

# **From ‘Smart Planet’ to Sacred Earth: Technology and the Resacralization of Nature and the Human Being**

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## ***THE FRAGRANCE THAT DRAWS IN SPIRIT***

We light the Temenos candle at the beginning of our lectures in order to dedicate our meeting to the service of spirit, and to invite spirit in to this place at this particular time, which is actually the eve of Michaelmas – the festival dedicated to the Archangel Michael. It is Michael whose spiritual support is so much needed by us at this time, helping us to counteract faint-heartedness and fear, and turning towards us the divine-human countenance.

I am very grateful to the Temenos Academy for making the effort to enable our meeting tonight to take place, when so many other educational organisations have abandoned real meetings, in favour of communicating through electronic interfaces such as webcasts and Zoom. This is the first Temenos public lecture for many months, due to the restrictions imposed by the Government, and it seems entirely appropriate that it should be held on Michaelmas eve.

It is also appropriate that we are having a real meeting tonight, rather than a virtual one, because the topic I want to address this evening is the intrinsic sanctity of what lives in place and time. Place and time are the natural constraints that all human beings are subject to: they define the limitations of our physical incarnation. But it is precisely through the constraints of being in a particular place at a particular moment in time that we are able to form a receptacle for spirit. Without the physical receptacle, Spirit has no container, and wanders the world homeless. We should therefore think of place and time as the essential preconditions for the creation of a home for spirit on Earth.

One of the reasons for the popularity of electronic media is that they override these natural limitations and collapse the physical receptacle. People who are geographically distant from each other can be brought together through webcasts and webinars, but it is necessary to ask what is missing when we communicate with each other in this way. Just how “together” can we in fact be when the electronic interface is not, and cannot be, a truly *shared* space? Although we may be virtually present to each other, we are physically *absent* from each other. We may be electronically “connected”, but we are physically disconnected. The electronic interface both allows us to meet and at the same time cuts us off from each other, for it stands between us and disallows a more subtle experience of relatedness that is intrinsic to physical presence. We therefore need to attend very carefully to what can and cannot happen when there is an electronic intermediary between us, because it is the quality of what lives between us when we meet physically that creates the atmosphere that is like a fragrance that can draw spirit in.

If we are not able to recognise that there is any qualitative difference between a real meeting and a virtual meeting, and likewise between an electronically mediated “experience” of nature and the actual experience of being in the physical-spiritual reality of a forest or garden, then it seems to me we are lost. We are lost because we have lost our connection with the foundations of our existence on Earth, and the intimate relationship between spirit and the conditions of physical existence. For what is left out of the

electronically mediated experience is everything to do with *living presence*, with the forces of life and the possibility of spirit entering into our spatial and temporal reality.

### ***NATURE, PLACE AND TIME***

Today, as we witness the catastrophic decline of natural habitats and the very real threat of extinction to an untold number of species of plants and animals, our relationship to place and time should be of paramount concern to us. Place and time are the fundamental prerequisites of life on Earth, we must fully stand within them if we are to heal our relationship to nature. To the extent that our electronic technologies remove us from place and time, they also remove us from relationship to nature. We may love to watch nature programmes on TV, and even feel that we are able to experience nature more fully this way, because we are granted privileged access to the hidden lives of tigers or monkeys, otters or hedgehogs. But if we really attend to the quality of this electronically mediated experience, how can we not notice that it is essentially different from the direct experience we have when we ourselves encounter these same creatures *in* the forest, *by* the river or under a pile of leaves? We cannot say that we are genuinely experiencing nature if we are sitting in front of a television or computer screen watching a programme *about* nature. And the so-called “immersive experience” made possible by VR (Virtual Reality) technology does not alter this fact. Precisely because the creatures are physically absent from us, and we are absent from their world, our experience is necessarily diminished.

One of the gravest underlying problems we face today is that we have lost the *feeling of really belonging* to nature. For all the hand-wringing over the plight of nature, the reality for most people is that nature forms a kind of background to their lives. It is like the stage on which we act out our human dramas. This is one of the reasons why it is so hard for people to address the ecological catastrophe that is now unfolding at such a frighteningly quick pace. We may know at an intellectual level that we belong to nature, but for many people today, especially those who spend a lot of their waking hours online or otherwise engaged with electronic media, the *feeling* of connectedness to Nature is almost impossible to fully bring to consciousness. Many people now feel more connected to the digital world, because it has become the locus of their lives, and consumes most of their time. The current coronavirus pandemic has massively increased this tendency to live one’s life through digital media. *The Wall Street Journal* reported in August of this year that the average U.S. adult is now spending just over sixteen hours a day engaged with digital media.<sup>1</sup> Is that really possible? Have we really come to this point that practically all of a human being’s waking life is spent engaged with digital media? Even if this figure is exaggerated, it is a clear indication of the current direction of travel, in which nature recedes ever further into the background of our lives.

What underlies this growing dissociation from the natural world is that the modern conception of nature has been overshadowed by the Darwinian view that the two main factors responsible for the origin of species are meaningless random mutations combined with the mechanism of natural selection, and this has led to a sense of alienation that did not exist in the pre-modern world. Then a religious worldview held sway, in which nature was beheld as a manifestation of a higher, divine intelligence. But Darwinism made it possible to explain the extraordinary diversity of species and their complex interactions without appealing to any higher guiding intelligence. We don’t have to have read Darwin in order for the coldness of this view to have seeped into our life of feeling. We have all been brought up with it, and for most people it has become an unquestioned assumption. But this assumption undermines our ability to perceive nature as manifesting any intrinsic purposefulness or intelligence: indeed, to assume such intelligence within nature would be to put ourselves at odds with the current scientific worldview.

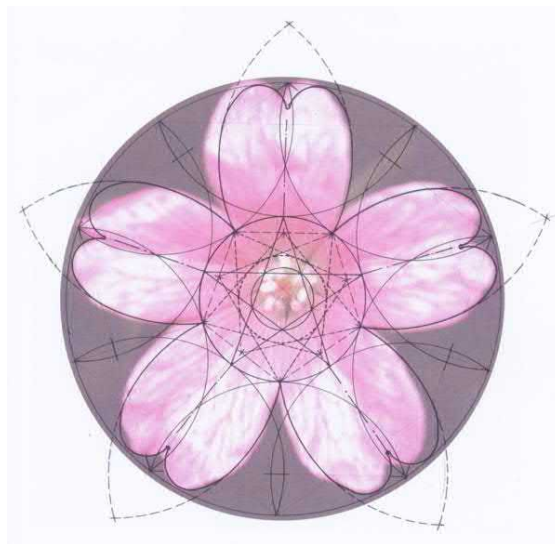
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<sup>1</sup> Michael J. Wolf, “How Covid-19 Has Transformed the Amount of Time We Spend Online”, *The Wall Street Journal*, August 7<sup>th</sup>, 2020.

And yet anyone awake to what is stirring within their own souls, if they but attend to how nature speaks to them, cannot but feel what mighty powers are active within Creation. When we have been through such a Summer as this one, if we experienced it with our senses alert, how could we not have recognised an underlying intelligence at work everywhere within the world? There is so much beauty, so much imagination, and so much wisdom, on display. Just consider the pristine beauty of all the different kinds of flower, which miraculously conform themselves to regular geometrical patterns. How can we really believe, at the bottom of our hearts, that this is somehow an arbitrary product of chance? Our much loved, recently departed Professor Keith Critchlow wrote a whole book on the hidden geometry of flowers, demonstrating over and over again the fidelity of the plant kingdom to the principles of geometry.<sup>2</sup> Consider the little geranium with its five-petalled flower (figs.1 and 2). How does it manage to embody this geometrical pattern? If this is the product of random mutation and natural selection, then we must surely marvel that randomness combined with the survival imperative alone are able to produce such order and beauty in nature.



*Figure 1: Geranium x oxonianum. Author's photo.*



*Figure 2: The pentagonal geometry of the geranium.<sup>3</sup>*

<sup>2</sup> Keith Critchlow, *The Hidden Geometry of Flowers: Living Rhythms, Form and Number* (Edinburgh: Floris Books, 2011).

<sup>3</sup> Drawing by Keith Critchlow, *Ibid.*, p.233.

Our spontaneous sense of wonder has been numbed by an ideology that does not do justice to our experience. If we experience a boundless creativity in nature, as if the divine is at play – joyfully producing an endless variety of forms – then this surely should arouse our wonder, and should be honoured and celebrated. In previous ages people were not so hampered by the suppressive effects of materialistic ideologies on their spontaneous knowing. Writing in the sixteenth century, Paracelsus observed:

“The world is a product of the imagination of the universal mind.”<sup>4</sup>

Not only does Paracelsus acknowledge the activity of a “universal mind”, but with the word “imagination” he directs us to a soul-quality at work in nature that is both inventive and creatively potent.

As well as intelligence and imagination, we also meet wisdom in nature. Consider the amazing variety of ways in which the seeds of plants are distributed, some borne on the wind, some wrapped in a juicy fruit that will attract a bird, some encased in a shell, others in a burr that hooks itself to the flank of a passing animal, and so gets transported far and wide. How do plants know how to do all this? Since they are deaf, dumb and blind, how do they know how to create a burr that will hook itself to the fur of a fox or the wool of a sheep? The variety of means of seed distribution in plants is alone enough to open our eyes to the mutually supportive, symbiotic harmony in nature that speaks of an innate wisdom that governs the relationships of different creatures within a greater whole.

In the pre-modern sensibility, people were able freely to recognise (without the embarrassment that plagues modern secular consciousness) this deep creative intelligence and wisdom within nature. Its source was understood in religious terms as divine. Thomas Aquinas, writing in the thirteenth century, for example, stated:

“The whole world is nothing else than a certain representation of the divine wisdom conceived within the mind of the Father.”<sup>5</sup>

Aquinas is here stating that the divine wisdom is *re-presented* to us in and through the natural world. Therefore, through the contemplation of nature we have the possibility of directly experiencing this divine wisdom that springs from the “mind of the Father”.

### ***NATURA NATURANS AND NATURA NATURATA***

Another statement, which comes from the School of Chartres, can help us to envisage the relationship of the spiritual level (within the divine mind) to the physical. It was made by William of Conches a century earlier than Thomas Aquinas. William said:

“As a stream is to a fountain, all things are from the divine mind.”<sup>6</sup>

For William, everything we see in nature is an outpouring from this divine fountain. We can feel this quality of outpouring especially in the Spring, when we experience the amazing unfolding of living forms seemingly from out of the light itself, which illumines the world with such purity, as in the Spring garden portrayed in Figure 3. In Springtime one can feel that within nature there is a *different order of being* that is active but not perceptible to the senses: what unfolds before our eyes is the product of a creative activity that lies beyond our immediate sense experience. This is the creative activity of the world of spirit. It is as if nature in Springtime becomes transparent to the spiritual world.

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<sup>4</sup> Paracelsus, *De Virtute Imaginativa* (“the power of imagination”) in Hartmann, *Paracelsus: Life and Prophecies*, p.109

<sup>5</sup> Thomas Aquinas, *Commentary on the Gospel of St John*, 3 vols. translated by Fabian Larcher and James A. Weisepf, (Washington DC: Catholic University of America Press, 2010), 1, 5, §136.

<sup>6</sup> William of Conches (12<sup>th</sup> century), *Glossae Super Platonem* quoted in Peter Ellard, *The Sacred Cosmos* (Scranton and London: University of Scranton Press: 2007), p.94.

If you were to ask a medieval philosopher-theologian “What is nature?” they would most likely tell you that we cannot understand what nature is if we exclude this divine creative activity that gives rise to the manifold forms we see around us. The distinction was commonly made from around the thirteenth century onwards between *Natura naturans* and *Natura naturata*, about which our distinguished Chair this evening has so eloquently written.<sup>7</sup>



*Figure 3: The garden in Spring. Author’s photo.*

*Natura naturans* is nature as form-producing creative activity, and *Natura naturata* is nature as product of this form-producing creative activity. The concept of nature, then, extends beyond what we perceive with our senses to encompass supersensible creative energies which give rise to what we perceive. In other words, behind the perceptible world of manifest forms there is an imperceptible (at least by the senses) world of spiritual powers and forces. This is the basis of a theophanic conception of nature – the conception of nature as manifesting the divine. If we take this view of nature seriously, as people did in pre-modern times, then we cannot be content to regard Nature merely as the background or stage on which we live out our human dramas. Nor can we regard Nature as just a kind of repository of resources that are there for us to plunder without conscience.

Our whole relationship to nature has to change: it becomes ruled by *conscience*, and also by *feelings of reverence*, because nature is understood to be the matrix or receptacle within which divinity becomes manifest. If we hold such a view of nature, not as an intellectual stance but as a lived experience, we can then come to feel that we human beings are not separate from this spirit-infused nature. We belong to this living world in which mighty spiritual powers are active, and which is not just the “background” of our online lives but the *very ground of our existence*.

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<sup>7</sup> John Carey, “Natura, a Goddess of Medieval Christendom”, *Temenos Academy Review* 22 (2019), pp.43-64.

The Bengali poet, Rabindrinath Tagore, deeply felt this innate sense of belonging as a vivid existential experience of participation in nature. In one of his many poems, Tagore memorably wrote:

“The same stream of life that runs through my veins night and day runs through the world.”<sup>8</sup>

If we take what Tagore expresses to heart, and if we feel that he is uttering a profound truth to which we too must assent, then this leads to the following thought: if we cut ourselves off from nature, then we cut ourselves off from the source of life, which issues from the world of spirit. We cut ourselves off from the very ground of being, to which we intrinsically, *existentially*, belong. And the more we cut ourselves off, the more we bring death upon ourselves. Not just on the biological level, but on the spiritual level as well. We bring spiritual death upon ourselves.

It is with this thought that we need to approach the project to create a “Smart Planet”.

## ***SMART PLANET***

The idea of the Smart Planet crystallised during the first decade of the 21st century, when big tech companies like IBM, Microsoft and Advantech made it their policy to spread the computer network into the physical environment. They saw that the Internet itself could be expanded beyond the network of dedicated computers and could connect *things* in the environment, using barcodes, radiofrequency identity tags, sensors, and microchips embedded in devices (like smart doorbells, smart fridges, etc.), so as to endow them with a degree of autonomous functionality. One microchip the size of a grain of rice can be engraved with millions of transistors (i.e. switches for electronic signals), enabling it to process a huge amount of data. What that means is that smart devices with microchips inserted into them acquire a certain kind of “intelligence”, understood as an ability to process data.

The planet becomes “smart” when the wireless network of interconnected things becomes global in extent. By harnessing more and more things to the Internet, the whole planet is turned into a vast computer-network. So instead of computers being outside us, we come to live *inside* a planet-sized computer, an artificial brain of global proportions. Nikola Tesla predicted this eventuality in an interview published in 1926, in which he stated:

“When wireless is perfectly applied, the whole Earth will be converted into a huge brain.”<sup>9</sup>

The global brain comes into existence through an artificial neural network spreading throughout the world, but what Tesla understood was that the global brain would only be fully developed when it operated through wireless connections. In effect this requires the formation of what is now referred to as a global “electronic ecosystem”, with a massive infrastructure interpenetrating the natural ecosystems of the Earth. We shall return to this shortly. For now, it is necessary simply to grasp the fact that the project of creating a global brain and making the planet “smart” is premised on as many things as possible being translated into computable data, and/or being invested with the ability to autonomously compute data.

The reason why big tech companies made it their policy to pursue this aim is that if all their products became linked to the Internet, then they would be able to feed back information to the companies that produced them, and this information could be analysed and used to increase future sales and profits. It is important to realise that everything prefixed by the word “smart” (or “Internet-enabled”) feeds back information to the company that produced it. So when everyday appliances become “smart”, they are no longer fully yours, because they are constantly sending back information about you to the company. This applies to your smart meter, which sends back information to your energy supplier, just as much as it applies to your smart phone, your smart TV, your smart fridge and so on. There are even smart mattresses that monitor your sleep patterns, and smart clothes with embedded microchips or silicon threads woven

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<sup>8</sup> Rabindrinath Tagore, *Gitanjali*, 69, in Rabindrinath Tagore, *Collected Poems and Plays* (London: Macmillan, 1936), p.33.

<sup>9</sup> Nikola Tesla, interview in *Colliers* magazine, January 30<sup>th</sup>, 1926.

into the fabric.<sup>10</sup> All these smart objects are at the same time surveilling your use of them on behalf of the company from which you bought them.

Through what is called “predictive analytics”, companies can take the information gathered from your smart devices and not only predict your future behaviour but also attempt to modify it using advertisements and discounts, and through their ever-changing “terms and conditions”. Shoshana Zuboff has explained in detail how this works in her book *The Age of Surveillance Capitalism*.<sup>11</sup> And it is not just companies but it is also governments that can use this information to increase control over the behaviour of their citizens. Consider how the Coronavirus pandemic has provided governments all over the world with the perfect pretext to deploy the smart phone as a surveillance tool for tracking and tracing the population.

The next phase of smart technology is wearable technology: the smart watch has grown in popularity over recent years, but smart glasses will be more revolutionary. With the computer housed in the arm of the glasses, and the glass itself doubling as a computer screen, enabling virtual content to be overlaid on what we are seeing, smart glasses directly impact our perception of the world. Thus, a maize farmer who has downloaded the requisite app is able to perceive exactly how many kernels are on a sweetcorn cob, because the app is able to count them in a flash and display the number of kernels before his very eyes (fig. 4). You could say that his perception of the sweetcorn cob is thereby enhanced, for does he not see it much more precisely? If he looks at the actual sweetcorn cob he can only make a rough estimate of how many kernels it contains, whereas if he looks at the virtual overlay he can get an exact readout.



*Figure 4: Farmer, sweetcorn and virtual sweetcorn.*<sup>12</sup>

But is his cognition enhanced by being reduced to a quantifying look? Is he not bypassing the actual cob in order to focus entirely on a digital simulation? This example shows that not only is our direct perception of what is sense-perceptible usurped by data streams but so too is our direct relationship with

<sup>10</sup> For example, the smart jacket made by Google and Levi in collaboration, enables you to connect through hand movements (swiping and tapping) to your smartphone, so your clothes become an extension of your computer. But it also feeds back to Google exactly where and how often you wear your jacket.

<sup>11</sup> Shoshana Zuboff, *The Age of Surveillance Capitalism* (New York: Public Affairs, 2018).

<sup>12</sup> Photo source: [https:// glassalmanac.com/intelliscout-farming-app-google-glass/5895/](https://glassalmanac.com/intelliscout-farming-app-google-glass/5895/)

what is living in nature. Our attention is diverted away from the imperceptible, life-giving forces of *Natura naturans* to the digital representation, which is no longer in real space or time. Instead, the farmer's gaze is directed towards the imperceptible *monetisable units* to which the sweetcorn has been reduced.

The translation of physical things into computable data in this way has been justified in a report by IBM, which explains that by representing physical assets digitally they can more readily be assimilated into the online marketplace: in other words they can more easily be monetised.<sup>13</sup> The report calls this “*the liquification of the physical world*”, where “liquification” is to be understood as dissolving the world into “liquid” financial assets. We would surely be naïve to expect any other motive to be pursued by a company such as IBM. The whole purpose of the Internet of Things is to dissolve everything into monetised data streams, in order to enable the maximisation of profits.

To return to the smart farmer, we must imagine that he rarely needs to venture beyond his office where he sits for most of the working day in front of his computer monitoring conditions on the farm. His fields are covered with sensors that feed back information to him about soil conditions, temperature, the weather, and the health of his crops and animals (with embedded microchips that send back data to him wirelessly). His workforce consists of autonomous, self-driving tractors that plough and sow the fields, drones that monitor and spray crops, and robots (such as those pictured in Figure 5), that weed and harvest the maize.



*Figure 5: Robots on a farm in the USA weeding the maize crop.<sup>14</sup>*

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<sup>13</sup> Veena Pureswaran and Robin Lougee, *The Economy of Things* (IBM Institute for Business Value, 2015).

<sup>14</sup> Photo source: <https://realagriculture.com/2011/03/london-farm-show-halex-gt-is-apparently-not-just-a-fancy-weed-picking-robot/>



Across the globe, billions of sensors are now being inserted into the soil, to measure moisture content, temperature, humidity, light, sound, motion and so on, thereby translating conditions pertaining to the natural ecosystem into electrical signals that can be converted into binary code, which can in turn be processed by computers. In this way, the global brain acquires “senses”, which enable it to monitor the Earth more effectively as natural habitats are destroyed, forests cut down and species wiped out, all the while looking for where “liquification” of the world’s resources into profits can best be achieved.

Big tech companies like Google and Microsoft, realising that it is better PR to talk less about profit maximisation than to talk about ecology, now argue that a Smart Planet is a much more ecologically sustainable planet. In a recent video, Lucas Joppa, the Chief Environmental Officer of Microsoft, had this to say about the current ecological crisis:

“[the ecological crisis] represents the world’s biggest data challenges, the world’s biggest compute challenges, and the world’s biggest algorithmic challenges. And that’s why we need solutions like Artificial Intelligence, that are capable of being deployed at a planetary scale.”<sup>15</sup>

Joppa’s assumption is that the ecological catastrophe we are now living through is a problem like any other technical problem, and with more data, more computational power, and more algorithms, it can be “solved”. His view is that because of the complexity and global extent of this problem, we have to accept that human intelligence alone is not enough to solve it. But thanks to the exponential increase of computing power, we can render the natural world into computable data, apply Artificial Intelligence to it, and trust that Artificial Intelligence will provide the solutions that will save us. Indeed, the more the Earth can be incorporated into the global computer network, the more chance we have of arriving at the supposed solutions to our ecological problems. But is the ecological catastrophe really a problem like any other technical problem, and therefore susceptible to so-called solutions generated by computer programmes?

Before answering that question, there is one thing further that we need to take on board. In order for the planet to be made “smart”, it is necessary to have more than just computing power and manifold smart devices, sensors and data streams. It is also necessary to put in place a massive wired and wireless infrastructure that enables the whole system to work. As I mentioned earlier, this underpins the “electronic ecosystem”, which is of course parasitic upon the Earth’s ecosystems.

## ***THE ELECTRONIC INFRASTRUCTURE***

The electronic ecosystem has been slowly forming ever since the electric telegraph first began to be used widely in the 1840s. It was followed by radio telegraphy in the 1890s shortly after the discovery of radio waves. Radio broadcasting became established in the 1920s, television in the 1950s, the first compact mobile phones in the 1980s and smartphones in the 2000s. Each of these developments in wireless communication required the erection of masts and antennae for transmission and reception. While our attention is naturally drawn to what is physically perceptible, it must be remembered that the physical infrastructure of masts and aerials that transmit and receive communications creates imperceptible electromagnetic fields in the atmosphere we breathe and within which we live. Our atmosphere is now thoroughly permeated by artificially generated electromagnetic fields. This means the actual conditions of daily life have radically changed since the early nineteenth century, before radio, television and mobile phones existed.

With the constant upgrading of our wireless technologies, the second generation of wireless communication networks supporting mobile phones (2G) gave way to a third and a fourth generation

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<sup>15</sup> Lucas Joppa in *The Future from an Alternative Perspective*, <https://innovation.microsoft.com/en-us/planetary-computer>.

supporting smartphones (3G and 4G) and now we have the rollout of 5G. In due course there will be a 6G and a 7G, and so it will go on. With each upgrade the radio frequencies that are used for communication tend to get higher, which means that their wavelengths get shorter and shorter. The physical infrastructure of 5G will use “small cell” transceivers with micro antennae, attached to lamp posts and the sides of buildings. Because the frequencies are higher and the wavelengths shorter, many more transceivers are required: in the UK alone 13 million are projected to be installed by 2025. The small cells will transmit and receive at millimetre wave frequencies, using high frequency beam-forming technology that shoots out highly focused rays both to increase the range and the penetrability of the rays. This is in contrast to previous generations of phone masts that broadcast radiation in all directions, so a new layer of complexity will be added to the already complex mix of electromagnetic fields. This is because 5G will be added to, rather than replace, the existing wireless infrastructure. On the one hand we shall continue to live within an environment permeated by a blanket of radiation utilising a wide range of modulated microwave frequencies, and on the other hand the new wireless network will send focused laser-like beams through this radiation blanket. This has been described as a “blankets and bullets” approach.<sup>16</sup> Meanwhile, a vast network of fibre optic cables under the earth, and data centres above ground, forms the substratum of the electronic ecosystem, which is projected to consume one fifth of global electricity by 2025.<sup>17</sup>

While there has been a great deal of public concern over the rollout of 5G, it is not as if 2G, 3G and 4G are innocent and harmless. There are numerous scientific studies that demonstrate that the radiofrequency radiation which these earlier generations use has adverse biological effects on living organisms, including human beings. These adverse effects include compromising the immune system, inducing cancers, and causing infertility, heart disease, and Alzheimer’s disease. The creation of the electronic ecosystem is clearly making the conditions within the natural ecosystem ever more hostile to life. Not just to human life but to the life of birds, mammals, amphibians, insects and plants – all are affected.<sup>18</sup>

In addition to the terrestrial infrastructure, large constellations of satellites are being created to orbit beyond the blue of the sky above us, in the darkness of outer space. While at the moment there are about 3000 functioning satellites in orbit around the planet, this is due to increase to more than 100,000 satellites circling the Earth by the end of this decade, with two main companies responsible for most of them – SpaceX and One Web.<sup>19</sup> Twice a month, Elon Musk’s rocket company SpaceX sends another rocket up into space usually with about sixty satellites on board. This afternoon, a further 60 satellites were supposed to have been launched, but the launch was aborted at the last minute. No doubt it will take place in a few days’ time.<sup>20</sup> It will bring the constellation of satellites in orbit to 773, over half way to fulfilling the aim of an operational constellation (called “Starlink”) of 1440 satellites orbiting at a height of 550 km (340 miles). In future, further constellations will be established, one with an orbit considerably higher than this, and another one a little lower.

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<sup>16</sup> Arthus Firstenberg, “5G– From Blankets to Bullets” *Cellular Phone Task Force* January 17, 2018. <https://cellphonetaskforce.org/5g-from-blankets-to-bullets/>

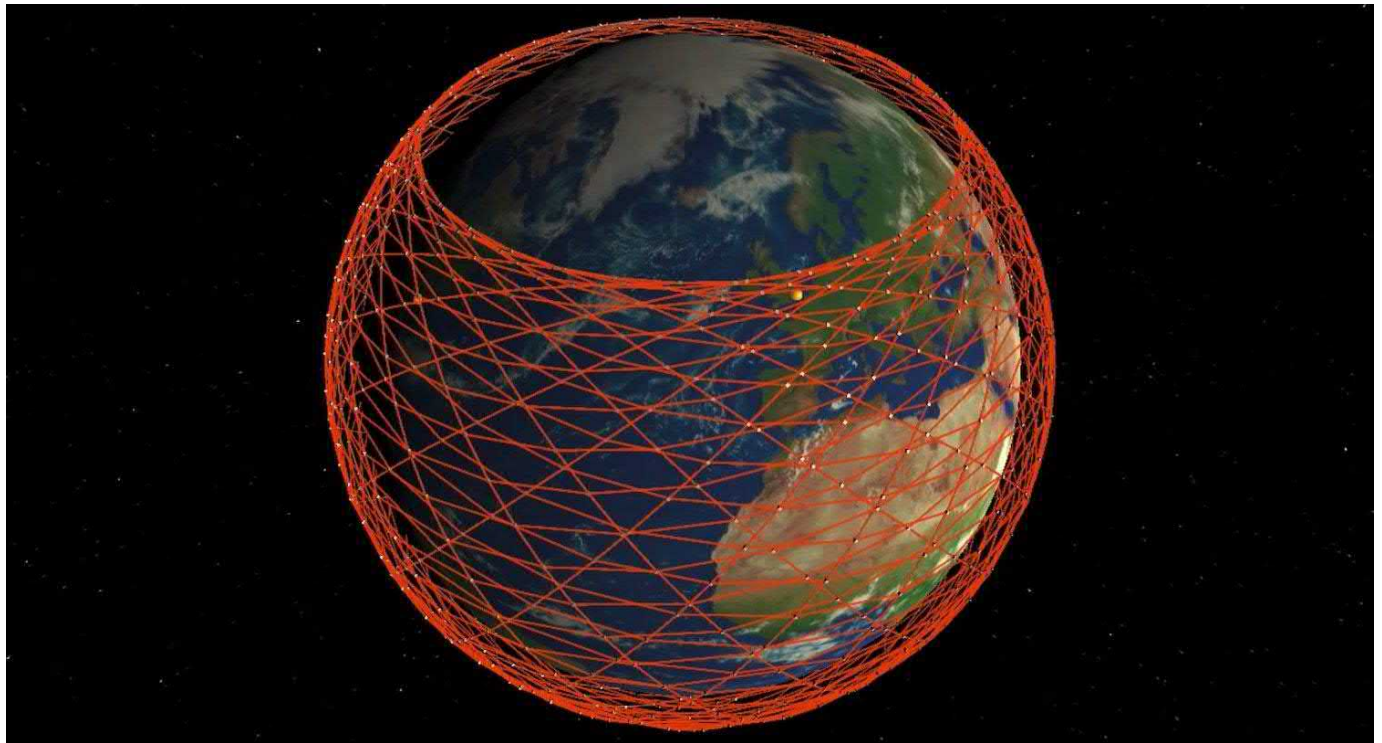
<sup>17</sup> John Vidal, “Tsunami of data could consume one fifth of global electricity by 2025” *Climate Change News*, 11 December, 2017. <https://climatechangenews.com/2017/12/11/tsunami-data-consume-one-fifth-global-electricity-2025/>

<sup>18</sup> There is now so much scientific research that it can be a daunting prospect to get to grips with it. One of the best websites to consult for the health effects on human beings is the website of *Physicians for Safe Technology* at <https://mdsafetech.org> For the wider environmental effects, see the website of *The Environmental Health Trust* at <https://ehtrust.org>.

<sup>19</sup> In 2018, Elon Musk’s rocket company SpaceX published plans for a constellation of 12,000 new satellites to service the 5G electronic ecosystem from space. This was then increased in 2019 to 42,000 satellites. In 2020, One Web announced plans for 48,000 satellites. These are just two of many companies and government agencies (including Chinese, Russian and Indian) seeking to launch satellite constellations into space. In the last few years there has been a surge of proposals for new satellite constellations, from more than ninety companies and agencies. See Giacomo Curzi et al., “Large Constellations of Small Satellites: A Survey of Near Future Challenges and Missions”, *Aerospace*, 7. 133 (September, 2020).

<sup>20</sup> The launch took place on 6<sup>th</sup> October.

The satellite constellations can best be thought of as a mesh of moving phone masts, a “radiation net” that is being cast around the Earth, so as to capture the Earth’s biosphere and penetrate it with beams of extremely high frequency radiation.<sup>21</sup> And this indeed is how it has been pictured by the industry (see fig. 6). The ultimate aim is to provide universal 5G coverage, so that wherever you are on Earth you will be covered by the 5G network.



*Figure 6: First phase of the “Starlink” satellite net that is being cast around the Earth.<sup>22</sup>*

The proposed satellite constellations are due to orbit the Earth mainly within the ionosphere. The ionosphere is one of several of the Earth’s protective mantles, which extend far above its surface, and whose function is either to deflect or to absorb harmful radiation coming from outer space. These protective mantles should be thought of as part of the living organism of the Earth, shielding the biosphere from electromagnetic radiation that would otherwise make life impossible. Our planet has organised itself in a remarkable way, shielding the biosphere in which we live. The outermost mantle – the magnetosphere – extends as far as 43,000 miles into space in the direction of the sun. But while we scarcely give these protective mantles a thought, upon them all life in the biosphere depends. They are indicative of the Earth’s innate intelligence, dedicated to sustaining life on the planet. It is therefore no small irony that those human beings who are promoting the agenda of making the planet “smart” are creating a radiation net within one of the Earth’s main protective mantles – the ionosphere – as if deliberately to undermine what the Earth’s innate intelligence has in its wisdom provided.

In addition to the radiation that will be transmitted, both between the satellites and the Earth, and between the satellites themselves, simply to put the satellites into orbit requires multiple rocket launches, which involve highly toxic rocket emissions. The more rocket launches there are, the more these emissions will form a layer of “black carbon” in the stratosphere, which will have the knock-on effect of causing further

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<sup>21</sup> The space to earth transmission frequencies will range from 10GHz to 42GHz.

<sup>22</sup> Photo source: Mark Handley, “Delay is Not an Option” *Discovery: HotNets XVII* (November 15-16, 2018).

heating of the climate on Earth. At the same time, along with the black carbon, the chlorine monoxide in the emissions destroys ozone.<sup>23</sup> The ozone layer constitutes another of the Earth's protective mantles (much closer to the Earth than the ionosphere) and it safeguards all life on Earth from harmful ultraviolet radiation from space. One wonders what mentality could be so recklessly obsessed with the project to make the planet "smart" when the potential ecological cost of doing so is that its natural ecosystems and all living creatures, now in such great jeopardy, are put into even greater peril.

### ***A DEATH WISH AGAINST NATURE***

To understand this mentality, we need first to see that it is symptomatic of that loss of any real feeling of relatedness to nature and to the Earth, to which I referred earlier. Instead, it expresses a deep-seated belief in the efficacy of a purely technological way of thinking, from which is excluded all reference to spirit or a spiritual dimension of life. Indeed, life itself is viewed as inherently computational. Living organisms are seen as no more than biological computers, or "biochemical algorithms" as Yuval Noah Harari puts it.<sup>24</sup> Here is a view of the world that is the legacy of Descartes, Hobbes, Leibniz and other mechanistic philosophers of the 17<sup>th</sup> century who inaugurated the Scientific Revolution, which was in so many ways a revolt against the sanctity of life. These philosophers haunt us still today, as spectres that exhort us to go yet further and embrace even greater extremes of desecration, so as to prove the truth of this life-denying world view by literally transforming the planet into a vast electrical machine, with its own artificial intelligence. Nature must be subsumed into the machine, and how better to do this than to establish a new, purely *technological mantle* around the Earth, a "technosphere" that interpenetrates and subverts the biosphere?

It is significant that Elon Musk has invested in two projects complementary to the satellite net. The first is the transhumanist venture to merge computers and human beings, the initial stage of which is to insert a microchip into the human brain. To this end his company, Neuralink, is apparently making great strides, pioneering in 2019 a procedure for implanting over 3000 electrodes into the brain in order to enable a wireless interface with electronic devices.<sup>25</sup> Just as nature must be subsumed into the machine, so too must the human being. The biological level can be superseded and the constraints of living nature can be replaced by the liberating benefits of technological "enhancement". The world that humanity has lived in for so many thousands of years can be re-made as an electronic simulation, a parallel virtual reality fabricated and sustained within the Global Brain.

Musk's second great project is his mission to colonise Mars. For him, the future of humanity is that we become an inter-planetary species and abandon the Earth altogether. He believes the Earth will eventually become uninhabitable so we must make preparations now to leave it and find another planet to live on, and Mars seems to him the best option. It is no secret that Musk's motivation for creating the satellite net is to finance this extra-planetary ambition.<sup>26</sup> In this we again see through the PR propaganda about the Smart Planet somehow saving the Earth. Musk knows it will do nothing of the sort. It is significant that his "multi-planetary species" publicity material features a rocket taking off from a totally barren wasteland, where there are no signs of life at all (fig. 7). Is it supposed to represent the desolated Earth,

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<sup>23</sup> Martin Ross, et al. 'Potential climate impact of black carbon emitted by rockets'. *Geophysical Research Letters*, 37, L24810 (2010). Darin Toohey, 'How do rocket emissions impact ozone and climate?' *Atmospheric and Oceanic Studies, University of Colorado* (2011).

<sup>24</sup> Yuval Noah Harari, *Homo Deus* (London: Harvill Secker, 2015), p.83.

<sup>25</sup> Elizabeth Lopatto, "Elon Musk unveils NeuroLink's plans for brain-reading 'threads' and a robot to insert them." *The Economist*, 16 July, 2019.

<sup>26</sup> Michael Sheetz, "Elon Musk says SpaceX Starlink internet satellites are key to funding his Mars vision" CNBC.com (May 16, 2019). <https://cnbc.com/2019/05/15/musk-on-starlink-internet-satellites-spacex-has-sufficient-capital.html>. See also Elon Musk, "Making Humans a Multi-Planetary Species", *New Space*, 5.2 (June 2017), p.46.

or the landscape of Mars? One senses it makes little difference to Musk because he is in the grip of an unhinged belief that human beings can live entirely separated from the Earth and the Earth's biosphere.



*Figure 7: Cover image of Elon Musk's publicity material.<sup>27</sup>*

This hubristic vision of turning the planet into a vast electrical machine, and creating a technologically enhanced humanity that will eventually abandon the Earth altogether, stands in marked contrast to the traditional spiritual view of nature as the manifestation of the divine and as the very ground of our human existence. To the transhumanist, the traditional understanding that in cutting ourselves off from nature we cut ourselves off from the very source of life can only seem entirely retrogressive. For Musk, through science and technology humanity can surpass nature, and indeed by doing so a new kind of life awaits us, liberated from all natural constraints.

As the Smart Planet with its electronic ecosystem becomes the new reality within which we are all obliged to live, the conditions of human existence will be ever more removed from those life-imbuing forces that during the Middle Ages were referred to as *Natura naturans*. Instead, we shall inhabit their opposite: something intrinsically deathly that masquerades as life-giving, something intrinsically illusory that masquerades as reality. It seems we shall blindly bring death upon ourselves and devastation upon nature, while all the time asserting that our technologies are enhancing our lives.

### ***THE PATH TO RESACRALISATION***

In considering humanity's current situation, it appears that we stand at the threshold of a technological Winter in which the Earth is destined to become a wasteland, and human beings are destined to live their lives in electronically generated worlds of illusion. It is fitting, therefore, that tonight, on the eve of Michaelmas, we wrestle with the question of how we can find the appropriate response to the challenge which the project to create the Smart Planet presents. It is fitting because we may feel that the mood of

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<sup>27</sup> Photo source: Elon Musk, *Making Life Multiplanetary* (SpaceX, September 28, 2017).

Autumn corresponds to the current historical situation of humanity. In Autumn, we no longer feel the life-forces pouring into nature as we did in the Spring. Rather, we have a sense of their dwindling and departing, a sense of their withdrawal, their interiorisation into the spiritual inwardness of seed, as the photo of the garden – the same garden as in Figure 3, now in autumn – shows (fig. 8). But while we may feel a distinct melancholy come over us as Summer surrenders to Autumn and Winter, at Michaelmas we are called upon to find again these creative life-forces within ourselves.



*Figure 8: The garden in Autumn. Author's photo.*

Earlier I referred to *Natura naturans* as the creative play of spirit in Nature, and I quoted Paracelsus:

“The world is a product of the imagination of the universal mind”.

The universal mind is operative within *Natura naturans*, and for Paracelsus it can be likened to the sun that illumines the physical world. Like Plato, he describes the universal mind as “an eternal sun, which is the source of all wisdom”. But he also says that there is a corresponding *microcosmic sun* within the human soul, and that sun is the *human imagination*. Paracelsus tells us that the place in the soul where it shines is the human heart.<sup>28</sup>

This idea of the centrality and pre-eminence of the imagination was later taken up by the Romantics, in poets such as Goethe, Coleridge and Blake. Goethe spoke of the need to develop in ourselves “an exact sensory imagination” in order to rescue the world from the petrifying gaze of the objectifying mind. The imagination was for him the basis of a much more empathetic and participatory mode of knowing. Coleridge also saw the imagination as a precious faculty which can transform the way we perceive nature, so we consciously participate in the divine imagination that is at nature's source. For Coleridge it is a means of dwelling more intensively within the sphere of nature's creative life forces – that is, within

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<sup>28</sup> Paracelsus, *De Peste*, in Hartmann, *Paracelsus*, p.129.

*Natura naturans*. And Blake wrote of the need to practice looking not just “with” but “through” the eye, so that we perceive the spiritual world standing behind or within nature.<sup>29</sup>

Imagination for all three is a visionary faculty by which we see into the inwardness of things. It takes us beyond outer appearances to the realm of the inner creative forces, about which those who seek to turn the world into a global computer know nothing. Here, then, is a precious inner faculty which, if we are able to develop it in the right way, allows us to contribute something of real value to nature. For through it, we may generate within ourselves a creative power that can transform our beholding, and thereby become a gift that we can bestow upon nature. Through the quality of our consciousness, the life-forces within nature can be strengthened. For it is the inclination of our consciousness that is significant for nature – that it inclines caringly and attentively towards the world. We have, therefore, to take seriously the responsibility of raising the sun within the soul above the horizon of the unconscious, so that not only will we ourselves experience this inner source of light, but so that we may also bestow the light and warmth of a more reverent beholding upon the world.

This more reverent consciousness constitutes a vital step towards the resacralization of nature, and indeed of ourselves as we take upon ourselves a greater responsibility for the quality of attention that we daily bring to the world. It is an old teaching that all things in Nature long to be known. They long to be known not just outwardly but in their inner truth, for thereby do they become complete.<sup>30</sup> Only human beings have the unique capacity to know things in their inwardness, and to engage with nature in this way is one of our central purposes (revealed to Adam in the Garden of Eden). Just as plants need sunshine and rain in order to flourish, so do they need to be known by us – not just to be used by us as finished products, but to be lovingly apprehended as manifestations of the divine creative activity that is at the ground of their being. The same applies to worms, insects, birds and mammals. It is in our *relationship* to creatures that the activity of resacralizing takes place. By moving our attention from their outward to their inward existence, we come to perceive them as manifestations of the divine. In so doing we return them to their origins.<sup>31</sup> By nurturing the light in our hearts – the inner sun that is the act of imaginative and empathetic knowing – we can bring to nature the light of loving attention and a conscious participation in the play of life-forces that constitutes its sacred ground.

As we move into the era of the Smart Planet, it becomes ever more incumbent upon us to bring this healing and warming light of imaginative and empathetic knowing to the Earth and to all living creatures, for if we fail to do so the Earth will surely, as the years pass by, grow more desolate. It is humanity’s self-absorption and failure to sufficiently bestow loving attention on nature – humanity’s failure to perceive nature as a manifestation of the divine – that is the reason why so many habitats have been destroyed, and so many species now face extinction.

Earlier I spoke of how important it is to feel that we belong to the living world, and that we cannot survive if we cut ourselves off from it. But we need also to see that we can cultivate a complementary feeling: that we ourselves have spiritual gifts to contribute to nature and that, through the gift of our imaginative

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<sup>29</sup> For Goethe’s “exact sensory imagination”, see Johann Wolfgang Goethe, *Scientific Studies*, edited and translated by Douglas Miller (New York: Suhrkamp Publishers, 1988), p.46. For Coleridge, see Owen Barfield, *What Coleridge Thought* (Middletown, Conn: Wesleyan University Press, 1971), Chapter 2. Coleridge both knew about and thoroughly understood the distinction between *Natura naturans* and *Natura naturata*. The distinction underpins his reflections on the primary and secondary imagination in *Biographia Literaria*, Chapter 13. For Blake, see *The Everlasting Gospel*, in Geoffrey Keynes, ed., *Poetry and Prose of William Blake* (London: Nonesuch Library, 1967), p. 139.

<sup>30</sup> As Joseph Milne, *The Metaphysical Cosmos* (London: Temenos Academy, 2013), explains: “To ‘be known’ belongs to their nature in the same way as it belongs to them ‘to be’.”

<sup>31</sup> As Meister Eckhart said: “All creatures enter my understanding that they may be illumined in me. I alone prepare all creatures for their return to God.” Meister Eckhart, *Sermons and Treatises*, vol. 2, translated and edited by M O’C Walshe (Shaftesbury: Element Books, 1987), Sermon 56, pp.80-81 (translation adapted).

and creative illumination, the life-forces within nature can be regenerated. The path to the resacralization of nature is not, therefore, a vain attempt to restore a bygone age, but is rather about reconnecting to a perennial truth at the heart of which is the possibility of shining the light of a redemptive consciousness upon the natural world that will open up the way to the future.

Many years ago, the renowned perennialist philosopher, Seyyed Hossein Nasr, wrote a book on the ecological crisis called *Man and Nature*, in which he argued that the ecological crisis confronting humanity is at root a crisis of human consciousness. This, he explained, is because the state of the outer world is a reflection of the state of the human soul. Nasr understood that as well as our depending on nature, nature depends on us; it depends on each one of us bringing forth the light that lives in the human heart. He wrote:

“Man is a channel of grace for nature. Through his active participation in the spiritual world he casts light into nature. He is the mouth through which nature breathes and lives. And because of this intimate connection between man and nature, the inner state of man is reflected in the external order. Were there to be no more contemplatives and saints, Nature would become deprived of the light that illuminates it and the air which keeps it alive.”<sup>32</sup>

It seems we have no option: for the sake of nature, and for the sake of our human future, we have to become – so far as we are able – contemplatives and saints and, I would also add, visionaries!

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<sup>32</sup> S. H. Nasr, *Man and Nature* (London: George Allen and Unwin, 1968; Mandala edition 1978), p. 96.