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► **To cite this version:**

Yves Citton. Nature's Ghosts: Environmentalism as Spectral Mediality. Ritorni Spettrali. Storie e teorie della spettralità senza fantasmi, 2018. hal-02912289

HAL Id: hal-02912289

<https://hal.science/hal-02912289v1>

Submitted on 5 Aug 2020

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« **Nature's Ghost : Environmentalism as Spectral Mediality** », paru en traduction italienne par Ezio Puglia sous le titre « La Natura e i suoi fantasmi » in Ezio Puglia et al. (éd.), *Ritorni Spettrali. Storie e teorie della spettralità senza fantasmi*, Rome, 2018.

Yves Citton

Nature's Ghosts: Environmentalism as Spectral Mediality

Abstract

This article attempts to trace one particular register of spectrality, in a lineage going from Lucretius to Anna Tsing via Paracelsus and Charles Tiphaigne de La Roche, where ghosts are a matter of multitudes and environments rather than individualized revenants. My goal is not to prove or disprove anything about the current interest of spectrality studies—let alone about the degree of existence attributable to ghosts and revenants. My purpose is to better understand the degree of liveness we attribute to each other and to ourselves within relations inextricably entangled in apparatuses and networks of mediality. This will lead me to question the current status of one of our most evanescent but prevailing ghosts—Nature—and to sketch a form of environmentalism that would unabashingly reclaim its spectral thickness.

Ghosts, spectres, spirits and phantoms were perceived, discussed, theorized and, yes, “de-constructed”, long before Jacques Derrida made them popular (again) among academic and intellectual circles in the 1990s. The “spectral turn” well documented over the past decades looks very much like a merry-go-round, surviving its own decay century after century, as an eternally reappearing ghost of itself. This article will attempt to trace one particular register of spectrality, in a lineage going from Lucretius to Anna Tsing via Paracelsus and Charles Tiphaigne de La Roche, a lineage where ghosts are a matter of multitudes and environments, rather than individualized revenants.

My goal, of course, is not to prove or disprove anything about the current interest of spectrality studies—let alone about the degree of existence attributable to ghosts and revenants. My purpose is to better understand the degrees of liveness we attribute to each other and to ourselves within relations inextricably entangled in apparatuses and networks of mediality. This will lead me to question the current status of one of our most evanescent but prevailing ghosts—Nature—and to sketch a form of environmentalism that would unabashedly reclaim its spectral thickness.

Emanations

My beloved cat Rudy, a beautiful female baptized with a Palestinian name, recently passed away. I have seen Rudy countless times after her physical body had been cremated. Of course, I have not seen *her*, but only her *ghost*. What was this ghost made of? Something similar to what Lucretius called *simulacra* in *De rerum natura*: a superficial appearance that came to detach itself from Rudy's material body and to float away from her actual presence. During her lifetime, the *simulacrum* of certain types of forms and movements emanated from

Rudy's presence in my close vicinity, it was perceived iteratively by my sensorial and affective nervous system, and it left a sort of imprint in the storage capacity of my live memory.

Because our attention has to identify with the greatest possible speed the (potentially threatening) objects that cross our path and come our way, our mental apparatus has trained itself constantly to anticipate the recognition of whatever enters our perceptual field. From a few sketchy and partial clues, it instantaneously extrapolates the presence of the objects associated to certain bundles of such cues. A mere crack in the wood floor would identify Rudy crossing the bedroom at night. A passing change of light close to the kitchen door signaled her having gone to get some food. Rudy's ghost is made of such fragments of perceptual patterns (*Gestalts*), imprinted into my nervous system by years of sharing my home with her, and reactivated punctually by the irruption of a perceptual trait which triggers an anticipated but erroneous assumption of her actual being here.

Rudy's ghost is activated only insofar and as long as I have been deeply affected by her presence and absence. It is the vivacity of our affects (of love, fear, desire, longing) towards certain beings—through the bundle of traits we learn to associate with them—that generate their ghost. These affects are eminently *local*: those beings closest to us tend to affect us the most, even if, as we all know, media's capacity to “fold time, space and agency” (Parikka 2011) can very well make certain distant beings feel very close to us, and therefore deeply affecting and affective. Mental sanity consists, via Freud's “principle of reality”, in constantly adjusting our anticipated and sketchy assumptions of presence to the perception of the (other) actual effects expected from such presence. In the long run, within a few months or years, I will hopefully tend to perceive Rudy's ghost less and less, as my life progressively moves away from her temporal and spatial vicinity.

But then again, in the long run, within a few months or years, we will all be dead. Life goes on not so much through forgetting—although forgetting certainly does us good—as through digesting our experiences and encounters, to the point where they become an unnoticeable part of us. Rudy will not be (so cruelly) missed, but she will not be merely forgotten, as if she had never existed in the first place. For a number of years, she has been a structuring presence in my *external* environment. For the few months or years I may still have to enjoy, she will remain a structuring presence in my *inner* environment. Her ghost will have materialized a moment of passage, from her existence in my physical environment to her persistence in my mental environment. As simulacra and as emanations, ghosts are an environmental matter.

Denaturations

The rich and fascinating *Spectralities Reader* edited by María del Pilar Blanco and Esther Peeren (2013) covers a remarkably wide range of ghostly ground, from ontology to literature, and from sociology to media studies, recovering a wonderful diversity of revenants raised from the ranks of well-identified categories of oppression: women, gays, ethnic minorities, the poor, the uneducated. What returns to our collective awareness through the detour of ghostly apparitions is the invisible but nevertheless nagging presence of the subaltern: repressed, peripheral, denied, ignored, it remains as a haunting presence, somewhat in the background, in spite of our best efforts to enjoy our dominance and look the other way.

One (ghostly) figure, however, is conspicuously absent from the Great Parade of Modern Spectrality: Rudy—i.e., non-human life, call it “animal” or “natural”. And yet, it might be argued without much difficulty that “Nature” ought to haunt us at least as much, in our age of Anthropocene (or Capitalocene), as the figures of gay lovers or marooning slaves. Nature's absence from the Great Parade may be the symptom of a spectrality elevated to the power of two (*spectre*²). It remains invisible among the invisibles, repressed among the

repressed. We can't even count it among our familiar (if uncanny) set of ghosts. Unable to see it (as is suitable to phantoms), we can barely name it.

It was ill advised to call it “Nature” for decades, after Bruno Latour (1991) convincingly showed us that (pure) Nature as such is nowhere to be seen around us: all we encounter are (impure, hybridized, mixed-up) entanglements where historical artefacts, economic pressures and political ploys have constantly reconstructed what it would be naïve to experience as natural. Victor Hugo in his novels as well as the Hegeliano-Marxist tradition in its theories made us aware of this incessant intermingling of agencies, whereby power relations within the human world have come progressively to permeate every inch of Planet Earth, including the “natural reserves” of “wilderness” preserved from human agency by human agency (*spectre*² again). To top it all off, Philippe Descola (2005) revealed that the very opposition between Nature and Culture, through which the most naïve among us hoped to protect our environment, was at the root of our most destructive postures towards it: it is due to its “naturalism” that Western Modernity has put itself in a position of mastery that allowed it to ravage our planet by exhausting its resources and disrupting its equilibriums. Timothy Morton (2007) proudly—and relevantly—called for an environmentalism finally freed from any reference to the boogie man of “Nature” which only confused, romanticized or eschewed the real issues we have to face in order to prevent the dramatic destruction of our lifeworld.

Nature's double ghost—*spectre*²: spectral presence of an unnamable entity—seems nevertheless obstinately to refuse to die. A growing number of thinkers, researchers, experimenters and activists reclaim the disqualified reference to “Nature” as a weapon against an excessive technocracy or abstraction of the dominant uses of words like “ecosystem”. As a word and as a call to arms, “Nature” is back, in a true revenant fashion. We will go nowhere by merely assessing, protecting and economizing our resources: we need to actually perceive the (spectral) presence of Nature, whether we call it “Pacha Mama”, “Mother Earth”, “the Planet” or “Gaïa”. Learning to feel its ghost (again) is a prerequisite to enter any training in Basic Environmentalism (hug a tree, love a weed, worship a mushroom, immortalize a cat). The previous section suggested that ghosts are an environmental matter. Our latest turn in ecological philosophy suggests that the environment is a ghostly matter.

Penetrations

None of this is really new. Neither are ghosts: as revenants, it is their job to return from the past, to haunt us in the present. During the 1530s, the Swiss philosopher-physician Paracelsus, Theophrastus von Hohenheim (1493-1541), wrote in German a brief treatise published in Latin translation in 1569 under the title *Liber de Nymphis, sylphis, pygmaeis et salamandris et de caeteris spiritibus*. It presented a description and analysis of a very peculiar type of creatures which became known, and very popular, a century later as “elementary beings”. They were divided into four types, each related to a natural element: the nymphs were associated with the water, the sylphs with the air, the pygmae with the earth, and the salamandres with the fire. They were all “supernatural things [*supernaturales res*]”, which would only exceptionally appear to our senses, and only “as if in a dream [*quasi per somnum*]”. They constantly lived around us, unbeknownst to us and unnoticed, mostly in natural sites like forests, ponds and caves.

Paracelsus insisted on describing them as intermediary beings, partly similar to us humans, partly similar to spirits. Like us, they are made of flesh and blood, they need food, they reproduce, they can speak and even laugh, and they are subjected to death. Like spirits, their flesh is not of Adam, they can penetrate through walls [*spiritualiter ambulans*], they have no soul [*anima*], and they cannot be coerced [*nemo coercere potest*].

These invisible, elementary and natural spectres are *free spirits* indeed. Contrary to Lucretius *simulacra*, they are not impersonal appearances that have taken their autonomy to

float around human perceptions and mimic reality under varying guises. They are living creatures, made of their own (different) flesh, endowed with their own (sexual) desires, eager to copulate with some of us humans. But they remain ghostly, insofar as they escape our sensory perceptions and freely walk through the material obstacles which constrain our movements. Their power of penetration is both physical (their “spiritual walking” through walls) and informational (they know our secrets, our desires, and part of our future).

While belonging to our natural environment in its most elementary forms (water, air, earth, fire), these mostly benevolent ghosts bear supernatural powers which both penetrate and evade our human powers. We must learn to live with them, to know them, and possibly to use them towards our own purposes, Paracelsus tells us, but we should first and foremost pay attention to their uniquely *medial* and *mediumnic* nature.

As Stefan Hoffmann (2002) has shown in his *History of the Concept of Medium*, Paracelsus' writings played a crucial role in the development of the German vocabulary and conceptions of mediality. The elementary beings are not only *intermediary* creatures, to be situated half-way between animals, humans and spirits; they also operate as *intermediators* between our natural environments and our intersubjective relations (Citton 2018). By acting as mysterious vectors of secret knowledge about our inner self or about our hidden future, they are carriers of information that tend to “fold time, space and agency”, in conformity with an ecological definition of media proposed by Jussi Parikka (2011). More importantly for our purpose: just like the sylphs are, etymologically, “spirits of the forest” (*sylvae*), and nymphs are “spirits of the waves” (*ondines*), these ghosts embody the power of the medium as a power of the *milieu*, in its puzzling double meaning (*milieu*²)—simultaneously what surrounds us (the milieu *around* our being) and what inhabits our most intimate self (the milieu *at the centre* of our being). In other words: these elementary ghosts too are an environmental matter, a most spectral matter which invisibly penetrates from the natural exteriority of our environment to the innermost intimacy of our desires.

Broadcastings

Paracelsus' *Liber de Nymphis* became hugely popular after an odd parody published under the title of *The Count of Gabalis* by Montfaucon de Villars (1670) generated a craze for elementary beings in European literary circles. Countless libertine narratives of (male) sylphs and (female) sylphides were written, avidly read and immediately staged for the Opera in France during the 18th century. Not much of their “natural” origin was left in these highly sophisticated tales of worldly galanterie. While Paracelsus' creatures were described as multitudes, roughly categorized under their physical primary element, writers like Crébillon (1730), Bibiena (1747), Marmontel (1761) and Cazotte (1772), promoting their tales in highly refined salons, would grant them individuality, and even names (Biondetta), as well studied by literary scholars (Seeber 1944; Ramirez Gomez 1997; Delon 1999; Mattazzi 2007; Citton 2011).

At least one obscure writer stuck to treating the elementary beings as a population devoid of any form of personal identity. Charles Tiphaigne de La Roche (1722-1774), also a philosopher-physician himself, wrote two truly amazing books, *Giphantie* (1760) and *L'Empire des Zaziris ou la Zazirocratie* (1761), where he would return to—and significantly augment—the spectral eco-mediality inherent to Paracelsus' first intuitions (for more on Tiphaigne, see Marx 1981; Citton 2011; Citton et al. 2014). These two imaginary voyages into (and satirical denunciations of) the ridicules of the *société du spectacle* of their time describe human societies as manipulated by “elementary spirits”, invisible but ubiquitous beings who operate through us when we believe to be motivated by our inner free will. Distributed everywhere, among and in between us, they observe and inspire everything which takes place

in the human world, exercising a form of global, though innocuous and rather playful, surveillance.

Tiphaigne does not only comment in details the spectral mode of presence of such elementary spirits—their phantom briefly appears as a sort of veil, blurring the view in mid air, as if an almost perfectly transparent screen was introduced between our eyes and the world. He also takes great care in describing the new technological devices the elementary spirits use to watch over us, in the constant surveillance exerted by their Decentralized Intelligence Agency. If the imaginary travel in the island of Giphantie has not been totally erased from our collective memory, it is thanks to a couple of pages describing fairly precisely the general process which came to be known, more than half a century later, as photography. The elementary spirits have figured out how to prepare a paste, spread it onto a flat surface, expose it to the light, and let it briefly rest in darkness, so that it captures and stabilizes forever a certain image of reality, generated “by nature herself”. Thanks to this technology, they have been able to keep vivid and “ontologically realistic” representations (to speak in Bazinian terms) of the most important moments in human history, that the traveler-narrator in Giphantie discovers inside a long gallery which provides a glimpse of our common multi-secular Past.

But the most intriguing invention used by the elementary spirits is a network of mirrors and tubes allowing them to listen to and look at whatever is said and done anywhere on Planet Earth. This ubiquitous live coverage gives the island and the book its name: *Giphantie* can be read not only as an anagram of Tiphaigne, but also, no less importantly, as “the appearing of the Earth” (*Gaia-phanein*), providing one of the first technologically-mediated view of Gaia at the dawn of the Anthropocene. What the elementary spirits monitor in real time is not really our physical globe, as in the previous inventions of scientific imagination, but a chaotic juxtaposition of stereotyped conversations denounced as thoughtless clichés, conformist even in their denunciation of conformism. The elementary spirits are everywhere, they hear, see, record, analyze and process everything, in a position of omniscience and omnipotence, but all they have to witness are unimaginative foolishness, silly hopes and boring laments.

Tiphaigne's world is made of indistinct multitudes, pre-individual tendencies and depersonalized aggregates. In an earlier narrative, *Amilec* (1753), he described how other invisible and ubiquitous beings manipulate human seeds and “*tubules*” (striking anticipations of our DNA), in order to produce the variety of characters, types and professions composing our social world. Throughout their astonishing diversity, all of Tiphaigne's books explore the stakes of what came to be known as *broadcasting*, which originally referred to spreading seeds over a field. Biological and intellectual life is a matter of uncountable multitudes of elementary entities chaotically organizing around strange attractors, assembling and disassembling, converging and diverging, copulating and struggling. They form certain bodies—animals, couples, families, villages, towns, countries—before dissolving, only to reassemble in different configurations.

Amplifications

This Paracelsian bio-noo-imaginary made up of elementary spirits has been resuscitated a century and a half later by Thomas Edison in the texts collected under the title *The Realms Beyond* (1920-1925). These writings describe a worldview based on “tiny entities which may be the cells that are the units of life” (206). According to Edison, we wrongly believe that the individual level of the person or the animal is the only relevant one to conceive our identity and interactions, whereas the proper scale is that of “life-units”, “too tiny to be seen by even the most high-powered microscopes” (207). “Billions of little peoples, perhaps, come together in a certain individual” (213). These “swarms” of “minute intelligences”—which “would pass through a wall of stone or concrete almost as easily as they would pass through the air”

(236)—“may assemble and reassemble in a thousand different forms from a starfish to a man, but they are the same entities” (208).

More importantly for our current purpose, when a man dies, “the life-units which have formed that man do not die. They merely pass out of the unimportant mechanism which they have been inhabiting, which has been called a man and has been mistaken for an individual, and select some other habitat or habitats” (217). Seen from the point of view of Tiphaigne's elementary spirits or of Edison's tiny life-units, planet Earth appears as a wide habitat ubiquitously fertilized by invisible entities broadcast all over it. *Giphantie* and *The Realms Beyond* give us a glimpse of the very matter our ghosts are made of—a purely “natural” matter, but a matter that could be detected, explored and potentially exploited by technical means (for powerful and subtle analyses on ghostly media, see Sconce 2000; Gunning 2013; Andriopoulos 2013; Thacker 2014).

For it was indeed Edison's hope to engineer a *necrophone* (Baudouin 2015), an apparatus sensitive enough to catch information coming from these elementary entities still organized in clusters after they had departed from our loved ones. “I do claim that it is possible to construct an apparatus which will be so delicate that if there are personalities in another existence or sphere, this apparatus will at least give them a better opportunity to express themselves than the tilting tables and raps and ouija boards and mediums and the other crude methods now purported to be the only means of communication” (239). The few technical indications given about this highly secret invention describe this apparatus as an all-powerful amplifier: “in exactly the same way as a megaphone increases many times the volume and carrying power of the human voice, so with my 'valve', whatever original force is used upon it is increased enormously for purpose of registration of the phenomena behind it” (205): “the slightest effort will be magnified many times so as to give us whatever form of record we desire for the purpose of investigation” (240). Elementary spirits and tiny life-units are endemic and ubiquitous all around (as well as inside of) us. They are the natural stuff ghosts are made of. All we need, if we want to communicate with them, are new media able to amplify the signals emanating from their penetrating presence.

Strikingly, Edison felt compelled to mobilize ecological metaphors in order to account for the mode of existence of such natural ghosts

A common saying is “We are creatures of environment”. This is true, at least up to a certain point. We have seen how environment has wrought changes upon animals and even wiped out certain species altogether—as the discovery of numerous skeletons of mammoth animal of prehistoric days has proved. Units of life, it is perfectly reasonable to deduce, require certain environment to function in certain ways, and when environment undergoes complete change, they seek other habitats, other dwellings, so to speak, for the carrying on of their functions. (237-238)

These ghosts are indeed an environmental matter: “creatures of environment”. They are *milieux*² in the full power of their double meaning: both ubiquitous spirits invisibly filling our environment, and centers-of-individuation focusing a certain habitat, dwelling, home, *oikos*. The back-and-forth movement between one meaning (*milieu*-environment) and the other (*milieu*-center) is provided by the amplifying apparatus, whose function it is, precisely, to alter the scale of the event—in full conformity with Marshall McLuhan's definition of media. What was originally narrowly localized in the here-and-now becomes disseminated, distributed, diffused, broadcast in remote areas of space and time—virtually everywhere (Citton 2017).

Each of these two opposite meanings of the *milieu*² is the ghost of the other. As we have seen in the first section above, Rudy's natural ghost is made of the sensory clues still present in my environment after her passing away (moving shadows, squeaky wood floor), which my expectations erroneously interpret as markers of her presence. My environment is her ghost. In Edison's worldview too, the ghost is the environment. It is the habitat, the dwelling, the *oikos* which conditions the functioning and configuration of the life-units. The amplifying apparatus Edison hopes to develop is designed to give voice to the persistence of the configuration after the demise of the habitat. The voice of the ghost is the voice of a disappeared environment.

Phantomizations

Two very different texts help us account for such ghostly voices, before and after Edison wrote these pages. Back in *Giphantie*, Charles Tiphaigne insisted in describing the world of the elementary spirits as populated with “living dead”. Painted in very broad strokes, his reasoning was the following: human beings are not to be conceived as a binary alloy of mind and body, but as an unstable composite of three basic principles: bodily matter, reasonable soul (*âme raisonnable*) and universal spirit (*esprit universel*). The *universal spirit* accounts for the affective movements that trigger us from the outside to do this rather than that. It can be seen as our informational environment: it makes us laugh when we are exposed to joyful stimuli; it makes us cry when sad images and news surround us. These flows of information penetrate us, agitate us, turn us around like winds pushing weathervanes (the latter are evoked by the title of Tiphaigne's last publication *Sanfrein ou la girouette*). They influence populations behaving like masses. Their blowing (*spiritus*) is “universal” insofar as it is indiscriminate: it makes no difference among individuals.

It is the *reasonable soul* which is the source and locus of our singularization. It allows us somewhat to withdraw from the universal flows of information, to think on our own, to “think aside”, to “think apart” (*penser à part*) in Tiphaigne's terminology. It allows us to be more than the sum of the influences to which we are exposed at any given moment, to be unpredictable, unprogrammable, not-fully-submitted to our environment—i. e., *subjects* rather than pawns, puppets or weathervanes.

Tiphaigne's satirical vein pushes him to describe the modern society he sees emerging around him as populated by bodies pushed exclusively by the universal spirit of impersonal informational flows (stereotypes, clichés, images, soundbites), leaving no protected room for our reasonable soul to think apart. As a consequence, we Moderns, in his view, are “living dead”: hollow beings acted by the universal spirit of mediatic flows, without strong anchorage in the reflexive singularity of a reasonable soul. The universal spirit speaks and acts through us: we live *its* life, without asserting *ours*—which reduces us to the status of living dead.

A little more than two centuries after Tiphaigne wrote about elementary spirits and living dead, Günther Anders' *Obsolescence of Man* described our intensely medialized world “as phantom and as matrix”. The USA of the 1950s displayed a world where our subjectivities are hollowed by mass entertainment, where the universal spirit of Hollywood leaves no space for our reasonable soul to take any distance from the shadows projected on the walls of the technological cave that surrounds us. Anders' analysis strikingly summarizes the whole tradition covered by the various sections above, as well as the critical theory later developed in denunciation of the brainwashing operated by cultural industries. His theorization of the “matrix” already depicts the Baudrillardian world of simulacra inherited from Lucretius and fictionalized in the Wachowski siblings' trilogy (whose protagonist Neo is by no coincidence named Anderson). The simulations emanating from our TV screens reconfigure our world thanks to their power of penetration into the private *oikos* of our homes. We are transformed

into living dead and ghosts because the sound and images broadcast by mass media reshape our whole environment (our whole “reality”) from the inside:

what dominates the home, thanks to television, is the broadcast of the *outside world*—real or fictional; and it dominates the home in such an unlimited manner that it invalidates and renders phantasmagorical the reality of the home, not only that of the four walls and the furniture, but also of the shared family life itself. When that which is remote becomes familiar, the familiar becomes remote or disappears. When the phantom becomes real, reality becomes a phantom. Nowadays, the real home has been demoted to the status of a *container* and its function is reduced to containing the video screen for the outside world. (§3)

We are living dead because everything around (and inside of) us has been transformed into a mere ghost of itself: “the events that are broadcast are, at the same time, present and absent, real and apparent, there and not there [...] they are phantoms” (§11). This denunciation of the phantomization operated by the mass media within a “society of the spectacle” (Guy Debord 1967), leading us to “amuse ourselves to death” (Neil Postman 1985), has rapidly become a commonplace, conquering popular television itself well before colonizing academic circles, as Jeffrey Sconce (2000) has well demonstrated.

This widespread cliché deserves briefly to be revisited here, not so much because it transforms us from living dead to laughing dead, but rather for its ecological implications. What does it mean to say that the *oikos* of our home has become a mere “container” of the video screen that brings us ghostly images of the outside world? Anders' mass media, like Paracelsus' elementary beings, are clearly “*supernaturales res*”: they did not exist in our natural environments before human artefacts introduced them into our homes. The same oscillation observed above between the two opposite meanings of the *milieu*² obtains here : the TV screen and radio receiver broadcast phantoms from the *milieu*-center of our homes; by doing so, they transform our natural *milieu*-environment into a mere ghost, which returns to haunt us in the form of the repressed.

Backgroundings

Several important books have brilliantly articulated in attentional terms our urgent need to face our ecological repressed. Anna Lowenhaupt Tsing (2015) calls for “an art of noticing” necessary for us to perceive the “latent commons” which are a precondition of our survival but which are ruined by the extractivist dynamics of global capitalism. Bruno Latour (2012) stresses the need for us to take into (our hegemonically economic) account the many different “modes of existence” weaving the rich complexity of our forms of life. Gilles Clément (2004) teaches us to pay attention to “third landscapes” (*tiers paysages*), these apparently derelict patches of territory which, like the Third Estate before the French Revolution, are currently recognized no rights nor status, even though they carry the burden of our common ecological diversity.

What is comparable in such diverse authors is a similar attentional shift: we need to learn to look away from the pre-identified figures on which our various screens focus our gaze, in order to pay more attention to the ghostly shapes neglected in the background (Quessada 2013; Bonamy 2013). The dominant definition of attention as a form of spotlight is deceiving (Zerubavel 2015). We survive and flourish only because our sensory system is much more broadly attuned to many more peripheric aspects of our environment than what our focused attention consciously notices. This background information, sensed below the threshold of awareness, is as crucial as it is underrated by the spotlight model of attention which dominates the current organization of our mediasphere. What is repressed by this

model may account for an important part of what currently comes back to haunt us as anthropocenic ghosts. If, as Ezio Puglia (2018) convincingly argues in his introduction to this volume, ghosts emanate from what we tend to disqualify as “refuse” and “residual”—i.e., that which escapes from our best efforts towards opportunistic recycling—then whatever we leave in the background of our attention is indeed our main source of ghostly experience.

The work of Gilbert Simondon helps us understand the deeper reasons for this ecological haunting by the background. In his analysis of the *Mode of Existence of Technical Objects* (1958), he suggests that, while technoscience elaborates knowledge by abstracting (relevant, meaningful) figures from their background, the religious experience of the sacred provides us with the opportunity *to feel the background as a background*. God or Nature—Spinoza's *Deus sive natura*—is the name we give to the broadest form of background environment. Ecological awareness may of course be supported by scientific knowledge, and it will be all the more persuasive and efficient if it is. But it may be more strongly grounded if it can plunge its roots into Nature's ghosts—i. e., into sensitive experiences of our environment as providing a wholesome background life-support, and not only a stock of resources and assets.

As our mediality evolves from the radio/TV-centered mass media system analyzed by Günther Anders to an Internet of things where sensors and computing are ubiquitous, the very notion of “environment” has seen a dramatic shift. Nature's ghost is no longer to be located only in that which has been left outside of the attentional focus provided by our TV screens. It also haunts us from within our networks, from the material and human resources exploited, abused and wasted by our electronic consumerism, but also from the huge amount of unquestioned data constantly generated by our tracking and monitoring systems—the “worldly sensibility” Mark B.N. Hansen (2016) has identified as the true novelty of “21st century media”. Now that sensing, tracking and computing are virtually *everywhere*, it becomes increasingly difficult to separate an inside from an outside, the natural from the artificial, the exploited from the repressed. Now more than ever, our apparatuses and networks of communication generate environments where the GUESTS are indistinguishable from the HOSTS—through inextricable entanglements likely to secrete countless GHOSTS along the way. The “technological unconscious” (Thrift 2005) that encompasses the enormous quantity of networks and devices complementing our nervous system within the functioning of our “extended mind” (Clark 2010) dramatically increases the proportion of what is left “unthought” (Hayles 2017) in what we (individually and collectively) think.

Presentiations

As a consequence, the “natural background” of our physical-biological environment is now doubled by a “computational background” offering almost endless resources to the new venture capitalists of data-mining. Both of these environments (*background*²) inextricably tend to merge—for instance in our current collective attempts better to understand, map and hopefully prevent the worst consequences of climate change. The ghosts returning from what is repressed or left unaddressed within each realm will necessarily multiply in the decades to come, confronting future generations to a double challenge in order to reassert the conditions of their presence on planet Earth.

The first challenge of human presentation addresses the dangers staged by Charles Tiphaigne's living dead and by Günther Anders' phantoms. In a world of ubiquitous mediality, where (commercial) flows of information animate us 24/7 with the powerful impulses of (a capital-driven) universal spirit, it becomes a challenge for an increasing number of us to assert the singular elaboration of reasonable soul. Nature's ghosts, on this first level, appear in the form of an affective intensification, well described in Brian Massumi's recent books (2002; 2014; 2015). Sensations, affects and intuitions have been largely disqualified during the

dominance of a rationalist-technocratic ideology which claimed to be justified only in terms of quantitative figures, verifiable observations and explicitable abstractions. As it becomes increasingly obvious that this ideology has been hijacked by financial interests that threaten to shipwreck our living environments, sensations, affects and intuitions gain a new currency as a form of counter-weight to the excesses of techno-scientific abstractions. Hugging a tree or immortalizing a cat may sound silly and unscientific, but—by paying respect to Nature's ghosts—it may foster more sustainable attitudes towards our living environments than spreading pesticides in the name of economic rationality and productivity maximization.

Insofar as our ghosts tend to haunt us through tenuous sensations, intense (but often ambivalent) affects and intuited feelings that help us envision what is not yet documented in numbered figures, their haunting opens a space for reflection that engages our “soul” (beyond our calculating self-interest) into a dynamics where the reasonable overcomes the limits of the rational. Our singularity becomes more present to itself by experiencing the intensity, instability, fragility and suggestivity of such ghosts. These ghosts attract our attentions to the dense background of lived relationality that weaves our experience in countless material and affective entanglements. It is through such ghosts that our natural and social environments get to *matter* more in our perceptions and behaviors (Barad 2007; Wark 2015). They are the (expressive) media and the (mediumnic) medium by the means of which our milieux can hopefully stay alive and continue to support our life along the way.

The second challenge of human presentation rests in the realm of the digital media that are currently re-weaving our relationality through the mediation of digital sensing, tracking and computing. In the 21st century, Nature's ghosts rise up not only from our personal sensations and feelings, but also from the automated computation of intersecting data. Climate modelizations, with their projections of desertification, floods, hurricanes and melting glaciers, haunt our collective imaginary even more than our dead cats haunt our private houses. Whereas our traditional ghosts haunted us by returning from a mistreated Past, the new forms of ghosts emerging from our computational background seem to come back to haunt us from our heavily indebted Future.

Even if this second type of Nature's ghosts are fully medialized and highly abstracted, they too make us more present to our here-and-now. They help us feel more intensely what we still enjoy, but are likely to lose. They invite us to “feed-forward” more of our currently available data into anticipating (and alleviating) probable outcomes (Hansen 2016). They call for us to do more now, in order to pile up less suffering on the decades and generations ahead. In all cases, we are challenged to redirect our attention towards the untapped backgrounds of our ubiquitous internet-of-things-and-people, in order to feel more intensely the present brewing of our potential futures. For if this summary survey of Nature's ghosts did not totally miss the mark, our lives of tomorrow hang on the multifarious spectralities haunting us today.

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