

Underground Climate: Infrastructure, Hollow Earth, and the Anthropocene

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In the nineteenth century, the underground underwent a process of imaginative transition. In an era of atmospheric volatility (the 1816 Year Without a Summer, the 1858 Great Stink, the 1884 eruption of Krakatos) it was increasingly imagined as an insular space where humanity could protect itself from the variabilities of a climate becoming chaotic. Interrogating representations of subterranean infrastructure made by speculative authors, engineers, scientists, and painters it becomes apparent that the imaginative network concerning underground climate is developed across the century, peaking in Edward Bulwer-Lytton's *The Coming Race* (1871), and Gabriel Tarde's *Fragment d'histoire future* (1896). These works, both dealing explicitly with underground climate engineering, enact as antecedents to the core themes of the increasingly chaotic Anthropocene: either we upgrade the scope of scientific modernity, Prometheanly perfecting the planetary climate to suit our specific needs, or we start conserving nature by *rewilding* the planet, Soterianly freeing the environmental Other from humanity's dire influence.

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Introduction

Early in his meditation on inhumation and history, *Urne-Buriall* (1658), English polymath Thomas Browne describes the discovery of “between fourty and fifty Urnes” (Browne 103) in the sandy soil near Walsingham in the 1650s. Browne refers to the dark interiors of these buried urns as ‘conservatories’ – spaces of conservation, insulated from what he calls “the piercing Atomes of ayre that corrupt the upper world” (112). Browne regarded the underground as a place wherein the law of natural change, the piercing atoms of air was deferred.

In the nineteenth century, Browne's remarks were gradually integrated into the general imaginary of the subsurface: step by step, tunnel after tunnel, literary work after literary work the underground was perceived as a place where humanity could suspend the corruption of natural change, degeneration, and decay. The underground came to be understood as a conservatory – not for exotic plants and flowers – but for the human; a strictly anthropogenic sphere where the chaos of nature could be suspended. The chaos of nature was in this context often understood as the chaos of climate: global atmospheric events such as the Year Without a Summer in 1816, growing air pollution in the greater cities, the Great Stink of London in 1858, the 1884 eruption of Krakatoa, and the nascence of anthropogenic climate change makes the nineteenth century a fundamental period in the cultural history of climate. In this article, I argue that the desire to control the climate system by artificialization and insulation begins to be speculatively acted out in the material and symbolic carving out of the new underground.

Interrogating representations of underground infrastructure made by popular authors such as Bayard Taylor, engineers such as Louis Simonin, scientists such as Émile Gérards, and painters such as George Jones we see in the British and French nineteenth century an intensifying image of the underground as a rational, inorganic, and strictly anthropogenic sphere with a controllable climate. No longer a site for imaginary encounters with mythological hellholes, it is perceived as a metaphor for a future world where the climate can be controlled, linearized, and regularized – opposed to the chaotic climate of the surface. Other than the popular sources speculating on the space of underground infrastructure, speculation on the subterranean atmosphere was, not surprisingly, most fervent in the speculative fiction of the period. It often exploited the Hollow Earth theory – the idea that the planet is a hollowed-out, concave sphere with holes at the poles – announced by the American officer John Cleves Symmes Jr. in 1818 (Griffin 2004).

While there has been a fair amount of scholarly work on the Hollow Earth trope in nineteenth-century literature (Chang 2016; Standish 2007; Fitting 2004), the entanglements of literature and geology (Buckland 2013; Heringman 2004), and the underground as a sphere of large-scale extraction (Miller 2021; Malm 2016), the many studies concerning the nineteenth-century underground, literature, and the Anthropocene occlude the atmosphere of the subterranean. The hesitancy to see the nineteenth-century underground as partly material *and* imaginative – infrastructure as well as allegory – has obscured how its unchanging atmosphere was perceived. In this article, to examine the subsurface as a site for climate engineering, I thus interrogate the underground as a ‘semi-fictional’ network; a fictive *and* material site.

The nineteenth-century imaginary of the underground atmosphere is not only an interesting object of attention because it reevaluates our understanding of the cultural past but also because it reflects our own Anthropocene present dealing ambivalently with an increasingly chaotic climate. Geo-constructivists and self-proclaimed Ecomodernists claim that climate crisis is the opportune moment for upscaling the project of scientific modernity. Instead of changing the capitalist system and reevaluating the legacy of the industrial revolution, they seek to save the planet by dabbling in planetary-scale climate engineering – either by carbon dioxide removal (CDR) or solar radiation management (SRM). To deepen the historical connection between nineteenth-century underground imaginaries and contemporary fantasies of climate engineering I draw on the polar positions within ecological thought that Clive Hamilton put forward in his *Earthmasters: The Dawn of the Age of Climate Engineering* (2016): the Prometheans – celebrating human mastery and technological progress – and the so-called ‘Soterians’ who argue for preservation, conversation, and *rewilding* – as Edward Wilson does in *Half-Earth* (2016).

In two of the most significant Hollow Earth novels of the century, best-selling English writer Edward Bulwer-Lytton's *The Coming Race* (1871) and influential sociologist Gabriel Tarde's *Fragment d'histoire future* (1895), we encounter the polar positions in their portrayal of subterranean space as an ecological laboratory wherein humanity, or in Bulwer-Lytton's case posthumanity, can engineer the climate. In Tarde's text, humanity – faced with climate disaster – drills into the bosom of maternal Earth wherein a modern project of climate rationalization can be achieved, the sociologist imagining a 'Good Anthropocene' world *avant la lettre*, a *paradis artificiel* of the Anthropos. In contrast to Tarde, the underground atmosphere in Bulwer-Lytton's novel is controlled by a sublime posthuman race, the Vril-ya, by way of the all-pervasive vril, mirroring real-life electricity. Contrary to the Prometheanism exhibited by Tarde, Bulwer-Lytton's story stresses the 'inhuman' character of environmental control, performing a Soterian critique of an increasingly rationalized and positivist modern world where the tempers of passion and the Romantic change of weather have been monotonized.

Interrogating the imaginary intersection between the speculative underground planet portrayed by Bulwer-Lytton and Tarde along with popular and scientific accounts of the 'real' infrastructural subsurface, the article sketches out a cultural history of how the subterranean in nineteenth-century Britain and France was increasingly framed as a site for climate control. The article contributes to nineteenth-century studies by revising the long critical history of the underground while showing how Anthropocene fantasies of climate engineering originated in the nineteenth-century imaginary of the subsurface.

Underground Atmospheres

The industrial revolution, well underway at the start of the nineteenth century due to James Watt's double-acting steam engine (patented in 1784), was energized by the coal of the underground. Accordingly, it would be remiss not to see the exploitation of the subterranean sphere as the matchstick that ignited global warming with fossil fuel combustion leading to a higher concentration of greenhouse gases. The link between the atmosphere and the underground has been forged by the forces of modernization. The two spheres also connect formally in that they resist neat representation. As the climate is a negotiation of perceptible events and immaterial average the underground remains oddly situated "between the visible and the invisible" (Lesser 1987, 2).

It was in the nineteenth century that speculation about the (in)visible nature of the underground was most prevalent. This seems a result of its transitory nature: from the industrialization of mining to the construction of underground railways, the subterranean was "more novel, more explored and exploited" from the late eighteenth century to the early twentieth century than at any time before or since (Pike 2007, 3). In the middle of the century, the spectacular scene of sweaty men digging merrily with spades and shovels, building underground intersections and arches, became a sight of modern life – as Ford Maddox Brown's oil painting *Work* (1865) so famously illustrated (Williams 1992, 52). Before then, the railway tunnels opened for the first time the underground experience – being immersed underneath – to the upper social strata of the Victorian age (63). This has led Benson Bobrick to argue that the railway was the transformational technology that made it "possible for people to reconcile themselves to living in the Underworld" (Bobrick 1982, 131). Progressively, going underground became presented as a positive loss of contact with the vagaries of nature.

Following this train of thought, Rosalind Williams argues that nineteenth-century undergrounds “provided a prophetic view into our environmental future” since “[h]uman beings who live underground must use mechanical devices to provide the necessities of life: food, light, even air” (Williams 1992, 4). Accordingly, eighteenth-century representations of subterranean sublimity “featuring the nocturnal fire of hell and volcanoes” were generally replaced during the nineteenth century by images of artificial infinity, which “slowly moved from architecture to art to literature, from realistic constructions to fantastic illuminated enclosures” (123). Step by step, tunnel after tunnel, literary work after literary work, the underground gradually stopped being perceived as a symbolic, esoteric, or religious place to visit as a foundational step in the spiritual *Bildung* of a literary character, Aeneas or Dante, becoming a place to live: an underworld carefully constructed by mankind.

Of course, this development was a result of the increasing links between the subsurface and the urban. During the nineteenth century, London and Paris, with their complex drainage systems, underground railways, and utility tunnels, literally became underground cities (Pike 2005, 1). This new metropolitan underground was constructed, carved out, and strictly geometrical. It posed as a stark contrast to the torturous and stalactitical natural cave of the countryside. The Thames Tunnel (opened in 1843) serves as a prime example. Since the construction of the tunnel was fairly challenging due to continual flooding, the directors staged in May 1827 a banquet in the Tunnel to convince the public of its safety, solidity, and nobility. George Jones’s oil painting *Banquet in the Thames Tunnel* (c. 1827) commemorating the event (fig. 1 near here) depicts a candelabra-lit, cleaned-up dome featuring forty distinguished guests such as the dukes of York, Clarence, and Wellington (Lampe 1963, 116-8). Jones illustrates the Tunnel as a highly respectable, almost futuristic, place reserved for the higher rungs of society: it is airy, spacious (space is an increasing rarity in the metropole), an indoor version of the outside world cut off from the variabilities of

weather. Jones's painting was, then, among the first to depict the underground as an inorganic and modern environment reserved for the higher rungs of society while hinting at a future world nourished by complete ecological control.

While Joseph Paxton, the engineer behind the rival tourist site of Crystal Palace, was sure that the respectable middle class would never voluntarily go underground, the Thames Tunnel proved a spectacular success (Pike 2018b, 35). The Tunnel, built under the direction of engineer Marc Isambard Brunel, was one of the most visited attractions in nineteenth-century London: in August 1851, 220,250 people passed through it, twice the number that visited the Great Exhibition in the same period (Lampe 1963, 208). Popular American poet, literary critic, and translator Bayard Taylor was also intrigued by the Tunnel, expressing pleasant surprise about it in his famous tourist travelogue *Views Afoot, or Europe seen with Knapsack and Staff* (1846):

From the bottom the view of the arches of the Tunnel, brilliantly lighted with gas, is very fine; it has a much less heavy and gloomy appearance than I expected [...] The air within is somewhat damp, but fresh and agreeably cool, and one can scarcely realize in walking along the light passage, that a river is rolling above his head. (Taylor 1847, 39)

The underground is framed as a gaslit, magical place where the cool, starry night becomes perpetual. The Tunnel was open 24 hours a day which made it possible to experience cool night during the surface day (MacCannell 1976), thus magnifying the chronological confusion of night and day introduced by the urban implementation of gaslights. Looking at Jones's and Taylor's representations of the Thames Tunnel, it becomes apparent that the 'new' underground in Britain increasingly appeared as a place of the future where the inconvenient differences of day and night, winter and summer could be resolved.

Some 20 years after the successful opening of the Thames Tunnel, French engineer Louis Simonin, a graduate of the Ecole des Mines in Saint-Etienne, published his panoramic study of modern mining, *La vie souterraine* (1867). Simonin portrays the new

underground as an animated, living network crisscrossed by city streets, canals, and wide galleries that are “long, large, well-ventilated” (138 – my translation):

This subterranean city is inhabited night and day; it is illuminated, but by smoking lamps. It has railways on which horses and locomotives run. It has streams, canals, and fountains, sources of running water which, it is true, one could do without. (138-9 – my translation)

Perpetually illuminated and well-ventilated, the underground world is a subsurface reflection of the rationalized modern metropole. Simonin thus imagines a phalanstery future world where humanity lives in an inorganic indoors, reflecting the city architecture imagined and implemented by Baron Georges-Eugène Haussmann.

When Haussmann began his urban planning around 1852, Paris had under 100 miles of sewers; in 1870 the city had 348 miles (Pinkney 2019, 132). Once built, Paris had a system of straightened underground galleries so that networks – water lines, gas lines, cables for telegraph and electricity – could be suspended from the walls. The intricate arrangement of *les égouts* proved popular, the system earning a recommendation in Baedeker while figuring as a tourist site during the 1867 international exposition, attracting visits by royalty and the general public alike (143). The inclusion in the *Exposition universelle* shows that the subsurface was beginning to be perceived as a technological invention; an environment solely created and controlled by Anthropos.

Similarly, Emile Gérards, inspector at Paris Works, envisioned the underground as a sanitized, scientific space in his monumental study *Paris souterrain* (1908). By imaginatively expanding the subterranean laboratory – called ‘Le Laboratoire de Catacombes’ – of the Muséum national d’Histoire naturelle established in 1896 by speleologist Armand Viré, he envisioned underground Paris as one big research center (Gérards 1908, 525). Standing on the threshold of the coming century, Gérards enthusiastically anticipated the mechanization of the underground as a purely technological sphere: a place for classification and experimentation (Pike 2005, 72). At the end of the

century, the association between human progress and the subterranean reached an acme. An evolution that – as we will see – is amply illustrated in Gabriel Tarde’s 1895 *Fragment d’histoire future*.

Although comparative work such as David Pike’s *Subterranean Cities* (2005) and *Metropolis on the Styx* (2007) provide rich counterexamples, illustrating that the urban underground was also perceived as a Necropolis (Pike 2005, 101-189) and a site for crime mystery (Pike 2007, 158-219), it seems safe to say that the underground throughout the nineteenth century underwent a radical process of material and imaginative transition: no longer a torturous and stalactitical cave of the countryside, the new underground gradually became geometrical, urban, and anthropogenic. It became a place of promise, a metaphor for not only a technological but also a climatological future of control, linearization, and regularization. The large-scale physical modifications of the British and French subsurface formed a natural part of an imaginative exchange with the speculative literature of the time that extrapolated the subterranean infrastructure of the metropole into an underground world with its own flora, fauna, and atmosphere.

Underground Worlds

As David Standish has demonstrated, it is remarkable just how many Hollow Earth novels – fiction wherein the hero discovers an underground world – were published in 1880-1915 (2007, 200). At the turn of the century, the subgenre peaked, fusing ideas of subterranean inhabitation with fantasies of climate engineering. Prominent examples count Mary E. Bradley Lane’s *Mizora* (1880-81) in which a subterranean, feminist techno-utopia is cultivated by the artificialization of rain, popular author Will N. Harben’s *The Land of the Changing Sun* (1894), concerning a technologically advanced civilization that has created a

mechanical sun underground, and Charles Derennes's *Le Peuple du Pôle* (1907) which is about a futurist iguanodon civilization living with formidable technology, benevolently influenced by a temperate climate underneath the North Pole. Following Elizabeth Chang, in this kind of literature, we see the contours of modern environmental thinking in that, due to its seemingly inorganic setting, all the constitutive elements of life – sun, air, water – must be rationalized into existence (2016, 389). Accordingly, Hollow Earth Fiction should not be seen as strictly allegorical explorations of an allegorical Nowhere. Rather, this type of fiction interrogates, investigates, and imagines the very real atmospheric outlook of an underground world. As Benjamin Morgan puts it, in “Hollow Earth Fictions, planetary enclosure enables the imagination of a world in its totality” (Morgan 2016, 620). Speculative literature concerning the journey and creation of an underground planet explores in contrast to the realist, hyper-localized novel (George Eliot, Thomas Hardy, Honoré de Balzac, Émile Zola), a vision of global ecology.

Although the Hollow Earth novel, due to its focus on world-ecology, seems like a “transatlantic genre [...] markedly resistant to national boundaries” (Chang 2016, 388), almost all nineteenth-century Hollow Earth novels were written by authors from either England or France, the two countries most involved in large-scale extraction (mining, boring, etc.), geological and speleological science (Charles Lyell, William Buckland, Georges Cuvier, Édouard-Alfred Martel) and underground infrastructure (railways, metros, etc.). Some of the most significant Hollow Earth Fiction remain the English popular writer and politician Edward Bulwer-Lytton's bestseller *The Coming Race* (1871), and the French sociologist and professor in philosophy at Collège de France Gabriel Tarde's *Fragment d'histoire future* (1896), translated into English and prefaced by H. G. Wells in 1905. The wide reach of these novels seems in part a result of the authors' high-standing political and intellectual position, but their cultural success was also the result of their visionary depictions

of an underground world. *The Coming Race*, dubbed “a monotypic sub-genre onto itself” by science fiction scholar Darko Suvin (1984, 240), is a utopian and dystopian depiction of the subterranean inhabitation while *Fragment d’histoire future* pursues a post-apocalyptic and quasi-sociological depiction of an underground utopia based on art.

Bulwer-Lytton’s Weird Weather

The Coming Race is the story of an innocuous, nameless American man who falls into a mining chasm and meets the subterranean, superhuman race Vril-ya, who controls a mysterious, electricity-like form of energy called vril. At the time of its publication, Bulwer-Lytton had experienced sustained literary success, having written 27 novels, including bestsellers such as *Paul Clifford* (1830) and *The Caxtons* (1849). Politically, Bulwer-Lytton was also a prominent figure, serving as a longstanding member of parliament as well as Secretary of State for the Colonies from 1858 to 1859. *The Coming Race* continued Bulwer-Lytton’s good fortune, running through five editions in its first year alone. The reviewer for British literary magazine *The Athenaeum* expressed a profound desire for the author’s underground vision: “often, in reading of the delights of this underground Utopia, have we sighed for the refreshing tranquility of that lamp-lit land” (“Advertisement for *The Coming Race*” 1871). To put it briefly, *The Coming Race* was “taken extremely seriously by many readers, and became an international cultural commonplace for many years” (Walker 2020, 137) which makes its depiction of subterranean space of particular interest.

Much of the story is devoted to the description of the environmental makeup of the underground world and the evolution of the Vril-ya society. We learn through Aph-Lin, Chief of Light and the protagonist’s guide, that the evolutionary ancestors of the Vril-ya had originally lived on the surface but were forced, due to a primordial flood submerging most of

the terrestrial population, to take refuge in the underground hollows. It is uncannily revealed that the sphinxlike Vril-ya thus are the evolutionary descendants of “the Batrachian genus, a Giant Frog” (Bulwer-Lytton 2005, 69). Although Bulwer-Lytton was discernibly inspired by Charles Darwin’s theory of evolution (Seed xxv), *The Coming Race* decenters teleological anthropocentrism, describing how the difference of thumb between the protagonist and the Vril-ya mirrors the difference between “the thumb of a man and that of a gorilla” (Bulwer-Lytton 66). The terrifyingly smart and immensely powerful Zee – Aph-Lin’s daughter – explains to our bewildered hero that it is *Homo sapiens*’s “slight formation of thumb” and the absence of a particular nerve in the hand, “slowly developed in the course of our generations”, that makes human control of vril power impossible (67). This form of energy, which Bulwer-Lytton described in an 1870 letter as ‘electricity’ (Lytton 1913, 466), is all-pervasive, making it possible for the Vril-ya to “influence the variations of temperature—in plain words, the weather” (Bulwer-Lytton 27). The ability to manipulate underground climate is portrayed, then, not as a human quality, i.e., an attainable technology that can be forged through technological progress, but as a skill produced through a long period of evolution taking place in the underground regions.

The distinct atmospheric effects that the Vril-ya carefully conjures are described not as “that from fire”, but as “soft and silvery” hues coming “from a northern star” (8). The Vril-ya’s artificialized atmosphere is not connotative of mephitic gases and foul lava. In Bulwer-Lytton’s ‘new’ underground, the atmosphere is fresh, the air soft. Although the underground is described as a “world without a sun”, the climate is “bright and warm as an Italian landscape at noon” and the wind is “less oppressive, the heat softer” (10). Although Bulwer-Lytton was inspired by Romantic painter John Martin’s famous mezzotints of *Paradise Lost* (the narrator is distinctly “reminded of the architectural pictures of Martin” (57)), the artificial infinity of the Vril-ya underground seems also inspired by the hollowed-

out, new underground of London, where the air is “fresh and agreeably cool” as Bayard Taylor described the atmosphere of the Thames Tunnel (Taylor 1847, 39).

The unnamed narrator spends, then, a lot of time rationalizing and explaining the subterranean climate: first, the ravines and valleys of the underground are much less hot than otherwise believed, “certainly not warmer than the south of France” (Bulwer-Lytton 42), secondly, the “extreme porousness of the interior earth” creates an invigorating air flow in which the interior heat “is evaporated and thrown off” (42). Add to this favorable natural environment the agency of vril, effecting “many changes in temperature and climate” (43), and you get a benign, domed world where lights twinkle and a warm breeze flows constantly. Resultingly, the Vril-ya experience “no change of seasons” (75). The “very equable” atmosphere (75) is unchanging, making the time for “sowing or reaping as in the Golden Isles of the ancient poets” (75). The underground functions as a conservatory in which the climate can be controlled and modeled according to Vril-ya’s will.

In contrast, the fickle character of the surface world where one is “exposed to the uncertain seasons” is described by Zee as a sphere of pure savagery, making humanity a pawn in nature’s game of change (127). The Vril-ya’s weird underground climate – an unchanging warm breeze – is made possible by the distinct environment of the underground, but it is to an even higher degree the result of the technological mastery of a posthuman species. It is clear, then, that Bulwer-Lytton is ambivalent about the possibility of artificialized climate, illustrating that although the atmospheric possibilities of the underground remain enticing, the Vril-ya society is inhumane, a hyper-modern society where everything has been rationalized. In that context, it is pertinent to read *The Coming Race* as a ‘weird tale’ not only due to its strange generic mélange, mixing genres such as utopia, dystopia, and horror but also because it characterizes environmental control as beyond the scope of humanity. As Emily Alder has persuasively illustrated, the weird tale operates at the

limits of certainty in human capacities for mastery,¹ thus questioning the “cultural dominance of positivist science at the fin de siècle” (Alder 2020, 7). By displacing the control of technological progress to the ontological Other *The Coming Race* offers an ambivalent critique of humanity’s potential for exerting climatological control.

Tarde’s Neo-Troglodyte Temperatures

In contrast to Bulwer-Lytton, Tarde does not exhibit any ambivalence about humanity’s atmospheric control: rather than a skill achieved through hundreds of years of biological evolution, climate control is a way for humanity to carefully curate his environment. *Fragment d’histoire future* is framed as a piece of history written in the year 3085, looking back at the 596 years that have passed since what is dubbed the “Salvation” by the fictionalized historian. The Salvation is described as the beginning of the era when humanity due to solar heat ventures underground to establish a subterranean civilization, nourished by the relative warmth of the Earth’s interior. While the Vril-ya’s journey to the underground in *The Coming Race* is provoked by a global deluge, Tarde’s underground utopia is a result of climate catastrophe: the sun’s extinction imagined by Lord Kelvin in 1862 when he interpreted Sadi Carnot’s second law of thermodynamics in cosmological terms (MacDuffie 2014, 67-8). The notion that humans are tied to a capricious climate is, then, a main point in *Fragment d’histoire future*. Pursuing a Cuvierian interpretation of natural change, Tarde’s historian describes the heat death of the sun – in contrast to what he calls the “well-warmed studies” arguing for “slow-footed evolution” (Tarde 1974, 51) – as abrupt and stochastic. When the extinction commences “[a]ll the glaciers that had been dead since the geological ages” suddenly come to life, issuing “snowy hordes” and “streams of icy lava” (56). In *Fragment d’histoire future*, climate disaster is the cataclysmic event that initiates

subterranean cultivation: humanity flees from the catastrophic character of climate events, inhabiting an inorganic laboratory where the climate can be controlled.

In contrast to *The Coming Race*, where the narrator travels to a posthuman techno-future, *Fragment d'histoire future* is oriented toward the past. In the wake of solar heat death, the prophet Miltiades stands up and convinces humanity to follow in the footsteps of “Empedocles, Ulysses, Æneas, Dante” (77), staging the journey as a *katabasis*, the classic chronotope describing a trip to the underworld. Tarde reverses the schemata of the *katabasis* in portraying it as a safe haven in contrast to the lifeless, dead surface: “below, far below, lies the promised Eden, the abode of deliverance and bliss: there, and there alone, there are still innumerable conquests and discoveries to be made!” (76). The subsurface is not just a desperate refuge necessitated by climate disaster. Miltiades argues that the underground is the warm lap of Mother Earth wherein man can tap into a primordial “force in which our engineers [...] will find a hundredfold the equivalent of the motive power they have lost” (75). The inhabitation of the underground is the logical next step in the evolution of human society, finding an ideal climate: “He had no trouble in proving that, on condition of burrowing sufficiently deep into the ground below, they would find a deliciously gentle warmth, an Elysian temperature” (79). However, for Miltiades, the underground climate is techno-primordial, his desire “to dispense with the sun” (77) is undoubtedly Promethean. In subterranean space lies a benevolent atmosphere that nonetheless only can be perfected by way of human technology, or more precisely, a “good system of ventilation” (79).

Accordingly, the return to the underground is not a return to the ways of the evolutionary ancestors, pursuing prehistoric primitivism. Instead, the (re)inhabitation of the underground is described as a practice of “Neo-troglodytism” (78), combining caveman culture with the technological know-how of modern humanity. Consequently, when humanity does venture underground, it starts building:

enchanted palaces, in which all extremes of climate, rain, and wind, cold and torrid heat were unknown; where innumerable lamps, veritable suns in brilliancy and moons in softness, shed unceasingly through the blue depths their daylight that knew no night. (96)

The modification of the original underground environment creates a world where the variabilities of weather are negated by the Elysian warmth breezed by rigorous systems of ventilation. The underground in *Fragment d'histoire future* undergoes a process equal to the Haussmannization of subterranean Paris: although presented as primordial and paradisiac, it becomes a site for domestication and scientific rationalization. Like Simonin's depiction of the real mining networks of the nineteenth century as an animated center of work with "long, large, well-ventilated" galleries (Simonin 1867, 138), the underground in *Fragment d'histoire future* becomes a crisscrossed reflection of the modern city. In Tarde, the underground climate is anthropogenic, in Bulwer-Lytton it is alien, Other.

In *Fragment d'histoire future*, the reversed *katabasis* describes a metaphorical trip to an Anthropocene techno-future in which mankind furnishes his private and decadent world with "the quintessence of the ancient grand libraries of Paris, Berlin, and London" (92). The rationalization of time and climate is premised on a return to an ancient culture of the Anthropos where humanity fashions the underground world as a *paradis artificial* and the Neo-troglodytes realize "what an unsuspected drag the terrestrial fauna and flora had hitherto been on the progress of humanity" (113). The underground utopia is not only based on climate engineering but also on the negation of all things organic – chirping birds, soaring sunshine, and germinating plants – which become virtual specters.

Specters of Climate

Following the insight provided by Michel Serres in his *Genesis* (1982), there is an etymological kinship between climate and time (illustrated in the French word for both

weather and time, *temps*): “I am tempted to see in this climate the inclination from which the time of order is born” (Serres 102). The etymo-philosophical connection is illustrated in *The Coming Race* where the notion of time vanishes with the notion of clime. The subterranean civilization in *The Coming Race* has equalized climatological difference which has led to an emptied time horizon. The Vril-ya does not follow the same circadian rhythm as humans, “having no other difference between night and day than that which they deem it convenient to make for themselves” (73). The static climate of the underground utopia has engendered a non-eventful world approaching an ‘end of history’: “You see our serene mode of life now; such it has been for ages. We have no events to chronicle. What more of us can be said than that, ‘they were born, they were happy, they died?’” as Aph-Lin asks the protagonist (80). Since nothing happens and all is under technological control, the art of the Vril-ya has also regressed: “[n]o new plays [...] have been composed for several generations” (77). For Bulwer-Lytton, who was very preoccupied with endings (seen in titles such as *The Last Days of Pompeii* (1834) and *The Last of the Barons* (1843)), the static horizon engenders an underground society of the *-post*: post-climate, post-art, post-event, and post-human. The linearized climate becomes a harbinger of a culture in which the past has annexed the future.

Coming progressively to an understanding of the Vril-ya civilization, the protagonist begins to feel “the serene tranquility of the lustrous air prey[ing] on my spirits” – he “long[s] for a change, even to winter, or storm, or darkness” (130). The arcadia of warm weather and brilliant night produces *ennui*. The protagonist argues that even the “most philosophical of human beings you could find in London, Paris, Berlin, New York, or even Boston” would simply die of *tedium vitae* or militate against the climate-controlled society if they had to be citizens of such a beautified society (133). In this sense, Bulwer-Lytton’s underground utopia becomes outrageous while the angelic Vril-ya begins to appear monstrous. The protagonist – a credible alter ego of Bulwer-Lytton – longs for temper,

passion, and violence, subscribing to a Burkean hierarchy of aesthetics privileging sublimity over order:

where a society attains to a moral standard, in which there are no crimes and no sorrows from which tragedy can extract its aliment of pity and sorrow, no salient vices or follies on which comedy can lavish its mirthful satire. (134)

This is the reason why *The Coming Race* ends on a low note, the last line reading: “I have thought it my duty to my fellow-men to place on record these forewarnings of The Coming Race” (144). On the one hand, the ending signals the coming apocalypse of humanity, the posthuman race conquering the surface. On the other hand, the dire foreboding holds within it a critique of contemporary English society in danger of artistic degeneration in the face of technological progress, the Vrilya society constituting a metaphor for an increasingly mechanistic and scientific modern world that equalizes, regulates, and controls all forms of the environment.

Although the progressivist historian-narrator in *Fragment d’histoire future* only sees Edenic qualities in the control of climate, he does explain that certain recusants within the society are starting to find the atmosphere too tranquil:

In vain to please them we vary from time to time the intensity and colouring of our illuminations and ventilate our colonnades with a kind of refreshing breeze. They persist in condemning as monotonous our day devoid of clouds or night; our year, devoid of seasons; our towns devoid of country-life. Very curiously when the month of May comes round, this feeling of restlessness which they alone experience at ordinary times, becomes contagious and well-nigh general. And so it is the most melancholy and least busy month of the year. One would say that the Spring driven from every place, from the gloomy immensity of the heavens and from the frozen surface of the earth has, as we, sought refuge under ground; or rather that her wandering ghost returns at stated seasons to visit us and tantalise us by her haunting presence. (Tarde 1974, 186-7)

The rebels are enticed by the haunting presence of seasonality, the monotone weather making them long for changeability. Yet, in contrast to Bulwer-Lytton’s *The Coming Race*, where climate engineering comes to appear monstrous, Tarde’s *Fragment d’histoire future* is a historical account of humanity perfecting its environments and its social world, creating a

perverse ecotopia where nature is art and art is nature. A closer look at Tarde's scientific oeuvre may reveal why the ghost of seasonality in *Fragment d'histoire future* is not scary.

Though it is too simple to view the story as a “pedagogical fable written by a philosopher in order to bring out key points in his ontology” (Jakobsen 2019, 108), it is important to mention that *Fragment d'histoire future* was originally published in the *Revue internationale de sociologie*, addressing a forum of likeminded peers within the nascent discipline of sociology. Parts of it certainly seem inspired by Tarde's main work *Monadologie et sociologie* (1893) in which the philosopher argues that identity acts only as a special limit case of difference: “To exist is to differ. [...] Because identity is only a *minimum* and, therefore only a species – an infinitely rare species – of difference” (Tarde 2016, 50). In Tardean ontology, nothing is identical to itself, identity is always slipping away through time. Subject to Heraclitus's river, every repetition is different: $a = a$ is fiction; there is always something more: $a = a + x$ (Jakobsen 2019, 111). Tarde's metaphysics of difference may be the reason why the narrating historian scolds the recusants who want seasonality, and why the underground society is not ultimately overthrown by an unhappy uprising. Since there is difference even in repetition, there is a change in the constant climate.

In *The Coming Race*, the Vril-ya civilization has become a terrifying society of the *-post*. In *Fragment d'histoire future*, the neo-Hellenistic society is one of the past. When humanity goes underground, it is not just the cream of human art – books, pictures, music, films – that is preserved in the subterranean crystal galleries (akin to Joseph Fourier's *phalanstères*),² technologies such as the phonograph and the cinematograph have allowed the Neo-troglodytes to:

hear all the former sounds in nature accompanied by their corresponding sights, the thunder, the winds, the mountain torrents, the murmurs that accompany the dawn, the monotonous cry of the osprey and the long drawn out lament of the nightingale amid the manifold whisperings of night. (Tarde 1974, 189)

The underground becomes an archive of the cultural and natural past; nature survives as a copy, a simulacrum. Following Tardean ontology ($a = a + x$), identity is a monad of imitation and repetition. Experiencing climatic differences through the medium of technology is therefore not different from experiencing it first-hand on the surface. The interior plurality of the monad turns recordings of rolling thunder and squeaky wind into actualized repetitions of the present. In *Fragment d'histoire future*, the climate is not just controlled, it is staged as a flickering presence, a cinematographic ghost to be consumed for aesthetic pleasure.

Artificial Atmospheres

Climate disaster (global deluge, solar heat death) is the catalyst for going underground in both Bulwer-Lytton and Tarde; a theme that is often repeated in many late-nineteenth-century works.³ However, it quickly becomes apparent that the subterranean is not only imagined as a refuge but as an ecological vacuum wherein (post)humanity can dispense with the chaos of climate. Accordingly, it seems necessary to understand the fantasy of controlling the atmosphere, made possible by the future inhabitation of the underground, in the context of the general climatic volatility that characterized the nineteenth century on a local and global scale.

To name a few examples, the 1815 eruption of Mount Tambora illustrated the global connection of climates producing the 1816 Year Without a Summer, the Great Stink of London in 1858 described the foul link between hot weather and human waste while the 1883 spread of the ash cloud from the volcano Krakatoa was caused a drop in winter temperatures by 0.5° Celsius in the northern hemisphere (Bradley 1988). Adding to these catastrophic climatic events, the year 1870 has recently been defined as the beginning of the material Anthropocene (Steffen, Crutzen, and McNeill 2007, 616), the point in time when CO₂ levels

started to have a discernible impact on biogeochemical cycles (McNeill 2019, 254). The latter half of the nineteenth century marks a meaningful inception of not only the material Anthropocene but also of the ‘ideational Anthropocene’ (Daggett 2019, 9) wherein humanity starts to speculate on its ecological imprint.⁴ The evolution in the underground imaginary enables us, then, to conceive of climate change not as one but as two atmospheric events. On the one hand, the event known as the greenhouse effect producing elevated temperatures on a global scale – a result of large-scale fossil fuel combustion – and on the other, the various ways in which humanity has tried, imaginatively or materially, to shelter from the variabilities of climate, producing differently scaled spheres of control (Andersen 2020, 104-5). In that sense, contemporary fantasies of climate engineering are not brand-new ‘technofixes’ awaiting implementation but arise – among others – in the nineteenth-century imaginary of the subsurface.

Accordingly, Tarde’s underground utopia poses as an antecedent to modern notions of a ‘Good Anthropocene’ espoused most forcefully in *The Ecomodernist Manifesto* (2016). In the manifesto humanity is cast as the sovereign, ‘good’ rulers of postnature: “As scholars, scientists, campaigners, and citizens, we write with the conviction that knowledge and technology, applied with wisdom, might allow for a good, or even great, Anthropocene” (Asafu-Adjaye et al. 6). For the Ecomodernists, the ‘Good Anthropocene’ is the era in which “Earth is remade by human hands” (6), humanity exploiting the fact that it is irreversibly changing the environment to become its supreme engineers. Although it is not some definitively unified theory (theories rarely are), we can describe this kind of discourse as *geo-constructivist* (Neyrat 2). A perfect summary of the doctrine can be found in Mark Lynas’s *The God Species: Saving the Planet in the Age of Humans* (2011): “Nature no longer runs the Earth. We do. It’s our choice what happens from here” (Lynas 8). Frédéric Neyrat has called the main thesis of geo-constructivism *anaturalist*: “without nature, ignorant of it” (Neyrat 4),

that is, the geo-constructivists subscribe neither to a neat separation between ‘nature’ and ‘culture’ nor do they endorse the idea of more hybridized *naturecultures* (Haraway). Instead, the geo-constructivists “completely erase and deny the existence of one of these worlds” (Neyrat 4); nature. They are not *antinature* but oblivious to it – *anaturalists*.

In Tarde’s text, human society is finally allowed to flourish since it discards the useless distractions of nature. Miltiades’s suggestion to ‘dispense with the sun’ thus exhibits a Prometheanism of a second power: he does not reach for the Sun, he completely disregards it, prophesizing a society without the need for it. Accordingly, the anthropogenic climate is not hideous and monotonous but aesthetic in its unchanging stability. Drawing on Neyrat’s terminology *Fragment d’histoire* appears as an antecedent to the *anaturalist* philosophy of the geo-constructivist climate engineers. Not yet *anaturalist*, Tarde’s text appears *antinaturalist*, or *à rebours* to quote J.-K. Huysmans’s bible of decadence from 1884.

To deepen the historical connection between nineteenth-century underground imaginaries and contemporary fantasies of climate engineering it seems beneficial to draw on the distinction between two polar positions that Clive Hamilton pursues in his *Earthmasters: The Dawn of the Age of Climate Engineering* (2016). According to Hamilton, there are the Prometheans – celebrating technological mastery – and the Soterians, derived from Soteria, the goddess of safety, preservation, and deliverance. In the contemporary discussion of climate engineering Hamilton sees “the last battle in a titanic struggle between Prometheans and Soterians, with the prize nothing less than the survival of the world we know now” (Hamilton 18). While the geo-constructivists, who regard climate crisis as the opportune moment for upgrading the project of scientific modernity, are distinctly Promethean, proponents for various forms of *rewilding*, conservation, and preservation should according to Hamilton be labeled as Soterians. A primary example of Soterian thought could be Edward

Wilson's *Half-Earth* (2016) in which he proposes that half of the Earth's surface should be designated as human-free to combat the loss of biodiversity.

While Tarde's underground world, cultivated by the steady horizon of unchanged climate, is based on a Promethean *antinaturalism*, combating nature and celebrating human progress, Bulwer-Lytton criticizes the fantasy of climate engineering since it annuls the aleatory character of weather and the Romantic catastrophes of climate. Bulwer-Lytton, who served as a Conservative member of Parliament, portrays the postnatural as scary, hideous, and tedious, illustrating the dreadful disenchantment engendered by a society of complete environmental control. By tracing these historical lines of connection, I argue that these two Hollow Earth novels, the one subscribing to notions of dramatic, natural change, the other praising the monotony of modernity, portent the two main positions regarding our contemporary sick Anthropocene and its possible remedy, large-scale technological artificialization of the atmosphere: either we – as Soterians – acknowledge our inferiority confronted with the great Other, the planet, or we artificialize the world to an even higher degree, becoming the Promethean 'Good' rulers of postnature.

Conclusion

In the nineteenth century, the underground underwent a process of material transition: no longer a site for imaginary encounters with mythological hellholes, it became geometrical, artificial, and airy. It became a place of promise, a metaphor for a climatological future of control, linearization, and regularization. In his oil painting from 1824 George Jones is among the first to depict the underground as an inorganic and modern environment reserved for the higher rungs of society. By depicting the possibility of a future underground world, the painter also hinted at the possibility of an artificialized atmosphere. Through Bayard

Taylor's 1846 travelogue which framed the underground 'sky' as perpetually starlit the Thames Tunnel became associated more closely with climatological and chronological engineering, supported also by the fact that the Tunnel was open 24 hours a day. In France, engineer Louis Simonin described the subterranean city as a glimpse into a phalanstery future world where humanity lives in an inorganic indoors, reflecting the city architecture imagined and implemented by Baron Georges-Eugène Haussmann who sought to make subterranean Paris a mirror of 'superterranean' Paris. A testament to his success – water lines, gas lines, cables for telegraph and electricity were hung in the straightened sewers, supporting the modernization of Paris – was the recommendation of *les égouts* in the 1867 Baedeker proving that the subsurface increasingly became perceived as a technological invention; an environment solely created by Anthropos. At the end of the century, the association between human progress and the subterranean reached an acme as Émile Gérards envisioned underground Paris as a sanitized, strictly scientific space; one big research center.

The discursive network surrounding the underground atmosphere as a place for climatological control is, then, developed across the century. It peaks in *Fragment d'histoire future* where climate becomes an *objet d'art*, an engineerable simulacrum. 24 years earlier, *The Coming Race* painted, however, a more ambivalent portrayal of atmospheric artificialization. The two texts concerning the idea of underground climate engineering sketch out the progressive dissolution of the underground as a geological or mythological space and the gradual formation of the underground as a modern, artificial, and (post)anthropogenic sphere. Suspended between ideas of Promethean mastery and Soterian conservation, the two novels revise our notions of the historical past. In an era of distinct atmospheric volatility – pollution, volcanic winters, climate change – the desire to linearize the climate system begins to be speculatively acted out in the material and symbolic carving out of the new underground. At a time where "climate change" through incessant repetition is on the verge

of becoming mundane, ensuing calamity reduced to a trivial cliché, Bulwer-Lytton and Tarde's works from the transitory end of the nineteenth century highlight the terrors and wonders of a linearized climate, reflecting our contemporary era of ambivalent climatic transition in which humanity is both the poison and the cure. Either we upgrade the scope of scientific modernity, Prometheanly perfecting the planetary climate to suit our specific needs, or we take another route, *rewilding* the planet, Soterianly freeing the environmental Other from humanity's dire influence.

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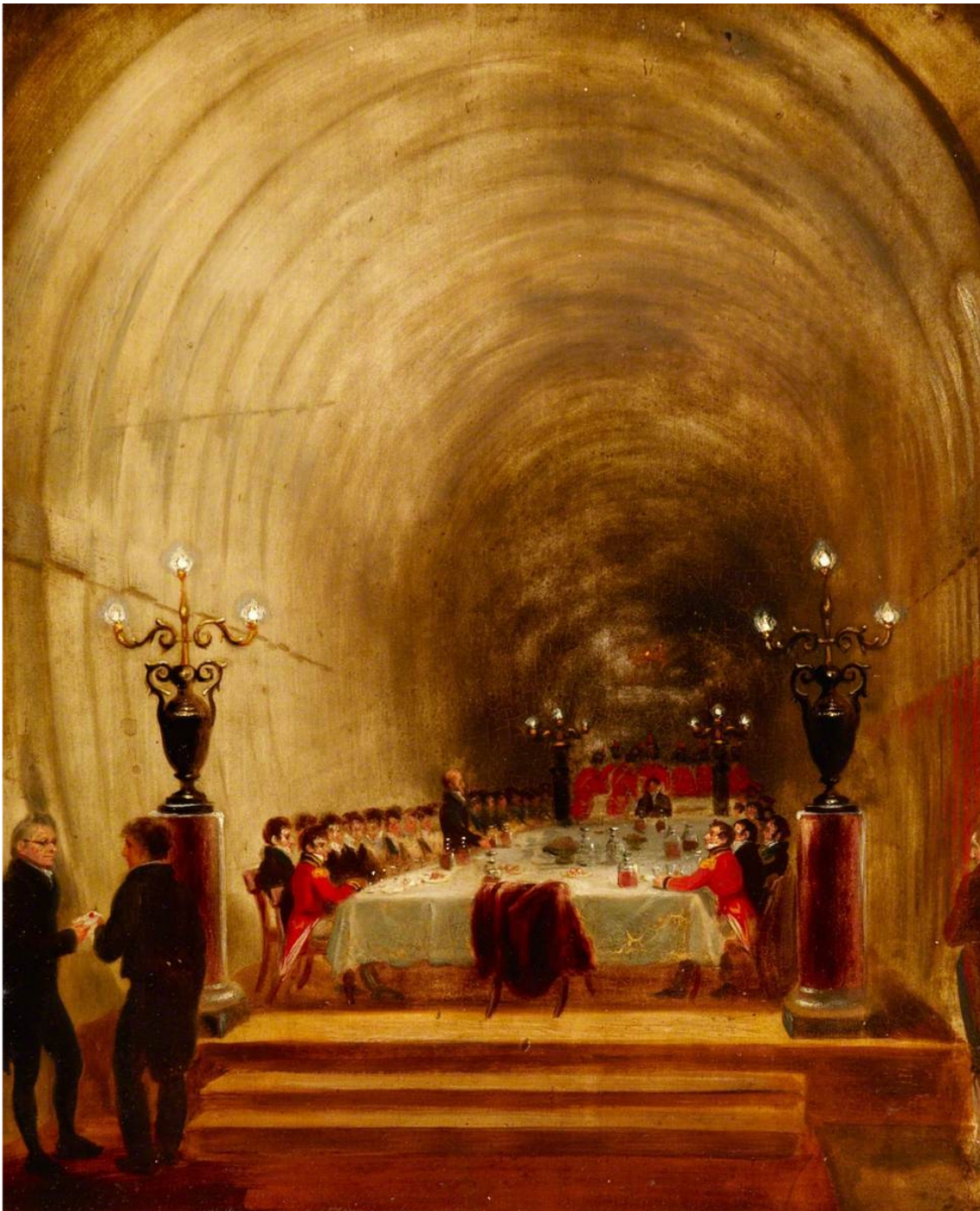
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Fig. 1 *Banquet in the Thames Tunnel*, George Jones, c. 1827. Oil on board. 305 mm X 253 mm. Courtesy and Copyright of the Ironbridge Gorge Museum Trust – The Sir Arthur Elton Collection.

¹ While *The Coming Race* appears as prototypically weird, Bulwer-Lytton's *Zanoni* (1842) and *A Strange Story* (1862) have also been understood as precursors to the "weird tale" (Alder 2020, 18).

² The glass galleries of the *phalanstères* imagined by Charles Fourier manifested the power of science to protect people from natural chaos and suffering, sheltering them in carefully controlled interior world. "To spend a winter's day in a Phalanstery," Fourier wrote, "to visit all parts of it without exposure to the elements to go to the theater and the opera in light clothes and colored shoes without worrying about the mud and the cold, would be a charm so novel that it alone would suffice to make our cities and castles seem detestable" (Fourier 1983, 245).

³ See Camille Flammarion's *La Fin du monde* (1893) or H. G. Wells's "The Man of the Year Million" (1893) for some prominent examples.

⁴ See the prescient speculations on climate change made by Eugène Huzar's in *L'Arbre de la science* (1857) and John Ruskin in *The Storm-Cloud of the Nineteenth Century* (1884).