

CLIMATE CHANGE OR PLANETARY DEPLETION? COMPUTER MODELS OR NEW SCIENCE? CO₂ OR H₂O?

INTRODUCTION

"Everything is reversible in Nature and hence there are also atomic energies that are not life-destroying, but life-creating."

Viktor Schauberger

Understanding the world from a holistic perspective has placed me in the position of seeing polarities at work everywhere. Take a polemic around a personality, choices entrenched around two contrary solutions, or any hot topic in the news. In most instances spiritual science takes me to a place where I can see that the dilemma finds a resolution when we start seeing what one side and the other advance. Most often both sides have something to offer but, from a spiritual scientific perspective something is missing even if we add the best from both contributions. Sometimes the way out is obvious, for example when it concerns something I have studied in depth. At other times such a resolution can remain a question mark for a long time.

Steven E. Koonin, an unimpeachable scientist who knows the science of climate change from deep within the system, places in a few crisp sentences the dilemma out of which I have been trying to get for the past decade at least:

"Politicians on the right who deny even the basics that science has settled—that human influences have played a role in warming the globe—are not above exploiting climate science uncertainties, offering them as proof that the climate isn't changing after all.

Politicians on the left find it inconvenient to discuss scientific uncertainties or the magnitude of the challenge in reducing human influences. Instead, they declare the science settled and label anyone who questions that conclusion a "denier," lumping conscientious scientists advocating for less persuasion and more research in with those openly hostile to science itself."¹

In the first instance all of science is often denied, but this is often only possible to do so by cherry-picking ... the necessary part of science that helps support the denial. In the second case science goes often unquestioned, which means accepting everything that goes down in the

¹ Steven E. Koonin, *Unsettled: What Climate Science Tells Us, What It Doesn't, and Why It Matters*, 188.

name of it, whether supported by solid evidence, or not. Belief takes the place of deep scrutiny; in fact 'believing in science' has become a trite, common slogan, one that paradoxically denies the role of science in moving the human being away from blind faith. Others speak of "the science" as if science always presented but one unified face to the public.

The focus of this book shares little ground with either of these perspectives. The present approach seeks to broaden the scientific perspective; to move away from an interpretive lens which rests on a modeling of the Earth's behavior and climate according to primary physical parameters alone. Instead it looks at the Earth as a living organism influenced by forces and processes that are much more complex than dualistic thinking can apprehend, and which cannot be reduced to simplistic equations. Understanding at least some of them is not easy. But in the end the effort pays off. We can then start to build an understanding of the whole anew and see the challenge in its connection with the human being, her thinking and her behavior, not just external factors.

The present work is articulated along two complementary fronts. On one hand a decidedly Goetheanistic/phenomenological approach to world ecology, on the other the gathering of the best that modern science can contribute to the understanding of climate, an approach that surprisingly places the Earth in relation to the Sun and beyond. The second approach encompasses a very broad perspective. The two approaches also admirably complement each other. The first will look at Earth ecology from the perspective of landmasses and their relationship to the atmosphere and Sun. The second will move from the broad expanses of the oceans to the atmosphere, cloud formations and their correlations with solar and planetary cycles. From there we will return to a fuller Goethean perspective.

The View from the Earth

For years I had intended to embark on an in-depth study of the work of Viktor Schauberg, but kept postponing it. When in the early nineties I chanced upon the work of Olav Alexandersson, who popularized Schauberg, I was immediately hooked. I even experimented with one of his egg-shaped in-ground cisterns involving reduction processes of organic substance on the land where I lived. But, getting to really know Schauberg is another matter altogether. It is like studying Goethean science all over again, but the difference here lies in getting used to a whole new language, which derives from how the researcher tried to put into words the richness of his perceptions. I tried to go directly to his work but hit a wall. I then turned to those who had synthesized an understanding of his work and started to see some light. I could then return to Schauberg himself for months of prolonged immersion.

The net result of all of this was twofold. When you read Schauberg you are completely changed. First of all, you start seeing things more fully, and

understanding the dimension of all that has been inflicted upon Nature. It is sobering to say the least. But, in a second step, if you fully embrace what the Austrian genius says, you start to see the light. Yes, it may be even worse than we think, but on the other hand, the twentieth century pioneer offered us ways to better understand Nature, and solution after solution in one field after another. It lays with us humans to decide which way to go. We are not doomed, far from it.

I graduated in botanic science and ecology first and finished a Masters in environmental sciences immediately after, at a time in which nobody spoke about climate change. I have enlarged my views about Nature from everything that was offered from Goethean science, from anthroposophical natural sciences and bio-dynamics. And yet it was only recently, after reading Schauberger and grappling with his writings, that I can say I have had a new understanding not of natural sciences in general, but of the science of ecology in particular.

Climate change theories only entered in the public consciousness in the eighties and nineties. As I was studying environmental sciences between 1979 and 1981 in one of the first European Masters in Environmental Sciences program, on the second year it was made available, the topic was neither explored, nor even broached. And yet someone was already perceiving some dimension of it as early as 1931 and writing: "It should be noted that formidable climatic changes will occur if, as a result of incorrect systems of forest management and river regulation, the orderly formation of clouds is disturbed. Where these systems have been implemented, the number of thunderstorms has consistently decreased, while those that do occur are becoming more dangerous."² In effect Viktor Schauberger was pointing out to human interventions that have now impacted and completely modified the cycle of water at a planetary level, and therefore probably affected the proportions of water and CO₂ in the atmosphere. It is no wonder that he already noticed the glaciers starting to retreat in Europe, an effect which he attributed to modern forestry management.³ Anticipating a central theme, he was pointing to the global modification of the hydrological cycle, a theme overlapping with but also slightly different from climate change as we know it at present.

So how could someone already see with clarity a problem that, safe for other people in the fringes, was completely ignored. How could someone armed with pure and direct observation at the local level anticipate global problems that are presently explored through the indirect means of immense stores of recorded data?

² Viktor Schauberger, Callum Coats editor, *The Water Wizard: The Extraordinary Properties of Natural Water*, 142

³ Viktor Schauberger, Callum Coats editor, *The Fertile Earth: Nature's Energies in Agriculture, Soil Fertilisation and Forestry*, 2.

The answer, as in many similar situations, is a unique perception of natural phenomena allied to a completely holistic thinking. As we will see, Schauberger, in common with what Rudolf Steiner couldn't tire of repeating, questioned and pointed the finger to the modern way of perceiving and thinking about Nature. In reference to the crisis he anticipated by half a century he wrote in 1933: "If humanity does not soon come to its senses, and realize that it has been misled and misinformed by its intellectual leaders, the prevailing laws of nature (with poetic justice) will reliably act to bring about a fitting end to this ineptly contrived culture. Unfortunately, the most frightful catastrophes or scandalous disclosures will have to happen before people become aware that it is their own mistakes that have led to their undoing."⁴ But he also cautioned further in the same document: "Opposition alone, however, achieves nothing. Our youth will achieve any practical success in their struggle only when the *causes are identified and the errors are revealed* that previous generations and we have made, so plunging the world into disaster" (emphasis added).

The View from the Solar System

The view from orthodox science is at present a field highly contested and politicized. What would happen if we look at the largest possible picture and let our thinking be illuminated by as vast a horizon of disciplines as possible? Under this lens climate is illuminated by physics, ecology, oceanography, climatology, meteorology, astrophysics and the historical record (paleontology, paleobiology, dendrology, etc.) to name but a few. In fact modern science can take us in two highly contrasting directions: the science of climate models, dominated by physicists, statisticians and modelers, or a new climate science which is the domain of ecologists, oceanographers, meteorologists, and innovative thinkers who start to see the Earth as a living organism.

This amplified scientific perspective has emerged of late, in fact in parallel with the birth of climate change models, and it is casting a new light on hypothesis that are taken for granted. The factors at play in the formation of climate unearthing layer upon layer of anomalies and surprises that defy the simplistic thinking we have been predominantly hearing. Here we see cycles, pulses and periodicities that vary from the few years to millennia, which affect ocean currents and weather patterns. Under this light many things that appear new actually have showed recurrent patterns over the space of millennia. The Arctic warming, which has made the headlines more than a decade ago, was not new: the same trend occurred in the 1940s as part of a recurrent 80-year cycle. During the Medieval Warm Period (from around 950 to 1250 CE) the Vikings were able to grow crops and raise cattle in Greenland. The fossil record in the beaches of northern Canada and Greenland 6000 years ago shows that both places must have been

⁴ Viktor Schauberger, *Our Senseless Toil*, 1933, quoted in Alick Bartholomew, *Hidden Nature*, 259-60.

largely ice-free in the summer.⁵ But then why don't we find anything of the sort in Antarctica? While the North Pole was melting the southern counterpart appeared totally unaffected. This question and similar ones still await more satisfying answers than we receive at present.

Some General Questions

This book wants to explore two central questions. How could both Rudolf Steiner and Viktor Schauberger foresee the global ecological crisis we are facing so far ahead of their time? How do their realizations stand in relation to what we are told today about climate change? And where does the heart of the matter truly lie? Coupled to this is the fundamental framework of reference. Is the Earth a closed system and can it be therefore understood by physical parameters and models alone? Or do we need a wider ecological understanding of Gaia as a living being in constant state of exchange with the wider universe?

To do this we need to venture into new territory. The matter revolves around a couple of important questions: Is it enough to see external correlations and immediately assume that there is a causal connection, or does Nature work in far more complex ways? Is it wise to exclude from our natural science everything that has to do with qualities, rather than quantities? Rudolf Steiner indicated that when science addresses qualities, such as form, enhancement, polarities, subtle variations of one factor or another, it has already moved into what can be called the esoteric, but an esoteric that is derived from a deeper understanding of reality and penetration of sense perceptions, not a desire to move away from the physical and its constraints. All of the above mentioned factors are continuously at play in Nature and cannot be excluded without losing a deeper understanding of its workings. Steiner was thus implying that it is only by adding a deeper, more truthful and holistic perception of Nature, that we can start to have real answers to global challenges. The hidden dimensions of reality are not a luxury, or the icing on the cake, that we can add after we have proceeded through conventional science; they are the basic prerequisites for a fuller understanding of Nature. Humanity can only exclude them at its own peril.

The journey of exploration we'll embark upon looks at various interrelated aspects of climate change. From the perspective of continental landmasses, we will explore water and waterways, forests and farmland and their management, and energy production, in this order. From the perspective of the solar system we will look at ocean currents, solar rays and solar flux, and even peak into influences from beyond our solar system, surprisingly from modern conventional science, no less. We will then explore the growing evidence of Sun and planetary influences in a way that will take us back to Goethean science.

⁵ Peter Taylor, *A Reassessment of Global Warming Theory*, 39.

It is the claim of this work that the spiritual aspect of energy can only be understood if we first have a full understanding of world ecology in which water and forest play a universal key role. And water in the larger sense cannot be understood without a look at its properties and its cycle, that is so crucial in connection with water vapor and CO₂. This cycle is further modified by the planet's relation to the Sun.

What is conventionally accepted as science encompasses only some simplified, quantitative aspects of the whole, but excludes the subtle qualitative dynamics which alter the global picture like night and day. On the heels of a larger systemic and holistic view of Earth ecology and the question of energy, we can create a fuller understanding of the evolution of climate. On the basis of this understanding this book argues that "planetary depletion" is a better term than climate change when we realize that not only do we have directly visible and measurable changes but also sizeable, qualitative alterations in the being of Nature and Earth itself.

The nature of the crisis looming over humanity will here be called planetary depletion in consideration of the fact that climate change only considers quantitative aspects of the global picture. When we look at it holistically we can perceive that the alteration has not affected just this or that ecosystem or the balance of gases in the atmosphere, but something more pervasive and subtle. It has changed Nature itself to the core. Rivers, forests farmland and ecosystems are presently different from what they were intended to be. This pervasive change is seldom spoken about, though it's not irreversible, far from it.

A Synopsis

This work will highlight the radically different perspectives coming from viewing the world as a closed system, which logically becomes the domain of physicists, statisticians and modelers, or from the perspectives of a mostly open system, which can only be understood by oceanographers, ecologists, climatologists, etc.

Part I is devoted to a new understanding of world ecology in which the views of Viktor Schauburger and other Goethean scientists form the central contributions. Through these we can assess the true nature and primary cause of the present ecological crisis.

Chapter 1 looks at the view from the closed system perspective and tests the closed system hypothesis. In it we will present the place of climate change models, their origins, premises and assumptions.

The concern of Chapter 2 are the foundations for a phenomenological exploration of climate change, or in the language of this work, planetary depletion. In order to understand the following chapters it is primordial to come to know Viktor Schauburger, the amplitude of his work, his

methodology and how ideas and practice work hand in hand in this towering giant's work. Everything that Schauberger discovered or posited is supported by the effectiveness of his practical applications and technology.

The crux of the matter is entered into in Chapter 3. A purely quantitative and deterministic worldview completely misses the "being" of water in its crucial role in world ecology. On one hand we have the miracle of a substance that we can never fully know, on the other prosaic H₂O. Herein lies antipodal worldviews. Treating water as H₂O is an emblem, a root symptom of our ecological crisis. Humanity has to learn anew to recognize the subtle influences that render water a living being or treat it as a dead shell. Among various factors we will primarily explore the effects of temperature gradients and correlated kinds of motion.

Chapter 4 will look at the landmasses, through forests and farmlands. Forest management has resulted in the estrangement of the tree from his environment. Much can be said in the same direction of agriculture. Part of this estrangement of the human being from nature and of the farm from its environment is the result of an atomistic thinking, which humanity had to traverse by way of evolutionary necessity, but out of which it has to emerge for the sake of its future. The completely materialistic, prevailing views lead to disastrous forest and farm management with consequences that can be measured in the worldwide modification of the water cycle.

What is the place of energy production in the whole is explored in Chapter 5. Do we really fully understand what energy is in relation to growth and upbuilding in plants, in relation to emergence of new forms? How has it become acceptable to compare what happens in a plant with the workings of an engine? Here we have antipodal worlds. As in Nature so in technology we find ourselves at a great divide. Our generation of energy is contrasted with its polar counterpart, bio-energy. To technological motion we can substitute planetary motion, to centrifugal explosion, centripetal implosion. Not only does this come closer to understanding energy in Nature, it also offers revolutionary and abundant sources of energy for humanity's future. We will therefore re-evaluate the place of energy generation in the overall crisis.

From completely different angle than the previous chapters, it is possible to shed light over a convergent movement in economics. This will be the object of Chapter 6. The work of Gunter Pauli and the so-called "Blue Economy" have brought ideas similar to those of Schauberger in the domain of the economy. Industrial/technological methods are now predicating the idea of emulating Nature by using natural processes that take place at ambient temperatures, low energy input and generate little to no waste. They offer ways to address climate change at the inception, as it were, and much more efficiently than anything predicated at present.

Part II will in a sense move from the Earth's ecosystems to Gaia's "planetary ecology." Once the overview of Schauberger's work is completed we will expand our gaze from the oceans and atmosphere to the Sun, and from the last 150 years to the history of climate over millennia in Chapter 7. We will explore the intricacy and wisdom of an untold variety of cycles. We will once more challenge the view of the Earth as a closed system. This time around it's not Goethean, but conventional science that will show us Gaia in an open relationship to the universe.

On the basis of all that has preceded we will review the science of climate models, the limitations inbuilt in our view of the Earth as a closed system and the consequences of it relating to climate. This will be the object of chapter 8.

It was the most delightful part of the discovery leading to this book, that we can close the circle, so to speak in Chapter 9. Not only can we come to abundantly question the closed system perspective from within the Earth's ecology. So can we when we look at the rhythms that play out between Sun and the whole of the solar system, the atmosphere and the oceans. As Schauberger did in looking at the Earth as an ecosystem, so now can we follow other pioneers who look at the Earth as a system attuned to the whole periphery of solar system and beyond. Two views of the solar system will emerge once more in parallel with the contrasting views of Gaia as a closed or open system. The mechanistic worldview modern civilization has inherited from Galileo and Newton will be contrasted with a return to and further elaboration of Kepler's harmonic understanding of the universe. We will round off our exploration by exploring whether we can predict climate and how it will evolve? Is there a Goethean science to base these predictions upon?

In concluding we will tentatively try to detect similarities and patterns in the broad perspectives outlined in parts I and II of the book. We will base this on a new understanding of Sun and solar system.