

Lessons taught by the 2020 Corona pandemic  
What will we learn?

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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. 7

**Note 1.** Numbers in margin refer to page.

**Note 2.** The references up to [54] are the same as in *Book* [57].

## 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

$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 1024$ , 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 during 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 during 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 [58] 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 BNP [59], which is what we obediently are trying to do, ignoring the precautionary principle that our intelligence in vane 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* [56] — 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*.

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### 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 homogenous 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 first task of the global paper should be to tell the world about two obvious ways of avoiding a climate catastrophe by producing cheap energy replacing the presently used fossil gas and oil:

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* [57].

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.

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.

### 2.3 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. Also valuable lessons may be learned from previous experiments with closed biospheres, such as Biosphere 2 [55] — 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 electrodollar equivalent to one kilowatthour (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.

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- [59] Errata: In Ref. [58] point 16, next to last line, change 'BNP' to 'GNP' (short for Gross National Product).

