

# Ethics, Nafthism, and the Fossil Subject

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## ABSTRACT

*Several socio-economic and technological conditions shaped the faces of modernity, but without massive energy surplus modernity as we know it would not be possible at all. Fossil fuels are not created by humans. Consequently, part of the credit for modernity that is assigned to the other (human) conditions, belongs to (non-human) fossil fuels. The misplaced assignment of credit also points to modernity's characteristic blindness to its material conditions. By and large, modernity has been described as a human victory over nature. This is supremely ironic, as the supposed human independence relies on a particular natural phenomenon. Unfortunately, this forgetfulness extends into ethics. Typical modern views on ethics rely on a subject with an autonomous capacity to act and deliberate. There is a structural parallel between the way in which the modern subject detaches itself from its material and social surroundings and the way in which a fossil fuel economy detaches production from consumption, products from waste, actions from consequences. If ethics is blind to the way in which the detachment is dependent on a particular energy regime, it is unlikely to result in a robust de-fossilization. In this article, we argue that the notions of modernity and (modern) subjectivication are made possible by non-human energy, namely fossil fuels. Thus, energy ethics for the post-fossil era will be ultimately based on a-subjective and non-modern premises.*

**Keywords:** fossil fuels; oil; subject; nafthology; nafthism; ethics; modernity; work; energy; capitalism.

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## 1. INTRODUCTION: THE UNIQUE IMPORTANCE OF FOSSIL FUELS

The historically unique economic growth of the past two centuries has a varied set of preconditions and elective affinities that further co-develop with modernity as a complex phenomenon. In terms of social circumstances, what is needed are, among other things, bureaucracies of various kinds, legislation, division of labour, planning and zoning, education and so on. Phenomena described by classics of sociology such as Weber, Tönnies

nies and Durkheim in terms of collectivity, subjectivity and social norms describe the emerging mass society. In terms of technology, modernity needs the constant developments of steam engines, internal combustion engines, electricity and so on, and the enrichment of the connected natural scientific body of knowledge. And one should not overlook what could be called spiritual or cultural preconditions: not all human groups think that economic growth, modern lifestyles or the use of fossil energy are desirable or even acceptable as parts of human existence.

Another crucial point is the material and physical conditions of modernity. With all the other conditions in place, but with nothing to power the machines, the modern experience would not have been possible. Consequently, the existence of fossil fuels – coal, oil, natural gas – in large quantities and sufficiently pure concentrations in the earth's crust is a necessary material precondition of modernity. While it is, in principle, conceivable that comparable amounts of work could have been produced by other means (say, nuclear power), it is also clear that such alternative means would have resulted in a very different modern experience and subjectivity.

In his collection *After the Future* (2011), Franco "Bifo" Berardi has helpfully condensed features of the twentieth century, from the initial consciously iconoclastic cries for futurism in its aesthetico-social (Italy) and politico-economic (Russia / Soviet Union) forms, up until the corresponding provocation expressed in the punk slogan "No Future" in the late '70s. In Berardi's words, the past 150 years were the time in human history that trusted the future:

The idea of the future is central in the ideology and energy of the twentieth century, and in many ways it is mixed with the idea of utopia. [...] In the second part of the nineteenth century, and in the first part of the twentieth, the myth of future reached its peak, becoming something more than an implicit belief; it was a true faith, based on the concept of "progress", the ideological translation of the reality of economic growth. (Berardi 2011, 17-8)

There was reason to trust, as "progress" did, indeed, deliver many of the goods it promised. Investment and interest both presume more work being done in the future; and more work was delivered by ever increasing loads of fossil fuels. The psychological energy that Berardi talks about, and the energy doing physical work, were mixed in an intoxicating orgy of increase: progress as the ideological translation of economic growth, and a particular oil-induced blindness as the phenomenologico-experiential translation of progress.

The material specificity of fossil fuels is evidenced, for instance, already in the differences between modern societies running on coal and those running on oil. It is only after World War II, when a large part of the so-

called developed world transitions from coal to oil, that the hockey-stick diagrams depicting economic growth, population growth and the growth of environmental destruction (including CO<sub>2</sub> emissions) gain their characteristic almost exponential upward tick. The superior qualities of oil – energy content per unit, transportability, storability, possibility of turning into a myriad different chemical products – eclipse even those of coal (and, to a large extent, natural gas).

The material precondition, and its particular features, have gone with surprisingly little comment, especially compared to the veritable seas of analytical and critical literature on the other conditions, including various analyses of technology, mass society, ownership of the means of production, division of labour, urbanization, modern statecraft and so on. However, if industrial labour, mass culture, easy travel, communications technology, the automobile and so on have an effect on the experience of modernity (on how people experience themselves and their lives under modern conditions), then it follows that the material basis, the existence of fossil fuels, has comparable experiential effects, as well – maybe even more so, as it is embedded in virtually all the other phenomena (running the machines in the factory, powering the automobile, etc.).

This is our thesis: there is a largely unexplored phenomenology of fossil fuels, as the study of the experiential effects of modern reliance on burning hydrocarbons. More particularly, an economic and cultural system existentially reliant on the work performed by, and materials produced out of oil (Gr. *naphtha*) invites a study in terms of *nafthology*, the study of experiential effects of oil. As metaphysical – that is, as a structure structuring other structures – the experience of oil determines contemporary existence. Furthermore, our wager is that if these phenomena go unexamined, we are ill-equipped for conceiving and building post-fossil futures: we will go looking for wrong kinds of answers from wrong directions simply because we are conditioned by a *fossil* modernity. This suspicion concerns especially the notion of the subject, and various ethico-political solutions pinned on the notion.

## 2. MODERNITY, AS FOSSIL

Fossil fuels in general, and oil, in particular, are embedded in modern life as work. The amount of work (as a physical quantity, W = Fs) performed during the past two centuries eclipses any other comparable period of time in human history; in fact, the amount of work performed globally since

the 1980's is bigger than the amount of work performed in several previous centuries combined. Most of this work is carried out by burning fossil fuels, and, more particularly, by burning oil.

Many of the phenomena of modernity – growth, acceleration, specialization, urbanization – are dependent on the fact that, decade by decade, industrial economies have been able to perform more work by consuming more fossil fuels. If the amount of fossils burned had consistently declined, growth would have stopped or gone into reverse (as it did during the oil crisis in the early 70's). Over time, in less than two centuries, the increase in the amount of work has become an expectation and a habit. Economic growth, which in human history is an aberration, has become a new normal. The phenomena of this new normal are the feedlot for modern subjectivity as it exists today. Consequently, there is a clear morphological and structural connection between the phenomena of oil and that of modern subjectivity.

In terms of elective affinity, it is important to notice the way in which capitalism, as a political and economic system, benefits from fossil fuels: they fit together like hand and glove. Students of political economy, such as Elmar Altvater (2007), have called the current system “fossil capitalism” (*Fossilismus*). In Altvater’s analysis, the death of locality is caused by the organization of production made possible by fossil fuels. When cheap energy for transportation and for powering industrial machines is readily available, production can be abstracted from any given local circumstances. Likewise, artificial lighting gives production freedom over day. When the location of production does not matter or can be changed at will, the workers also lose most of their bargaining power. Even more darkly, fossil capitalism can be analyzed as a form of *Raubwirtschaft* or plunder economy, where the decisive moment of economic activity is the capture of resources in place A and their overuse in place B. The production – drilling, refining, mining – of oil, gas, and coal happens in one place, and their use in another place, and the simultaneous distance and dependence between these two is the essential characteristic of fossil fuel economies.

In *Fossil Capital* (2016) Anders Malm argues in detail that the transition from water power to coal in English and Scottish textile industries in the 19<sup>th</sup> century did not happen – as usually presented – because of the cheaper price or easier availability of coal. Long into the 19<sup>th</sup> century water power was cheaper and available in abundance, the technology was well understood and improving all the time, providing possibilities for increasing capacity. As Malm (2016, 91) puts it: “The transition to steam in the British cotton industry occurred in spite of the persistently superior cheapness of water”. The advantage that coal and steam had over water were in the first place *capitalistic*. By using coal, a textile mill could be situated

in a city, where cheap labour was always available, and a strike could not threaten production. In contrast, a factory tied to a remote location due to water power was easier to be shut down by the workers – if laborers could be convinced to move there, in the first place. Steam could be turned on at will, independent of season or time of day. Moreover, constructing more water power demanded coordination between several industrialists and land-owners, something that stood in the way of the entrepreneurial spirit. A capitalist running a steam-powered plant could decide on production essentially alone. As a source of power, steam power de-collectivizes, individualizes, both the capitalist and the worker. And this was something that the capitalists wanted, because they stood to benefit.

In Malm's analysis, fossil capitalism consists of two main parts, an economical order (continuous growth) and an energy system. The drive towards continuous growth is born before the large scale utilization of fossil fuels, when water powered textile industry develops a model where rising productivity, relatively large profit margins and the investing of profits into new production further increase production and capital accumulation. With the new energy system provided by coal, this continual growth gets a physical basis where, decade by decade, more non-human and human labour is fed into the production. This is the fateful elective affinity between fossil labor and capitalism: continuous growth of the amount of work performed by burning fossil fuels (and laborers) and continuous economic growth.

The interwinement of the material possibility of feeding more hydrocarbons into the system and the social and economic conditions that support economic and population growth forms the “syntax” of fossil capitalism. Its “semantics” is the experience of (fossil) modernity. This fossil syntax, like any other civilizational metabolism, contains its bottlenecks. In the era of coal, miners, railway and dock workers become a new force that can gain concessions from capital, simply by being able to cut the energy flow, as Timothy Mitchell shows in *Carbon Democracy* (2011). Not surprisingly, as Mitchell argues, the transition from coal to oil is made in a way that sidesteps the power of trade unions. The fossil syntax evolves by destroying traditional bindings, be they social, political, or spiritual.

## 2.1. *Con-distancing*

The distance between production and consumption also means the breaking up of vital feedback loops. For a modern consumer, the origin of fossil energy is irrelevant, as are the conditions of its extraction. Even more, the

networked systems of production with their long routes of transport for raw materials, parts and finished products make it virtually impossible to know where the utilized fossil materials originated. Take a look around you; with any luck you are able to identify several, possibly tens or hundreds of objects containing oil around you (eye-glasses, paint, computers, book-coating, clothes, phones, jars, etc.) Now, do you know the origin of the hydrocarbon from which they were formed? From which field was the oil pumped? What would be the method of obtaining that information?

A similar structural non-knowledge characterizes the future of oil-based products. A huge number of all the plastics ever produced is still in the form of plastics, fragmenting into ever smaller pieces of micro-plastics that fill up oceans and litter lands. Again, do you know where the fibers from your clothes have ended up and will end up? What about that piece of plastic trash you discarded in the bin? What would be the method of obtaining that knowledge?

Together these two phenomena, separating production and consumption (via cheap transport and the capitalistic profit motive) and non-knowledge concerning the past and future of fossil products create a characteristic experiential structure of nafthology: oil brings things together in the mode of keeping them apart. Via a fossil-based capitalist economy, we are materially connected to both distant (and socially and environmentally destructive) oil fields and to distant deposits of undecomposed trash. The elective affinity between capitalism and fossil fuels is seen in this structure of creating connections in the mode of keeping apart – what can in nafthological terms be called *con-distancing* (Salminen and Vadén 2016, 24-8). In experiential terms, this connection-as-separation is felt as alienation, atomization, individualization, and deskilling.

One of the most obvious phenomena of the oil age is the destruction of locality – which, from another perspective, is experienced as the diminution of distances and, eventually, the formation of a “global village”. But ultimately oil binds by breaking. With its unique provision of surplus energy, oil breaks up localities and enforces totalization. It is always ready to double any hierarchy, always able to increase the forces directed at one point and the levels of specialization added on top of each other. Oil condenses horizontally. A highly developed division of labor is possible only under circumstances of productive surplus, and high EROEI (energy return on energy investment, calculated by dividing the energy gained by the energy used) fossil fuels enable division of labor on a global scale while at the same time supporting hierarchies in which commercial companies govern millions of square kilometers and financial derivatives grow orders of magnitude bigger than the global GDP.

The breaks produced by binding can be illustrated by ideas from Simone Weil's thought. Weil identifies by the name *force* a basic principle that obtains both in the spiritual life of humans and in their social interaction. Like the Schopenhauerian *Wille*, force compels us to stay alive, to eat, to manipulate, to behave violently, to utilize, and govern; it enslaves and makes inhuman. In her famous study *The Iliad, or the Poem of Force* (1965) Weil describes the way in which force turns both the nobleman and the commoner into objects, overturning the Kantian maxim according to which humans should always be treated as goals in themselves. Force makes people appear as instruments, resources to each other and to themselves. The low, the vanquished, is in the eyes of the victor a lump of matter, and the best military leader is the one who gets his or her soldiers to see the enemy as objects or, even better, as something to be destroyed. The victor does not, in effect, choose to see the vanquished as an object; the master does not choose to see the slave as non-human. They do so because they are themselves utilized by force; they are performing their psychological and social roles.

To work, for instance in factories, is to be objectified by force. Forced by hunger and under the threat of physical violence people enslave at repetitive and meaningless tasks so that both their spiritual and physical humanity is crushed. The struggle for survival in conditions like this is, also according to Weil's own experience, so constrained and wearying that even the desire to think and to be free becomes alien. But the upper strata of rulers is not free from the web of force, either. Its members have to struggle both in order to stay in their class and ahead of their competitors, and also in order to keep the lower classes oppressed. According to Weil, even a rudimentary division of labor reveals the de-humanizing force. If one person decides what is to be done and another carries out the doing, the decision maker almost by necessity thinks of the doer instrumentally. Due to this asymmetry, the lower classes usually have a better grasp of the truth. Because they experience hunger, pain and cold, they feel the negative side of force in their flesh unlike the members of the upper classes. The wealthy can at least temporarily imagine themselves in control of their destinies, even though at every moment their existence is carried by the toil of the lower classes – plus the modern energy slaves of fossil fuels.

If even the most minute division of labor means bending into the in-humanizing will of force, if this happens even while picking berries or gathering hay, it is easy to imagine what occurs when division of labor is connected to the power of millions of tons of fossil fuels. Tasks can be divided and subdivided, the interchangeability and standardization of

human laborers taken further. Chaplin's *Modern Times* (1936) is too merciful in depicting this reality.

At the same time a precise Taylorist and Fordist division of labor enables an increase in hierarchy, piling decision makers on top of decision makers. In this way hierarchization, pyramidization, and the centralization of power are not the opposites of the breaks, uprootings, and displacements caused by oil. They are its other face. A clear indication of this Janus-faced atomized centralization is the fact that there is often scant communication, affection, or sympathy between the different levels of the hierarchy. Oil builds sky-scraping pyramids, where the dwellers of different floors and blocks rarely meet each other.

Out of the different fossil fuels, oil is the most prone to hierarchy. It can be easily transported and stored, and highly energy dense. By governing the production, transport, storage, and use of oil, massive energy surpluses may be gathered in order to build automatons, entertainment industries, and armies that past empires could only dream of. There have been, to be sure, some attempts at enlarging the number of people benefiting from oil revenues, like the oil funds in Alaska, the redistribution schemes in Venezuela and Libya, and the massive oil funds based on extraction in the North Sea. However, most of the time oil finances oligarchies, timocracies, and various forms of mafia capitalism, where big owners, sheiks, and industry lobbyists live in lavish splendor while at the same time on the other side of town virtual or literal slavery is the order of the day.

Simply, oil holds up unprecedented horizontal structures. At the same time, it breaks up communities, skills, tasks, experiences into ever smaller and more standardized units in order to pile them into Byzantine hierarchies. Whole populations, not to speak of individuals, are isolated in their towers and cellars without any knowledge of the outside world. Everything works as if on rails – but without its black motor the auto-movement is only an illusion. Plato (in *Laws* 5.744e-745a) suggested that it would be proper if the richest citizen would own at most four to five times more than the poorest. Currently, ten- if not hundred-fold wealth inequalities have been normalized in Western societies, not to speak of global imbalances. Of course, the gap between the king and the pauper has been near infinite before. The uniqueness of oil-based social infrastructure is that wealth gaps of several orders of magnitude become normal parts of the global division of labor. A typical Western person enjoys the services of tens of energy slaves as if by birth right, while absolute poverty is as grim as before. As Weil begun to observe, floating on the work of energy slaves and the work of human laborers, a typical Western person imagines him/herself as a master of his/her life, forgetting its material conditions of existence.

## 2.2. *Nafthism*

As a necessary condition of modernity, energy inputs are in a different category than the other conditions – social, cognitive, economic, spiritual, technological, scientific, etc. This difference has three aspects. First, given the other conditions, but without surplus energy, neither the world economy nor population would have grown the way they have. Secondly, unlike the other conditions, fossil fuels are not created by humans. These two together mean that the credit (or blame) for growth that is assigned to the other (human) conditions, belongs, in part, to (non-human) fossil fuels. Third, fossil fuels are non-renewable. Consequently, some of the characteristics believed to be systematically and irreversibly modern, are likely to be one-shot occurrences. More specifically, some of the social, technological and spiritual conditions that have co-evolved with modernity will prove to be reversible. The fact that as a precondition and sustenance of modernity, fossil fuels and oil are ontologically (as human-independent) in a different category than the other (human-dependent) conditions, has crucial consequences.

Related to the first and second points, one characteristic of modernity is the blindness to its material conditions. By and large, modernity sees in itself a victory over nature, if not an independence from it. This is supremely ironic, as the supposed independence has been made possible by a particular *natural* phenomenon, the existence of large amounts of high-quality hydrocarbons in the Earth's crust. We call this specific form of forgetfulness *nafthism*: to be under the illusion that something is independent of nature when the very illusion of independence itself has been made possible by a specific material fact, i.e., the existence of oil.

As an example, one can mention the *Communist Manifesto* (1848) by Marx and Engels that insists that in capitalism “all that is solid melts into air”. As such, this is correct, as a description of life under capitalism – all traditions of the feudal societies are torn down. But while the authors think they are describing capitalism *per se*, they are talking about a capitalism that can increase its energy inputs year by year, and that kind of capitalism has only ever been *fossil* capitalism. Consequently, the classic Marxist view that is at the same time horrified at the human price capitalism is incurring and fascinated with the productive powers it is unleashing, is *nafthist* in thinking that capitalism is a self-propelling economic phenomenon, while in fact, it is empirically dependent on a particular natural endowment. (Needless to say, this nafthist forgetfulness was embedded deep into the ideologies of 20<sup>th</sup> century state socialism).

Likewise, when Martin Heidegger (1954) insists that modern technological understanding of Being encounters everything as raw material, as standing reserve (*Bestand*) for use, he is correct. For calculative or technological reason, everything appears as something to be utilized. But at the same time Heidegger fails to observe that without energy technology does not engage with matter. Matter is raw, both conceptually and in practice, only in the eyes of work. So even Heidegger's deep ontology of modern understanding of Being is nafthist in that it forgets the role of fossil fuel energy in giving calculative reason its semblance of inevitability and technology its frightening capacity to function, to work, without failure.

But the most paradigmatic example of nafthism is the orthodox economical axiom according to which the market will find a replacement for any commodity through the mechanism of supply and demand. Even a rudimentary material intelligence will indicate that the doctrine is possible only under circumstances of considerable surplus work. Energy is not just a commodity on the market, but a precondition for the existence of markets in the first place. Not surprisingly, then, the price of energy does not follow the laws of supply and demand, and energy markets have never really been (free) markets, at all: at the moment, approximately 75% of oil is produced and sold by national oil companies.

Timothy Mitchell (2011) has noted how the forgetting of oil has made the science of economics possible. Because ever greater amounts of oil were available, effortlessly, one did not have to worry about the availability of energy. According to Mitchell, economics as an independent science is not born in the nineteenth century, but only during the early decades of the twentieth, when it becomes possible to concentrate on the supposedly independent flows of money without the irritating and supposedly irrelevant connections to physical facts, such as the necessary non-renewable resources.

Hence economics as science is born through con-distancing, when money is separated from the physical world and work. By the same token, economics gets separated from politics. The connector and separator is yet again oil. The work performed by oil creates the distance between economics and nature; the same work conducts the industrial destruction of nature even though the two, industry and nature, were supposed to be separate. Nafthism reveals itself in this aporias of the supposedly objective and neutral scientific knowledge of the modern subject.

### 3. THE FOSSIL SUBJECT

Marx and the Marxists have, quite correctly, celebrated the power of monetary economy in giving individuals the possibility of leaving feudalistic, patriarchal and otherwise oppressive social settings. It is clear, that whatever a modern subject is, it is something that can, out of its free will, leave whatever group it chooses to – whether religious, political, regional or kinship-based. The modern subject does not experience itself as fundamentally dependent or ultimately responsible for these groups.

The classic of environmental ecology, Arne Naess (1995), has coined the term “ecological self”, as a correction to the narrow egoistic self that Naess among others sees as a root cause to current ecological problems. In Naess’ definition the ecological self contains also the natural environment in which one is embedded so that the destruction of the environment is also a destruction of the self.

Following these insights, we may define the modern subject as the subject that is far-enough distanced from both its natural and social environment so that it can, at will, declare its independence from them and situate itself in new circumstances. This definition makes clear that the modern subject is a phenomenon dependent on considerable surplus energy that it can command at will. The modern subject is structured by con-distancing and nafthism, and supervenes on energy slaves.

A similar conclusion follows from an analysis of how the tasks of the subject are described in typical modern philosophical accounts. The subject is presented as separated from the object, and from the (individually and socially) pre-subjective or a-subjective experiential field from which it arises. In terms of the philosophy of mind, the subject is a structure that upholds its self-identical perseverance. This task includes the separation between the subject and the object (the outside world), as well as domesticating or purifying elements that threaten the subjects control – such as the subconscious, emotions, anxiety, physical destruction and so on. The subject relies only on its own internal capacities (of reason, discernment, choice, etc.) in evaluating its relations to the outside world, and its main task is to continue to exist. Already from this kind of thumbnail sketch it is clear that upholding a self-identical subject is an energy intensive task. Lapses of energy and vigilance (such as dreaming, intense boredom or joy) as well as altered states of consciousness (being drunk or under the influence of psychoactive drugs, meditation) and physical alteration (such as brain diseases or hormonal abnormalities) easily disrupt the subject as a persistent self-identical structure.

While it goes without saying that the Cartesian subject, Kant’s Copernican revolution, and other philosophical concepts relating to the modern

subject were developed before fossil modernism, without fossil input these notions would have remained mere speculation on the human condition, not an aspirational goal for billions of people. Being a modern subject, as a master of one's own house that owes nothing to one's natural or social environment, is possible only under a relatively stable context of energy surplus that can be controlled with something akin to a fossil syntax.

Without high-EROEI hydrocarbons, Western industrial civilization would not have been able to export its model of modern subjectivity globally. Fossil energy is a necessary condition for the dream of universal subjectivity. The drastic subject-object division of the Western models of subjectivity could not have spread and extinguish other lived interpretations of human existence without massive amounts of surplus energy. The empirical evidence for this is almost painfully simple. In circumstances of no or minimal surplus energy, or of low EROEI yields, the subject-object distinction of modern subjectivity dissolves fast (even for once modern subjects), and the self is re-connected or dissolved into the wider social and environmental whole on which it is, in truth, dependent.

There is something distinctly un-dead about this image: if it is the case that the modern self-conscious identity was based on an enormous volume of ancient metabolic waste from (marine) organisms, the Western man modernized the world using energy generated from the countless deaths of non-human beings. Ultimately, behind this image too lies the sun's gaping madness, the source of all the earth's energy (excluding tide, geothermal energy, and fission). A culture based on subjective individuality is structurally dependent on vast amounts of energy, which it consumes entirely subconsciously, in volumes that a human being, left to his own devices, could never hope to match.

In other words: the modern subject cannot be sustained through manual labor alone. Quite the contrary: sustained manual labour is experientially one of the best antidotes to the con-distancing and nafthism of modern subjectivity. The subject's very existence and ongoing survival is contingent upon energy borrowed from oil, a light distilled from death. In order to have the energy to be a subject, to be modern, we humans must sift through layers of ancient, non-human death. The modern man, in his current individualized incarnation, is, quite literally, a fossil brought to life by the death of non-human ecosystems.

In its stance of independence from the social and natural environment, the modern subject is born out and guilty of nafthism. Its supposedly non-negotiable independence is possible only under quite specific circumstances of high energy surplus provided by a one-time gift of nature. This nafthist twist of the subject explains many otherwise puzzling phenomena

or aporias. According to its own self-understanding, the modern subject has the clearest objective and rational account of nature and itself. It also receives a huge energy surplus, a historically unique possibility for work. It is not obvious that the result from these two – a clear understanding of nature, and massive amounts of work – should bring about environmental destruction and collapse threatening the very existence of complex civilizations and multicellular life on the planet.

Because of its nafthist twist, the modern subject is structurally blind to its own conditions of existence, its need for energy slaves, and more slaves each decade. This blindness produces the “necessary surprises” that the modern subject encounters in terms of CO<sub>2</sub> emissions and garbage patches. Even a rudimentary material intelligence is enough to predict both – and indeed, Svante Arrhenius used calculative rationality to warn of global warming due to burning fossil fuels already in 1896. Yet, the reality of these phenomena still has a hard time in penetrating into the supposedly rational and self-interested minds of modern subjects. The fact that energy as a condition of modernity has been in a blind spot throughout the decades of economic growth is another consequence of this nafthist twist.

There is a delicious irony in the fact that now when nafthist modernity is waking up to the necessary surprises produced by its activity, the term that is used to describe these global material traces is the *Anthropocene*, “the age on man”. The proposal of the name for a new geological era is based on the fact that now traces of human activity can be seen in the geological strata all over the globe. The first level of irony is that, again, man is taking the credit for the work of burning fossil fuels – which in itself is not something very sophisticated (the use of fire was widespread even before the genesis of the species *homo sapiens*). However, the deeper irony is that these geological traces are the *unintended* consequences of the actions of modern subjectivity. Our geological footprint happens as “collateral damage”, unintended and unplanned. This kind of blindness is only possible because of the structural nafthism of modern subjectivity.

#### 4. CONCLUSION: ENERGY ETHICS BEYOND THE FOSSIL SUBJECT

Unfortunately, the nafthist forgetfulness extends into ethics. Any proposed course of action with regard to climate change and environmental sustainability that relies on a change willed and effected by modern subjects is, at best, twisted and, at worst, blinded by its nafthist structure.

The most obvious case are the proposed plans for geoengineering. They are ripe with all kinds of unintended consequences and uncalculated effects. As Paolo Virilio has quipped, “when you invent the ship, you also invent the shipwreck” (2001, 32). There is little reason to believe that geoengineering or dreams of moving to Mars and beyond would not be tainted by nafthism. Additionally, as energy intensive and massive technological projects, plans of geoengineering lack a material basis, if the use of fossil fuels needs to be wound down.

Similarly blinded are various agenda of consumer activism, where the change is supposed to happen as subjects become more rational and out of a need for self-preservation choose to become less consuming and more environmentally sustainable. The problem here is double. First, the upholding of these activist and rational consumers is itself an endeavor that needs a high level of energy surplus. Second, at least as heirs of fossil modernism, such subjects carry a nafthist heritage, which will inevitably pervert their supposedly environmentally sound choices.

From this perspective, it is easy to see that the cure for nafthism happens only by deconstructing the illusion of independence from the environment and the social milieu inbuilt in the modern subject. The needed change is cultural and social, not individualistic or subjective (in the sense of happening in/through subjects).

A supporting empirical observation can be made by taking into account the actually existing ways of life that are environmentally sustainable. None of these ways of life are modern (even though, of course, no corner of the globe is currently free from the influence of modern civilizations), and the people living them do not see themselves as modern subjects, essentially separate from their socio-cultural and natural environments. They do not conceptualize their relationships with nature in terms of “environmental sustainability”.

As all weaning, our disengagement from the fossil system is simultaneously a positive, constructive process, a kind of rebuilding. By penetrating into the proximity of habit, we must recognize not only the presumptions of fossil sense, but also its objects, such as climate change, garbage patches floating on seas, light pollution, etc. These objects and networks of objects for their part form a material basis for all existence after the economy of growth. At the same time, we need to feed the new sensibility which is being born; we need to observe its objects, practices, habits, and gestures: not only in order to de-fossilize our subjectivities but ultimately criticize fossilized subject-object relations as such. One good rule-of-thumb for recognizing de-fossilized subjectivity is that, in contrast to modern subjects, de-fossilized subjects do not see themselves independent from larger natu-

ral and social wholes, up to the point that the term “subject” may not apply to them, at least from a modern perspective.

There are two ways in which these naftological observations on the modern subject can be brought to bear on energy ethics. First, one may cling to a definition of ethics according to which a prerequisite of ethics is the existence of a free and rational subject, able to deliberate on his/her actions. Under this definition, energy ethics may study the different (deontological, utilitarian, etc.) frameworks which subjects (as consumers, citizens, activists and so on) use in conducting their actions. However, by definition the way in which the modern subject itself is conditioned by energy surplus and remains a structure of naftism is outside of the scope of this type of inquiry. Consequently, this mode of energy ethics is “shallow” in the sense of not engaging with the de-fossilization of the experience of modern subjectivity.

The second possibility is to widen the narrow definition of ethics to include also the study of the non-individual spheres of action, volition, cognition and so on, out of which the subject under specific circumstances arises. Here, the subject, its constitution and its actions would be one of the phenomena under study, and deliberate subject-initiated action would be one of the foci of ethical inquiry, but by no means the only or the most important one. Many ethical traditions, in this wider sense of the term, have seen the self-conscious ethical activity of the subject as the tip of a much larger, non-individual and possibly even non-human iceberg. This kind of “deep” energy ethics would then concern itself with the larger ecosystemic or metabolic ways of life (Gr. *ethos*), in which the “goods” and “bads” internal to the ways of life are distributed much wider than the limits of the responsibility of an individual subject. The observation that it is possible for groups of *homo sapiens* to live in a way that does not (quickly and for all practical purposes irreversibly) destroy the natural environments on which the group is dependent points out that living with energy and work is possible in non-modern ways. To limit the use of the term energy ethics only to the context of modern rational subjects is parochial.

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