splendor.

In the rescue biospheres, the aim of people will be diametrically opposite to our present aim. That is, all inhabitants must strive toward, not maximizing but minimizing their energy consumption. Instead of fruitlessly striving toward an, even in theory unapproachable goal, we must concentrate our — this time highly meaningful — efforts toward reaching (or at least closing in on) a goal that we can see in front of our eyes.

Simplification means, among other things, standardization. For example, our various monetary systems designed to maintain the exponential growth of our societies must be replaced with a maximally simple system with money equivalent to energy.

In the survival biospheres things are simple. The locally obtained energy that powers a module is common property of its inhabitants. The monetary unit is directly coupled to energy with, for example, the global electro-dollar equivalent to one kilowatt-hour (1 kWh). Everyone who directly uses the electric energy extracted from geothermal heat, pays one dollar per kWh in tax to the central bank. Which in turn distributes the money among the biosphere's inhabitants in a way designed to give all of them a decent life, and at the same time spurring them to provide the services that are necessary in a well-functioning society.

Simplicity also implies that people do the type of work they have been designed by nature to perform, and which they need to do to keep physically and mentally fit. That is, instead of using robots to do the daily work for them, they will save energy by using their legs and fingers. Also, working for a common future will make people feel happy with their lives.

3 Facts (v2/±)

Hello World,

We humans have taken control over you, the only spot in our solar system that hosts advanced life forms. Some names that we use for you — the third planet after Mercury and Venus — are Biosphere 1, Earth, Gaya, Globe, and Tellus.

We call ourselves *Homo sapiens* — the wise human — which is a misleading name since we have been, and still are, acting most unwisely. Why this is so, few of us understand.

We are an invasive species. We resemble a cancerous tumor that has spread its metastases (human settlements) all over your body. Metastases that continue to expand and kill the surrounding healthy tissue (rivers, lakes, forests, and wildlife).

We have started a full-scale war against you, not understanding that we can't win it. You will always try to eliminate us by developing antibiotic-resistant species, new types of viruses, and encouraging us to commit collective suicide in a variety of ways.

Luckily for us, in your latest attempt you used a slowly spreading virus that causes a disease, Covid-19 (Corona virus disease 2019), that rarely kills us.

You might have succeeded if, instead of rendering us the SARS-CoV-2 virus, you would have sent us a virus as infectious as Ebola and possessing the several-year-long incubation period of HIV.

Today, your rapidly increasing fever (climate warming) has finally opened our eyes and made us realize that the end is near if we don't change our behavior.

But we can't begin to act rationally until we have gotten to know ourselves; that is, unless we understand

from where we come, what we are, and where we want to go.

The conclusion reached in my above letter to the world may be re-expressed in the following way:

Without understanding the beginning of our history, we can't see that there is a meaning to our lives, that we have been assigned a vital mission — a mission that only an intelligent as well as scientifically and technically advanced species is able to understand and fulfill.

The mission of the human species is further discussed in *subchapter 3.3*. 18
There, I list the main features of the universe — basic facts about the world we inhabit that haven't been known before. You don't have to understand or study the subchapter, but I suggest that you take a quick look at it. It's important that you, I, and people in general understand that the beginning of our world can be summarized in a brief listing of readily verifiable facts.

3.1 Our universe is a physical world!

You may be allergic to the word “physics” — a result of the counterproductive teaching of physics in many schools. But you can’t be allergic to actual physics for the simple reason — which your teachers should have told you but didn’t — that our universe is a physical world from beginning to end.

Among other things, this means that our worries, our feelings of anger, indignation, and hunger, as well as our sense of touch, taste, and smell are mediated by photons exchanged between electrons in the molecules we are built from. When you fall in love, or when you are dreaming in the night, it’s thanks to the work of virtual photons jumping between electrons.

These are facts that no enlightened human being denies — except for spiritual leaders who make their living by spreading false information to their audiences.

Today, we constantly experience the denial and withholding of known facts, a phenomenon older than humanity that has lately accelerated in social media.

3.2 Basic facts about our energy supply

Thanks to the sun, life has appeared and begun to flourish on our home planet, the third planet from the sun. Practically all energy we are using is solar energy in one form or another. At present, the only notable exception is nuclear power. For a century, the direct use of solar energy was abandoned in favor of solar energy conserved underground in the form of fossil coal, oil, and so-called natural gas.

This fossilized energy was preferred because of commercial reasons. People and companies could claim ownership to deposits of fossil energy and make a fortune by selling oil and coal to energy-hungry consumers.

Fossil oil has driven the high-tech explosion for one and a half centuries. It lies behind innumerable conflicts, from family feuds to large-scale world wars. Presently, these conflicts increase in number and intensity. Thereby they also contribute to the still ongoing exponential increase in humanity’s Gross National Product (GNP).

Today, the commercial exploitation of fossil energy has become a serious threat to our existence. Unless we rapidly curb our emission of fossil carbon — that is, carbon dioxide (CO₂) released from combustion of fossilized plant remains — the climate warming will accelerate. In the nightmare scenario, this will kill all life on the surface of the earth.

Fortunately there are readily available solutions that might prevent the impending climate catastrophe. The trade winds blowing over the oceans can be used to power free-floating wind turbines, and the nuclear energy produced deep in the earth can be harvested as geothermal energy.

For a discussion of the trade winds and geothermal energy, see *subchapter 3.7*. 23
Also, see Book [60], *subchapters 31.3.1* and *31.3.2* (pages 168 and 186, respectively) where I present in detail techniques that might be used to harness the

two freely utilizable sources of gratis, clean and fossil-free energy we have within easy reach.

Note that entrepreneurs who wish to exploit the techniques I describe in the two subchapters are free to profit on them. This is so because these techniques became unpatentable when the subchapters were made public in v5 of Book posted on 31 March 2919.

Also, as I explain in *subchapter 31.3.1* of Book, I released my patents, which I had obtained in the 1980s, in 1994 when I realized that wind power couldn't compete with the fossil oil that was easily extractable and found in abundant quantities on all continents of the earth.

3.3 Fundamental facts of the beginning

An astonishingly simple Fortran program is used to track the universe's first phases. It convincingly demonstrates that a single supreme law of nature lies behind everything that has taken place after our world appeared at time $t = 1$.

Note 1. At time $t = 0$, the universe begins to build up in an oscillation that peaks an instant later, with the physical world coming into being in the form of a relativistic harmonic oscillation. Compare with the development of a human embryo from its conception, until its delivery in the form of a fully developed living being.

Note 2. It's convenient to regard the universe's build-up time, Δt , as the fundamental unit of time. That is, to put Δt , as well as the time t when the physical world appears, equal to 1.

In what follows, I refer to the one and only fundamental law of nature as the *fundamental law of physics*, the *supreme law of nature*, or simply *The Law*.

The logic of the Fortran program [34] can be checked by anyone familiar with basic mathematics and possessing superficial knowledge of derivatives and integrals. The program reveals the following irrefutable facts — fundamental facts whose existence Big-Bang theorists can't even dream of.

01. *Time, space, and motion* make up the *universe*. That's all!
02. *Energy* is motion in space.
03. Time and space are continuous quantities.
04. Space is described by the *space equation*.
05. The space equation is a form of the general *flow equation* of physics.
06. Space and the universe are *forever expanding*.
07. The *elementary particles* are energy — space in motion.
08. You and I are built from elementary particles.
09. You, I, everyone, and everything abide by *The Law*.
10. In sum, a *maximally simple model (MxSM)* explains everything.
11. Still, MxSM is not the long sought-for *theory of everything (TOE)*.

For proofs, see *subchapter 3.4* on page 19.

3.4 Proofs

There are several independent experimental observations which, if taken together, convincingly demonstrate the correctness of the maximally simple model (MxSM). Here I present three of them.

3.4.1 The muon–electron mass ratio

Irrefutable proof of the superiority of the MxSM theory is given at the beginning of my home page (physicsideas.com), where I compare the theoretically obtained value of the muon–electron mass ratio to the value measured in 2006. That the two values, 206.768 283 185(78) and 206.768 2823(52), are in perfect agreement with each other is immediately seen when they are put one above the other:

$$\begin{aligned} 206.768\ 283\ 185 \pm 0.000\ 000\ 078 &= \text{theoretical value} \\ 206.768\ 282\ 300 \pm 0.000\ 005\ 200 &= \text{experimental value} \end{aligned}$$

It's also seen that the theoretical value is $5200/78 = 66$ times more precise than the experimental value.

Remark. Physicists sum uncertainties from different sources by adding their squares. In this case, $77^2 + 7^2 + 5^2 + 5^2 = 6028 = 77.6^2 \approx 78^2$ since the theoretical value is given as 206.768 283 185(77)(7)(5)(5) in the home page.

For details, see *subchapter 6.2.1* on page 37.

3.4.2 The four “mystery” numbers

The very first particle, the D particle, can only exist alone. After its decay into a new type of particle, it can no longer be created and experimentally observed.

Still, there is observational evidence showing that the correctness of the simulation can hardly be questioned. This evidence comes in the form of four dimensionless numbers stemming from the chain reaction in which all presently existing elementary particles were created. The numbers are:

$$207, 17, \text{billions}, 137$$

For details, see *subchapter 6.2.2* on page 37.

3.4.3 April 2021 status of the muon $g - 2$ experiment

The first report from the ongoing measurement of the muon $g - 2$ at the Fermi National Accelerator Laboratory (Fermilab) presents data that support the results from the corresponding measurements performed at Brookhaven National Laboratory during the years 1997 to 2001.

But far from disproving the standard model (SM) of elementary particles, the experiment strongly supports it, even though the result doesn't directly say anything about MxSM's description of the creation of elementary particles.

According to the report, the result hints at new physics, meaning that an unknown particle affects the outcome of the experiment. However, this conclusion is based on the idea that the Higgs boson is a so-called God particle which gives all massive particles their mass.

MxSM, on the other hand, convincingly demonstrates that the Higgs boson is an ordinary elementary particle among other elementary particles, which all contribute to the mass of a given particle, and thereby also affect the muon's anomalous magnetic moment $a_\mu = (g_\mu - 2)/2$.

In other words, what the researchers have discovered is a small contribution to a_μ caused by the appearance of a very light Higgs boson in the experiment.

For details, see *subchapter 6.2.3* on page 38.

3.5 One World — One Law

The Fortran program [34] provides a simulation of the universe's initial evolution which shows that things couldn't be simpler. That is, our universe created itself — space, time, and energy — from literally nothing. No helping hand from parallel universes was needed. Consequently, in the science of physics there is but one world. And this, in turn, means that the so-called multiverse is a philosophical speculation that has no coupling with physics.

The simulation also shows that a single law — *The Law* that is essentially identical to the well-known law of conservation of energy — governs the evolution of the universe from its first appearance until entering the present phase with its complete set of elementary particles and its two basic composite objects — the proton and black hole.

The fact that the fundamental Law is all that is needed to explain the evolution of the early universe until taking on its present shape, means that the *second law* (which physicists often call the *second law of thermodynamics*) isn't an independent law, but a direct consequence of the first and only fundamental *Law*.

In the early 1990s, Eric Schneider and James Kay showed in a scientific article titled *Life as a Manifestation of the Second Law of Thermodynamics* that the second law — and thereby the fundamental Law underlying it — explains why life appears and evolves into ever more energy-consuming species.

Why we, representatives of the species *Homo sapiens*, or the *wise human*, behave as we do has an obvious explanation: We are guided by our instincts.

Our basic instinct has been programmed into us and all living beings by *The Law*. It makes us constantly strive to increase our consumption of high-grade solar energy and convert it into waste heat.

Later, over the course of evolution, we acquired culture-specific instincts, which have made us social and cooperative and enabled our transformation into an intelligent as well as technologically and scientifically advanced species.

Today, enlightened people realize that our instinct-driven development is coming to an end. Either via a catastrophe, caused by our blind reliance on highly complex — and consequently extremely vulnerable — technology, or through a paradigm shift; a revolution in which we begin to act rationally and take control of our future. Which alternative we choose is up to us — up to you and me and the rest of our planet’s population.

3.6 Media

Over millions of years, media gradually evolved from grimaces and air-mediated grunts and words, via signs carved in wood and stone, to documents written on papyrus and paper.

3.6.1 The printed Press

Johannes Gutenberg’s invention of the art of printing in the 1400s accelerated the use of written media. Mass-produced publications (books, booklets, pamphlets, and journals) enabled rapid spreading of information and ideologies. As a result, humanity entered the Age of Enlightenment in the 1700s.

In the 1800s (before radio and TV), media was equivalent to the printed Press which had become the channel through which governments, organizations, and truth-telling journalists spread their announcements and teachings.

3.6.2 Media’s commercialization

In the second half of the 1800s, a paradigm shift — the first media revolution — started when the American government abandoned its control of the printed Press and let the media houses finance themselves in what way they could.

It would take a century for the revolution — commercial media transforming into our de facto teachers, taking full control of our minds — to be fully implemented in the democratic countries of the world. (In autocratic countries the political leaders prevented the revolution from being implemented.)

In the commercialization of the journals, William Randolph Hearst (1863–1951) and his populist “Yellow Press” came to play the leading role.

Hearst is known for instigating the Spanish-American war in 1898 to give his papers something to write about. His centrally controlled press brought Woodrow Wilson (1856–1924, awarded the Nobel peace prize in 2020) to presidency in 1912. Also, it’s said about Hearst that he was a great admirer of Adolf Hitler in the 1930s, and that he openly supported Nazism.

The never-told motto of Hearst’s media imperium and later all commercial media became:

Truths that are bad for business must not be told.

Understandably, journalists didn't want to lose advertisers and the money brought by them, and thereby put at risk the survival of their media houses in the tough competition with other media houses. In practice, this meant that the journalists learned to instinctively avoid saying anything negative about products marketed in their media while, at the same time, they successfully managed to retain their reputation as seekers, lovers, and tellers of truth.

When it comes to advertisements, things are crystal clear to anyone who isn't blind: media never inform us about the long-term consequences of new products introduced by their advertisers. They never mention the vulnerability of the Internet, which may be knocked out at any moment via a variety of methods.

Also, media never mention the foreseeable consequences of changing from physical money to electronic money: shop plundering and anarchy when the power grid goes down for an extended period of time.

And, by drowning us in a torrent of irrelevant information, media makes all of us more or less blind to the often disastrous consequences of our decisions. (Proof: only recently, when it may be too late, people have become aware of the climate threats caused by their consumption habits.)

Other commercial aspects are less obvious. One important contribution to the revenues of the media houses comes from referendums. Commercial media rapidly learned that referendums may be highly profitable — but only when they turn into thrillers with unpredictable outcome.

The media has a simple recipe for transforming an uninteresting referendum with only one logical outcome into a highly interesting nail-biter with its outcome determined by chance: Regardless of whether the representatives of one side are telling the truth while the representatives of the other side are constantly lying, give both sides equally much publicity.

As we know only too well from the many referendums arranged in member states of the European Union and elsewhere, this strategy has proved to be extremely successful.

Referendums catch maximally great interest among the public. Consequently, they create maximally large contributions to the advertising revenues of the media houses.

By chance, as I'm writing this text, I happen to hear that the media strategy just described goes under the name *false balance*.

Since I've never heard about false balance before, the following is a spontaneous speculation from my side:

I can't avoid the suspicion that Hearst never wanted to see the democratic reformist, later winner of the Nobel peace prize, Woodrow Wilson as president in the USA.

I suspect that Hearst simply wanted to make the outcome of the election maximally uncertain — maximization of his media imperium's revenue being his only goal. Just as it had rapidly become the overall goal of American commercial media houses in general.

3.6.3 Recipe for reviving the enlightening Press

When I now read on the Internet what journalists wrote about “false balance” a few years ago, I note that they very cleverly argue for it. That doesn’t surprise me, because I know that journalists are often verbally skilled people with extensive experience defending the policy of their journals.

As a result of the journalists’ clever propaganda, it’s virtually impossible for us media consumers to understand the mechanism behind the behavior of the media houses.

Only after learning how the universe and our history began, and realizing the role played by the one and sole fundamental law of nature, will we understand that not even the journalists themselves are aware of what drives them: unconscious instincts implanted into living beings by *The Law*.

However, what has greatly surprised me lately, is instead that a new paradigm shift appears to be under way instead — a counter-revolution aiming at a new age of enlightenment.

I take this process to be a reaction to the uncontrollable spreading of fake news and misleading information in social media. And a reflection of the willingness of enlightened people all over the globe to pay to receive true facts spread by a printed Press that has found a new niche: allowing truth-seeking journalists to publish their findings without being held back by the paper’s reluctant advertising department.

Once this process of freeing journalists from the fetters of commercialism has started, there is hope that it will not stop half-way. Maybe the true story of history’s beginning will be told by the Press. And maybe enlightened journalists will teach us how to correctly interpret the rest of our history, and tell us how we can use our new knowledge to plan for a tenable future for the world’s wildlife, and for a long-living human species.

3.7 CO₂-neutral energy in 2025 instead of 2050

It may be possible for us to halt the presently accelerating climate warming if we immediately begin to utilize the practically unlimited energy provided by the trade winds blowing over the oceans and the likewise unlimited geothermal energy that exists under our feet.

3.7.1 The trade winds

The energy contained in the trade winds can, in a cheap and efficient way, be converted to electric energy in giant free-floating wind farms.

By building giant free-floating wind farms stationed on international waters in the oceans’ trade-wind belts, it’s possible to immediately begin producing hydrogen that can replace oil in many existing machines.

Also, the technique for producing artificial carbon-neutral fuel directly usable in existing means of transport — such as airplanes, ships, trucks, and private cars — already exists. The technique still needs to be scaled up. But this can be

done in a couple of years if sufficient financial resources are allocated to research and development of the methods.

As a by-product, conflicts over oil resources would become senseless, and one of the main reasons for wars would disappear.

See subchapter 2.2.1 on page 13. For technical details, see subchapter 31.3.1 Free-floating wind farms in *Book* [60].

For a map of the Norwegian fjord Boknafjorden with surroundings, as well as a number of graphic representations, see a freestanding article [56] written in Swedish.

Norway might be a suitable place to build the first free-floating wind farm. It has vast areas of territorial waters that are sufficiently deep — 200 meters or more — for a wind farm. After the first wind farm has been tested, it may be moved to a location in the trade-wind belts with more stable weather conditions.

3.7.2 Geothermal energy

Development of a simple and cheap technique for drilling deep boreholes will have many positive effects.

Exploitation of geothermal heat, which is present everywhere in abundant amounts right under their feet, will enable people to construct villages powered by locally produced electric energy.

If the residents aim at a self-supporting community — an autonomous biosphere recycling air, water, food, and all basic commodities — the result would be a world in which people live in harmony with the surrounding wildlife. A world in which the incentives for conflicts or wars have disappeared. Also, when the number of armed conflicts decreases, the stream of refugees that today end up in overcrowded camps will decrease. In short, our planet will become a better place.

See subchapter 3.7.2 on page 24. For technical details, see subchapter 31.3.2 *Geothermal energy* in *Book* [60].

3.7.3 Resistance from oil-pumping countries and companies

It goes without saying that the multinational oil giants, as well as most oil states, don't like the idea that their lucrative business will disappear. They will oppose it with all conceivable means.

The only way to prevent decision-makers from sticking to the status quo is by enlightening people worldwide about the new techniques. When a sufficient number of people put pressure on companies and governments, the revolutionary paradigm shift in energy production will become a fact.

3.8 MxSM's practical consequences

3.8.1 History

Once we have learned how our history began — found the answer to the question *from where are we coming?* — we will get a more profound understanding of our present situation. We will know how to answer the question *who are we?*

Knowledge of the instincts driving us will help historians analyze the development of our societies.

And this, in turn, will help them predict our future, analyze the options we have, and suggest what decisions we should take if we want our species to survive its present crisis.

3.8.2 The end of the blame game

We are all products of *The Law*. Therefore, it's senseless to blame people for being what they are, or having done what they have done. They — all of us — have simply been following the instincts implanted into all living beings by *The Law*.

However, what we should do, and have the obligation to do, is to take the steps needed to prevent people from committing new bestial crimes in the future.

An enlightened human species will know its roots, understand its history, and decide to control its future. This will put an end to the indignation-arousing — and consequently highly lucrative — blame game that commercial media constantly are playing because we, their public, uncritically buy it. It's a practice we will have to abandon once we have realized that we can't blame people, living or dead, for the instincts that the physical law that governs everything that happens in the world, and later the cultural evolution *The Law* has given rise to, have programmed into the human genes.

For us to be able to plan and control our future, it's necessary that we succeed in reforming our media, and with their assistance manage to force the world's industry leaders to immediately start exploiting the inexhaustible energy sources that no multinational company can claim the sole right to: the trade winds blowing over the oceans and the geothermal heat some twenty kilometers beneath our feet.

3.8.3 Religion

When the knowledge of the scientific tale of creation is spread worldwide, it will provide a platform that no rationally thinking people can question. When the religious leaders begin to rebuild the world's big belief systems on this common platform, religion can no longer be used as a weapon by worldly and spiritual leaders struggling for personal power. Fanatism will be replaced by tolerance. The motivation for encouraging suicide terrorism will disappear.

The *Parliament of the World's Religions* will experience a renaissance. Its revitalization will signal the beginning of a new era of cooperation between the

big belief systems — a time when the religious leaders, instead of struggling for personal power, do their best to unite humanity and prevent it from a precipitate extinction.

Some religions will have to abandon their “paradise doctrine”, but the essential thing — the ethical teaching that is much the same in all big belief systems — will remain unchanged.

Also, the many ancient tales of creation will survive in the form of mythologies reminding us of our cultural history.

3.8.4 Social sciences

Knowledge of the fundamental instincts implanted by *The Law* in all living beings, together with knowledge of the culture-dependent instincts implanted in the human genes during the evolution of our ancestors, will ...

Note. This chapter will be expanded in an upcoming version.

3.9 Threats

3.9.1 Don DeLillo’s best-seller

Don DeLillo is said to be one of the world’s leading writers. I recently read his prophetic book “The Silence”, published in 2020, but written before the Covid-19 epidemic had transformed into a pandemic.

The scene is laid in New York City in the year 2022, and the book begins with a quote:

“I do not know with what weapons World War III will be fought,
but World War IV will be fought with sticks and stones.”

Albert Einstein

Very little happens in the novel: Screens go blank. A plane crash-lands. A married couple walks through New York City, where no one knows what has caused the blackout.

The rest is largely monologues uttered by the novel’s main characters, who meet in an apartment in New York. The monologues reveal that the five people portrayed in the story are well aware of the numerous threats to our civilization, many of which are caused by our uncontrollably exploding technology. They wonder about the cause of the mysterious blackout:

“What is happening? Who is doing this to us? Have our minds been digitally remastered? Are we an experiment that happens to be falling apart, a scheme set in motion by forces outside our reckoning?” Among the threats they mention are:

- Naturally occurring phenomena, caused by an unrestrained technological development, and worsened by climate change:
 - “Power out”, “storms and wildfires and evacuations, typhoons, tornadoes, drought, dense fog, foul air.”
 - ”Landslides, tsunami, disappearing rivers, houses collapsing, entire buildings crumbling, skies blotted out by pollution.”
- New weapons such as drones:
 - “The drone wars. Never mind country of origin. The drones have become autonomous.”
 - “Drones above us now. Flinging warnings at each other. Their language being a form of the language isolate. A language known only to drones.”
- Microplastics and cryptocurrencies:
 - “The dangers at every level. Eat, drink, invest. Breathe, inhale, draw oxygen into the lungs. Walk, run, stand. And now in the purest snow from the alpine wilderness, from the arctic wasteland.” “Plastics, microplastics. In our air, our water, our food.”

To the dangers mentioned in the book, I would like to add one, to me the most frightening threat of all: researchers making every effort to find a method via which people can be prevented from aging.

Another danger not mentioned is *motes* that researchers and engineers are attempting to make ever smaller with the ultimate goal of constructing atom-sized nanomachines very much tinier than the smallest viruses produced by the planet’s wildlife.

What strikes me after reading the novel and a couple of reviews of it, is that the reviewers refrain from informing the general public about the insight Don DeLillo possesses about our society, and thereby refrain from conveying his message to their audience.

Even if I know about the instincts, which *The Law* and the evolution of *Homo sapiens* have programmed into our genes, it’s difficult for me to understand the unwillingness of people to open their eyes and see how serious our situation already is.

3.9.2 Hyimon

I bought the computer I’m presently using in 2006. It’s a laptop on which I installed a Linux operating system which I haven’t updated since then. I continue to use my machine as a standalone personal computer similar to my first PC bought in 1984.

The exploding technological development is reflected by the fact that, while in the middle of the 1980s I used diskettes holding 360 kilobytes (that is 0.000 36 gigabytes) to transfer data to and from my PC, I now use memory sticks holding ten thousand times more information for the same purpose.

Seen from a wider perspective, the main difference between the 1980s and today is that the PC's memory of less than one megabyte — memory small enough for the user to have full control of its content — has exploded in size.

The practically limitless memory capacity of modern computers has resulted in a fast-growing industry selling services designed to keep data systems free from viruses and prevent them from being accessed by unauthorized hackers.

Frequently occurring data and identity thefts prove that it's impossible for the new industry to fulfill its task. Still, our commercial media never explicitly explain this to us, since telling the truth would negatively affect the profit of their gadget-developing advertisers and thereby the profit of the media houses themselves.

An outstanding feature of my PC is its lack of net connection. When I installed the operating system from a CD in 2006, I left out the network interface.

Thanks to my background as a computer programmer between 1965 and 1988, and my later critical attitude toward our use of the net, I am well aware of the risks posed by an uncontrolled technological development.

In the 1970s, the diskette or floppy disk was introduced. Until then, information had been stored on punched cards or paper tape, both readable with the naked eye. While others were enthusiastic over the new technology, I thought that the necessity of using advanced machinery to read information implied a dangerous paradigm shift in data-processing technology.

In the 1970s, banks and other big companies had their private so-called main-frame computer which could be accessed and updated only by an operator sitting in the computer room.

In the 1980s, a new era of distributed programming began: Almost anyone could buy a cheap computer for private personal use. I bought a PC because I wanted a computer that I had full control of.

What I couldn't imagine in the 1980s was that the development would reverse its direction. But this time it didn't end in companies having full control over the information they sit on.

As we all know — but have been prevented from reflecting over — there are no autonomous PCs marketed any more. Today, you don't buy a personal computer. You buy a terminal attached to the end of one of the countless tentacles reaching out from the one and only remaining "main frame". This monstrous world-spanning computer system that has taken control of our minds — designed to steal our time and make us slaves under it — is often referred to as the *cloud*. Personally, I prefer the more descriptive name *Hyimon* [59] or, quoting what I earlier stated on page 10 in *subchapter 1.7*: "the hyperintelligent human-made monsterbeing, which is everywhere present, has taken control of the world's enterprises, and is working with a single goal in mind: grow as fast and as much as possible by taking control of every detail of human life."

Today, I call myself *net evader*. It means that I try the best I can to avoid using the Internet. In practice, avoiding its use altogether is not possible anymore.

In my capacity as net evader, I've been able to — with open eyes — follow how *Hyimon* has taken control over people's minds.

I'm also well aware of the fact that it's an illusion that anyone can be a net evader. Even if I myself in principle could refrain from touching *Hyimon*'s everywhere reaching tentacles — which I can't — I'm always dependent on *Hyimon*, which today controls our banks and entire monetary system, our shops, and practically all the world's companies.

Information about my income and my health is saved in the cloud — that is, in some unknown physical location in *Hyimon*'s enormously big memory.

Shops, hospitals, banks, and the government do their best to discourage me from my attempts to use old-fashioned, well-tested methods that have proved to function in all types of situations, from minor crises to full scale wars.

A truth obvious to anyone looking at our present state of affairs — but which our commercial media successfully manage to withhold from us — is that both the Internet and our electricity infrastructure may be brought down via a variety of methods at any moment.

For further discussion of the role played by *Hyimon* and its ambition to control everything, see the article titled *Maximally simple* [59]. For a slightly modified version of the article, see chapter 3 in *Book* [60].

4 My lifeline

I spent my childhood and teenage years in the Åland Islands, which form a small Swedish-speaking autonomous region in the south-western corner of Finland.

In September 1959, I began studying Engineering Physics at Helsinki University of Technology, today a part of Aalto University. I became interested in theoretical physics, speculating that the elementary particles might be regarded as whirls in a pressureless, fluid-like space. In April 1966, I finished my studies (with my thesis discussing weak interactions and the hypothesis about a conserved vector current).

In November 1966, soon after my graduation, I discovered that a well-known equation in physics may be written in a form which I call the *space equation*. The space equation implies that the space of our universe is *pointless*. This means that empty space is perfectly continuous or smooth, neither built from infinitely small points, nor from immensely small *molecules* with dimensions of the order of the so-called *Planck length*.

Soon, I became aware of the consequences for cosmology of my newly discovered *space equation*: It provides a simple explanation for the electron's spin,

charge, and mass as well as for the expansion of space and the universe. In addition, it implies that the gravitational force is nothing but a by-product caused by the expansion.

On my home page physicsideas.com [32], under the heading *PIECE 1: The Pressureless Momentum Equation*, I show the *space equation* and discuss some of its more or less obvious implications for theoretical physics.

In appendix A.4 of my planned *Book* [60], the derivation of the space equation is shown in detail.

4.1 My life-long research project

Convinced that I had made a ground-breaking discovery in theoretical physics, I tried to attract the interest of professional physicists to my finding, but found it impossible. It made me very frustrated.

Today, after I've learned why my attempts were doomed to failure, I realize that my anger was futile, nothing but a waste of time, a primitive energy-consuming reaction encouraged by the instinct that the supreme law of nature has implanted in my genes.

From the early 1990s to the end of 2016, I worked full-time, seven days a week on what I now call the maximally simple model (MxSM). And, during the years 2017 to 2020, I did what I could to inform journalists and the academic collective about my discoveries.

I want to point out that my research hasn't been driven by any scientific zeal. It's simpler than that — doers of jigsaw puzzles understand. Once you have found a few pieces that fit nicely together, and you begin to wonder what the picture shown by the completed puzzle might look like, it's too late to stop. You will take the time required to finish your part of the big puzzle.

But, being a flock animal, it's not enough that you yourself have seen the big picture resulting from your work. You also feel the need to show other doers of the same puzzle your results and hear their comments on it. After all, you may have placed one or two pieces the wrong way, and you wish to be informed about your mistakes.

4.2 When I hit the wall

The first time I hit the wall — couldn't touch a keyboard for several months — was in the late 1990s when I was developing my home-built Assembler-Fortran compiler. I created it because I needed high-precision mathematics in the computations I performed for an article titled *Numerical determination of Feynman-parametric QED integrals* [24].

The 1984 Microsoft Fortran of my PC utilizes the in-built 4-byte (or 16-bit) and 8-byte (or 32-bit) precisions of the PC's Intel processor chip. The 4-byte or single precision yields an accuracy of between 6 and 7 decimal

digits while the 8-byte or double precision gives an accuracy of a little more than 15 decimal digits.

Since the latter precision wasn't sufficient for my purposes, in my home-made version of Fortran I use Intel's so-called *tenbyte* precision, which is also built into the PC's processor chip, and which yields an accuracy of more than 18 decimal digits. That is, thanks to my use of the in-built 10-byte precision, my Fortran compiler produces fast object code that is about a thousand times more accurate than the code produced by standard Fortran.

(Later, in the early 00s of the new millennium, I converted my Assembler-Fortran compiler for use under Linux. For this conversion, I coded in addition a text editor resembling the one I had been using on the PC DOS computer, as well as a program converting my assembler code to C assembler.)

The second time I hit the wall and had to abandon my programming experiments was in 2016 when I tried to perfect the calculation of the muon–electron mass ratio.

My dream — which I never expected to be fulfilled — had initially been to derive from scratch the theoretical *fine-structure constant* α (alpha) with its experimentally obtained value $1/\alpha = 137.0360$.

What actually happened was that — some forty years later, in 2009 — I managed to compute the theoretical value of the muon–electron mass ratio itself. Which was a feat I couldn't have dreamed of in the 1960s when I started my research project.

The fine-structure constant α expresses the strength of the force between electrically charged particles. It is a fundamental constant in physics that doesn't depend on the values of other constants. Therefore, a theoretically obtained value for α would at best confirm the correctness of its experimentally obtained value.

In contrast, the theoretically obtained present-day value of $m_\mu/m_e = 206.768\ 283\ 185(77)(7)(5)(5)$ contains uncertainties (77, 7, 5, and 5) deriving from uncertainties in the input values

$$1/\alpha = 137.035\ 999\ 084(51),$$

$$G_F = 0.000\ 000\ 000\ 011\ 6637(1),$$

$$m_\pi = 139.570\ 18(35), \text{ and}$$

$$m_\tau = 1777.00(28), \text{ respectively.}$$

See last comments beginning “Vary input:” in appendix G of *Book* [60].

Note that G_F is the *Fermi coupling constant*, which expresses the strength of the weak force in a similar way that α expresses the strength of the electromagnetic force.

For the units of G_F and the tauon and pion masses (m_τ and m_π , respectively), see “Particle data” in “Pions” (Phase pi) in the middle of the program listing in appendix G of *Book* [60].

However, in the fall of 2016 I decided to try to perfect the computation that had resulted in the theoretical value 206.768 283 for m_μ/m_e . Such a computation

should also yield the theoretical value of $1/\alpha$ — the first of the four “mystery numbers”.

In appendix B.10 titled *Zooming in on “137.036”* in *Book* [60] I tell about my failure. Also, I explain there that I had made an erroneous assumption which meant that my approach couldn’t work.

Finally, I refer in B.10 to a stand-alone article titled *How can “137.036” be calculated?* [46], where I try to explain how I think the “four mystery numbers” might be determined.

5 Solution (+)

Our planet has become too dangerous for our species to stay on. We have helped nature develop ever more devastating viruses and multiresistant bacteria and fungi. And our advanced technology has produced new instruments — such as drones, motes, and atom-sized nanomachines — that sooner or later will be used to ruin our civilization unless we change the course of evolution of the human species.

At present, we see our species rushing headlong toward a Third World War. We see how autocratic leaders, with sole goal of cementing their leadership, create imaginary threats used to justify an accelerating increase in the military capacity of their countries.

To an outside observer, our activities must appear bizarre. It has taken nature billions of years to produce humans — the only intelligent beings in the solar system. And we are hurriedly trying to commit collective suicide without ever reflecting on why we are here in the first place.

We know everything worth knowing about technology and the science of physics. We have plenty of evidence suggesting a maximally simple beginning of the universe and our history. Still, philosophizing physicists attribute a “God-particle” status to the Higgs boson — one of several auxiliary elementary particles that were needed in the creation of our present world.

After which they declare that it’s impossible even in principle to understand what happened at time $t = 0$. Their argument being “If it was possible to know the process leading to our present world, we would have discovered its details by now.”

In spite of having, in front of their eyes, overwhelming evidence hinting at a maximally simple beginning, cosmologists propose an infinity of maximally complex theories, all of them impossible to verify.

As a result, due to our ignorance of our beginning, no one has been able to correctly interpret our subsequent history. And no one has realized the mission that nature has assigned to intelligent species such as the human being: in a tenable way, continue to utilize energy radiated by the stars and transform it into waste heat.

Our hope is that the presently ongoing media revolution will result in a new type of printed Press devoted to spreading the truth and enlightening the world's population about the precarious situation of our civilization — the many threats against it — and what we must do to avoid the extinction of our species.

5.1 Self-sufficient biospheres in space

Nature's supreme Law has assigned a special mission to enlightened, technologically and scientifically advanced species: *continue to transform concentrated high-grade energy into waste heat after the stars have burned out.*

If we want to accomplish the mission assigned to us, we must take refuge far away from the sun when its transformation into a red giant makes the earth inhabitable.

We don't have to rely on solar radiation. The four outer planets — Jupiter, Saturn, Uranus, and Neptune — have a rock-metal core surrounded by layers of solid, liquid, and gaseous hydrogen and helium. They contain vast amounts of hydrogen that we right now are learning to convert into helium and electric energy in thermonuclear fusion reactors.

5.2 The International Space Station, ISS

The International Space Station was a success. It demonstrated that countries with different ideologies can cooperate, and people of various nationalities work together, in a project too big for any single country to carry through on its own.

Today, this project is coming to an end with nationalistic leaders starting a new arms race era on the earth and in space.

5.3 An International Ocean Station, IOS

Nearly unlimited amounts of cheap electric energy can be produced by giant floating wind farms placed on international waters in the trade-wind belts. The electricity may be used to produce hydrogen, which can be shipped in existing hydrogen-fueled tankers to harbors around the continents and used to power many existing machines and plants. With a massive effort on research and development, already existing methods of converting carbon dioxide and water to kerosene, gasoline, and diesel oil can be rapidly scaled up and used to replace fossil fuels with carbon-neutral fuels.

By locally utilizing the geothermal heat that is available everywhere right under our feet, we may turn both existing and newly built greenhouses into combinations of vacation paradises and rescue modules in which people can survive for thousands and even millions of years without being in contact with the outside world. Still, such isolated biospheres can't provide the final solution to our problems.

The only long-term solution to our problems is to construct self-supporting biospheres in space. But doing this will require time. Therefore, we should immediately begin to simulate such biospheres on earth, where the obvious

location for them is on international waters in the trade-wind belts of the oceans. There, an experimental biosphere may be designed to withstand any foreseeable natural catastrophe. Tsunamis and rising sea levels won't harm it. Even an extremely hot gamma flash wouldn't damage its subsurface parts shielded from radiation by many meters of sea water. Only a hit by a massive heavenly object in its immediate vicinity would destroy it.

But even such an event wouldn't stop the project, since there must not be just a single International Oceanic Station (IOS), but three of them: say one in the Atlantic Ocean, one in the Indian Ocean, and one in the Pacific Ocean. Naturally, all of them must closely cooperate with each other, continuously exchanging researchers and data between them.

The challenge will be the protection of the experimental biospheres from intentional human sabotage performed by enemy states, terrorists, suicidal sects, religious fundamentalists, or other groups wanting to stop the experiment. Compare with *subchapter 1.9* beginning on page 11.

6 Details (+)

Below, “*Book*” refers to physicsideas.com/stigsBook.pdf [60].

For some 300 years, enlightened people have been warning us of the consequences of our uncontrolled population explosion. But the influential leaders that control our commercial media have refused to listen — their motto being:

Truths that are bad for business must not be told.

We are now beginning to understand that the mission of intelligent species is not to expand, produce more complex life forms, and commit collective suicide, but to construct biospheres in which life can continue to flourish indefinitely — even long after the stars have burned out.

And we begin to realize that, to accomplish this long-term goal, we must make peace with the rest of the earth's wildlife and begin to withdraw from it — transform from invaders to observers.

The present enlightenment campaign (of which this text is a part) is but one in a long chain of attempts by enlightened people to inform the rest of humanity about where we are at present — that is, what critical stage in our evolution we have reached.

Our eyes are slowly opening. Hopefully we, participants in the present campaign in social media, can make the still sleeping majority of people wake up and see clearly.

It's in our genes. It's out of egoism that our primary wish is to save ourselves, our offspring, and our species and not so much to preserve life on earth, which inevitably will die out when the sun transforms into a red giant about 5000 million years from now — with the surface of the earth probably becoming

uninhabitable in about 800 million years because of rising temperatures caused by the sun’s increasing energy output.

Regardless, it’s time for us to proclaim cease-fire, make peace with the earth’s wildlife, and do the best we can to repair the damage we have caused it.

6.1 Fundamental facts of the beginning, 2

A crucial feature of the Fortran program [34] is the fact that it doesn’t contain any freely adjustable parameters. To me, this discovery came as a big surprise — it was definitely not something I could have anticipated when I began to develop the program.

If you are familiar with the Big-Bang hypothesis and its accompanying plethora of theories competing between themselves, you will certainly think that it isn’t even in theory possible to devise a model for the creation of elementary particles that lacks arbitrary assumptions in the form of freely adjustable parameters.

Well, the secret lies in the fact that time, t , is the only independent variable that appears in the simulation. As explained in *subchapter 3.3* on page 18, the universe’s build-up time, Δt , which equals the time t when the physical world appears, is taken to be the fundamental unit of time set equal to 1.

The obvious assumption is that the build-up time should equal the decay time, or lifetime τ , in which the oscillation dies out if time is allowed to reverse its direction and run backward.

Since the Law, which demands that energy is conserved, comes into force when the fully developed oscillation appears in the form of a physical universe, time is prevented from going backward, while the D particle’s lifetime τ remains equal to 1.

And the only natural assumption is that $\tau = 1$ continues to be the lifetime of the D particle’s offspring until they acquire spin and the lifetime of particle pairs increases.

For details about the evolution of the newborn universe, see the Fortran program [34] that simulates it, or alternatively appendix G of *Book* [60] where the program’s source code is listed.

01. Time, space, and motion make up the universe. That’s all!

This is a direct consequence of the well-known and in physics often applied rule called *Occam’s razor*, which says that one shouldn’t make more assumptions than necessary to describe things.

It turns out that all assumptions underlying the present theory follow from the principle of maximum simplicity (MxSP) — hence the theory’s name: the “maximally simple model (MxSM)”.

The most important aspect of MxSP is *Occam’s razor* — a rule based on centuries of experience.

For a discussion of MxSP and Occam’s razor, see *subchapter 7.1* on page 39.

02. *Energy is motion in space.*

Energy is perpetual motion, which *The Law* forbids from dying out, but which can change shape — as when an electron and an antielectron (that is, a positron) annihilate into massless radiation (photons): $e^- + e^+ \rightarrow \gamma + \gamma$.

03. *Time and space are continuous quantities.*

Assuming a grainy structure of time and space by introducing a *Planck time* and a *Planck length* is ruled out because it would violate Occam’s razor and the maximum simplicity principle MxSP.

04. *Space is described by the space equation.*

That the unobservable space is described by the *pressureless flow equation*, from which the *space equation* follows, means that it isn’t built from “points” or “molecules”. This fact implies, in turn, that there can’t exist any smallest definable length in space (so-called “Planck length”).

Similarly, there can’t exist any smallest definable time interval (so-called “Planck time”) because time is a continuous flow, directly related to the continuously ongoing creation of space and the accompanying expansion of the universe.

That is, time (or age) is exactly what we intuitively take it to be — a variable that is continuously increasing at a constant rate. In sum:

- Molecules, pressure, and heat do not exist in space.
- Space isn’t pixels — is not a coordinate system.
- Position is undefinable in empty space.
- So are distance and direction — north and south.
- Time is the continuous variable we intuitively take it to be.

05. *The space equation is a form of the general flow equation of physics.*

See appendix A.4 “The pressureless space equation” in *Book* [60].
Some consequences are:

06. *Space and the universe are forever expanding.*

This follows from the fact that energy creates space and thereby causes space and the universe to continuously expand at a rate that depends on the universe’s net energy content to which the energy hidden in black holes doesn’t contribute.

07. *The elementary particles are energy — space in motion.*

This is again a consequence of MxSP — the simplest possible explanation.

08. *You and I are built from elementary particles.*

There are no other alternatives.

09. *You, I, everyone, and everything abide by The Law.*

This must be so because there is but one law, and this *Law* governs everything that happens in the world. See subchapter 3.5 on page 20.

10. *In sum, a maximally simple model (MxSM) explains everything.*

11. *Still, MxSM is not the long sought-for theory of everything (TOE).*

See subchapter 7.2 on page 39.

My contribution to the *standard model*, *SM* of particle physics contains nothing new except for the easily verifiable description of how today’s elementary particles came into being.

It gives no details about the dynamic forces acting between elementary particles. It explains the existence of the gravitational force, but (to my understanding) doesn’t directly hint at its dynamic interactions.

See subchapter 7.2 on page 39.

6.2 Proofs, 2

For details about experimental observations providing evidence for the correctness of MxSM, see the following three subchapters:

6.2.1 The muon–electron mass ratio

For a discussion of the theoretical muon–electron mass ratio (m_μ/m_e) and its derivation, see subchapter 4.2 titled *When I hit the wall* on page 30.

For details about the derivation of m_μ/m_e , see the simulation program [34], or alternatively appendix G of *Book* [60] where its source code is listed.

6.2.2 The four “mystery” numbers

For an in-depth discussion of the four mystery numbers, see chapter 5 titled *The four Big Bs of cosmology* in *Book* [60]

6.2.3 April 2021 status of the muon $g - 2$ experiment

The ongoing experiment at Fermilab is a repetition of an experiment performed at Brookhaven National Laboratory during the years 1997 to 2001. For a detailed description of the BNL experiment and how its result should be interpreted, see subchapters A.22 *Observations of a light Higgs particle* and A.22.1 *The muon ($g - 2$) experiment* in appendix A of *Book* [60].

6.3 One World — One Law 2 (–)

Empty subchapter. Content to be added in an upcoming version.

7 Physics (+)

7.1 Maximum simplicity (MxSP) and Occam's razor

The maximally simple model (MxSM) of the universe rests on the maximum simplicity principle (MxSP). An aspect of MxSP is the well-known and in physics often applied *Occam's razor* — a rule based on centuries of experience, which says that one shouldn't make more assumptions than necessary to describe things.

Philosophers have been puzzled by the fact that the universe with its menagerie of elementary particles can be explained in mathematical terms. Why is it, they have asked, that the world isn't chaotic?

Unlike most theoretical physicists, who base their reasoning on philosophical speculations (cf. Albert Einstein vs Niels Bohr, etc.), I have managed to keep my feet steadily planted on earth.

Only after I had obtained the fundamentals of MxSM through stubborn mathematical experimentation with well-known physical equations, I realized that all my results could be traced back to a philosophical idea, which I refer to as the maximum simplicity principle (MxSP).

Common sense tells us that we should as long as possible adhere to MxSP. Therefore, the fact that today's Big-Bang based cosmological theories form a glaring exception to Occam's razor, means that they violate common sense.

For a discussion of MxSP, my abbreviation of a concept that James Bjorken and Sidney Drell introduced in 1965 and coined the *principle of maximum simplicity*, see *Book* [60] and look up "MxSP" in its Index.

7.2 TOE's missing piece: The quantum theory of gravity

MxSM is an extension of the standard model (SM) of particle physics. It doesn't conflict with the standard model in any way, but supports the basic interpretation of SM. That is, it supports SM's description of the well-known electromagnetic, strong, and weak interactions between elementary particles — forces that are mediated by ordinary photons, 8 types of gluons, and the weakly interacting so-called gauge bosons Z and W , respectively.

Ever since Albert Einstein introduced his dynamical theory for the gravitational force between massive and massless (photons) bodies, physicists have been well aware of the fact that the "classical" general theory of relativity (GR) is incompatible with quantum field theory (QFT).

MxSM does not (to my understanding) say anything about what a quantum-theoretical dynamic theory of gravity should be like.

Is the force of gravity, like the three much stronger and well-known forces, mediated by a so-called gauge particle, the graviton g , or isn't it?

Maybe theorists have already resolved the question? That's the impression I get when I read Claudia de Rham's article *The weight of gravity — Rethinking the most mysterious force in the universe* [63].

Now, supposing that the graviton exists and possesses an imperceptibly small rest mass, shouldn't one assume that its rest mass changes over time since the gravitational force changes over time?

7.3 Black holes and time travel

MxSM doesn't say what the final dynamic theory of gravity should be like. But it says that the general theory of relativity (GR) doesn't apply to very compact objects. In particular, it invalidates the conclusion drawn from GR that infinitely small and dense so-called singularities exist in the physical world.

This means that black holes are exactly what common sense says they should be: "deep-frozen" worlds in which time has come to a standstill. Places where particles have ceased to interact with each other and are preserved for very long times.

Consider the earth — the planet on which we live. The gravitational force exerted by the earth on objects (e.g., people, airplanes, satellites) decreases with increasing height above the surface. Similarly, it decreases with depth, becoming zero at the center of the planet.

A feature of gravity is the so-called time dilation. This means that, seen from the surface of the earth, a clock placed on a satellite in free fall in the planet's gravitational field ticks slower than the clock of the observer. This is a well-known effect predicted by GR, which all satellite-dependent global positioning systems (such as GPS) have to constantly correct for.

Similarly, seen from the earth, the clock of the crew onboard the International Space Station (ISS) ticks slower than earthbound clocks.

Now replace the earth with a black hole — a "planet" so massive and dense that nothing, not even massless photons moving with the speed of light are able to escape from its surface. Also, replace ISS with a spacecraft heading toward the black hole.

Looking through a telescope, a distant observer sees the crew's clock tick slower and slower, and the spaceship move toward the black hole at a forever decelerating speed. That is, the observer will never see the ship "land" on the black hole — but will see it disappear from sight under later arriving particles which make the black hole grow in size.

The captain of the spacecraft heading toward the black hole sees the course of events very differently: the speed of the craft constantly accelerates until it crash-lands on the surface of the "hole" and is crushed into maximally small pieces: elementary particles. (Or will the composite protons and neutrons survive the crash?)

Seen by us, time has come to a standstill inside the black hole, which means that nothing happens to the objects that have landed on its surface and become buried in it.

To an outside observer, the breaking up of the spaceship takes place in a distant future when it is released from the black hole in one way or another.

In conclusion, landing alive on a giant black hole is in principle not a problem. If the black hole is big enough, human beings and the spacecraft they travel in

will not be torn into pieces by the variation in the gravitational force that increases as they approach the event horizon.

But escaping alive from a black hole isn't possible. Every composite object in it will in the black hole's final explosion — or released in an encounter with another black hole — be crushed into small pieces.

There is also another problem: It's impossible to know beforehand if the stay in a deepfrozen timeless state will last a relatively short time (maybe only a few billion years), last a practical infinity (stretch over an unimaginably long time span), or last forever (supposing there will be black holes existing in mathematical infinity — possessing a mass that grows fast enough to compensate for the never-ending decrease in the strength of the gravitational force, and thereby for all time maintain the relation $M > \sqrt{\hbar c/G}$ between the Planck mass M and the gravitational constant G).

See *Book* [60], appendix B.5 *The black holes take command*.

7.4 Four unexplained mysteries

7.4.1 The dismissal of the D particle

It's understandable that physicists first wanted to see if the D particle could be incorporated in their stew of elementary particles. Which it couldn't, since — as Dirac pointed out [35] — it can't exist in the presence of the electromagnetic field.

Doomed to exist in solitude and — according to Dirac — describing a *relativistic harmonic oscillator*, it's the perfect candidate for the primordial particle that common sense tells us must have decayed and given rise to a chain reaction that created all presently existing elementary particles.

It's a general rule of physics that unstable particles in chain reactions, via a series of maximally short quantum leaps, produce two or more daughter particles. An illustrative example is given in appendix A.1 of *Book* [60] (page 209), which describes how the unstable uranium-235 nucleus transforms into 16 particles through 11 quantum leaps.

7.4.2 The undiscovered pressureless space equation

In 1993, I began relearning physics from scratch by plowing through Georg Joos' 885-page monumental work *Theoretical Physics* [9], a book that was first published in 1934, with its third edition (the one I have) published in 1958.

The book is self-contained. Joos begins by summarizing the mathematics needed to understand the physics part — math I had forgotten along with my knowledge of physics.

Even if Joos had the ambition to present all essential information about theoretical classical physics in his book, one detail is missing. It's a piece of information that is needed in the derivation of the *space equation* described in appendix A.4 titled *The pressureless space equation* in *Book* [60].

When I began my academic studies in 1959, we used Joos' work as an introductory textbook in classical physics. But, as it happened, we didn't learn thermodynamics from it, but from Arnold Sommerfeld's textbook *Thermodynamics and Statistical Mechanics* [55]. And Sommerfeld's book contained the piece of information without which I couldn't have derived the *pressureless space equation* (A.23) presented in appendix A.4:

$$\rho = \rho_0 \left(1 - \frac{1}{f} \frac{v^2}{v_0^2} \right)^{f/2}.$$

For details about the derivation of the equation (A.23), see appendix A.4. For discussion of its consequences, see appendices A.4, A.5, and A.6 as well as the one-page summary A.7 *What the flow equation reveals about nature in Book* [60].

Now, this retrospective account explains how I managed to find the equation I was looking for, while it was impossible to find for students who only read Joos' book.

Still, since all necessary pieces were known, it's to me a mystery that evidently no theoretical physicists had discovered the *space equation* and made it known to the physics collective.

7.4.3 The surprising end of Dan Brown's best-seller

In January 2020, when I was putting the finishing touches on the ad I intended to place in *The New York Times*, I read in parallel Dan Brown's best-seller "Origin".

I was surprised to find that the scientists presented at the end of book had come to the same conclusion that follows from the maximally simple model (MxSM). That is, aiming to constantly increase the earth's consumption of high-grade solar energy, the laws of physics forced life to emerge from lifeless matter, and the lifeforms to develop into ever more advanced species.

Today, in the 2000s, we have seen how *Homo sapiens* has developed into a hybrid species — a fusion of biology and technology — that rapidly makes itself unable to exist without the use of highly advanced technology.

However, a question remained after I had put away the book. A question that still remains in the form of an unexplained mystery:

Can it really be that the scientists with whom Dan Brown discussed physics in his research for the book were totally unaware of the results presented by Eric Schneider and James Kay in the early 1990s?

This must be the case, unless the scientists kept silent about their knowledge, or unless Dan Brown for some obscure reason wanted to hide scientific facts from his readers.

Proof: In the book a professor of quantum biology states that "this theory is not *proven*, it's just an idea." "Although, I admit, if we can ever prove that it's true, the implications are far-reaching."

And a little later: “I believe life not only *obeys* the laws of physics, but that life *began* because of those laws.” After which the book’s main character thought: “*If ever this theory could be proven, it would have a bombshell effect on the world.*”

Whatever the answer to the question is, I hope it will be revealed by somebody joining the *Space, universe, and history & future of humankind (MxSM)* Facebook group.

7.4.4 The mother of all mistakes: quantized space

The mystery, which I find most difficult to understand, is why physicists never question the assumption of “grainy” space.

On my shelf, I have many books on physics and from physics inseparable philosophy. One book that I haven’t studied is Max Jammer’s classic “Concepts of Space”.

The book has the subtitle “The history of Theories of Space in Physics”, and was first published in 1954 with a foreword by Albert Einstein.

The author revised his book in 1982, and published its third enlarged edition (the one I have) in 1993.

A cursory glance at the book indicates that no philosopher has put forward the idea that space might be maximally simple, an idea suggested by the widely applied principle of maximum simplicity, MxSP, in the form of Occam’s razor.

How is it possible that theoretical physicists never questioned the — in retrospect bizarre — assumption that physical space is analogous with mathematical space? That it is a coordinate system with coordinate points similar to the molecules of water or other fluids, although much smaller, of *Planck length* dimensions?

Why introduce weird invisible objects of unknown shape and properties when the so often applied principle of maximum simplicity, MxSP, in the form of Occam’s razor says that a grainless, molecule-free — and therefore coordinate-free and pointless — space should naturally be the first assumption made by philosophers and theoretical physicists?

To my understanding, this mistake must be rare among intelligent species in the universe.

8 A tenable future for the human species (–)

Empty chapter. Content to be added in an upcoming version.

8.1 Cooperating self-supporting biospheres

8.2 A united human civilization

8.3 Money–energy equivalence

8.4 Wikipedia documentation

8.4.1 Minitech backup: cash, crystal receivers, etc.

8.4.2 Miditech backup: the PC of 1985, etc.

8.4.3 Maxitech for simulating futuristic scenarios, etc.

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