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Coal Politics: Receiving Émile Zola's *Germinal*

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Abstract

This article considers how we might receive Émile Zola's *Germinal* (1885) in the Anthropocene. Recent Anthropocene literary criticism has frequently turned to various forms of reception when presenting new accounts of texts written prior to general public knowledge of anthropogenic climate change, but it seldom considers how this reception might be enriched by debates in Philosophy of History. Zola himself anticipates how Anthropocene Reading might be paired with Philosophy of History in a review essay that is known today as 'La géologie et l'histoire' (1865), where the catastrophism of geological time is granted an elevated agency. In *Germinal*, the text's catastrophism is used to reveal Zola's account of mining life and concomitant chronic illnesses. Nevertheless, it is perhaps in the account of populism that the novel proves most prescient of the uptake of coal politics in the present. My article will consider how *Germinal* anticipates these problems in its historiosophy.

Note on Contributor

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Disclosure statement

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Abstract

This article considers how we might receive Émile Zola's *Germinal* (1885) in the Anthropocene. Recent Anthropocene literary criticism has frequently turned to various forms of reception when presenting new accounts of texts written prior to general public knowledge of anthropogenic climate change, but it seldom considers how this reception might be enriched by debates in Philosophy of History. Zola himself anticipates how Anthropocene Reading might be paired with Philosophy of History in a review essay that is known today as 'La géologie et l'histoire' (1865), where the catastrophism of geological time is granted an elevated agency. In *Germinal*, the text's catastrophism is used to reveal Zola's Naturalist account of mining life and concomitant chronic illnesses. Nevertheless, it is perhaps in the account of populism that the novel proves most prescient of the uptake of coal politics in the present. My article will consider how *Germinal* anticipates these problems in its historiosophy.

[Cet article explore des pistes pour recevoir *Germinal* d'Émile Zola (1885) par rapport à l'Anthropocène. Les critiques littéraires de l'Anthropocène se tournent vers diverses théories de la réception et de la lecture pour éclairer des textes écrits avant la compréhension du changement climatique anthropique par le grand public, mais rare est la considération du potentiel de la philosophie de l'histoire pour enrichir ces discussions. Zola lui-même prévoit une lecture à la lumière de l'Anthropocène et de la philosophie de l'histoire dans un article connu sous le nom de 'La géologie et l'histoire' (1865), où le catastrophisme du temps géologique est accordé un pouvoir élevé. Dans *Germinal*, le catastrophisme du récit naturaliste est utilisé pour révéler la vie minière et les maladies chroniques concomitantes. Néanmoins, du point de vue de la politique du charbon aujourd'hui, l'aspect le plus prévoyant du roman semble la présentation du populisme. Nous allons contempler comment l'historiosophie de *Germinal* anticipe ces problèmes.]

'Global warming changes everything,' writes Andreas Malm, 'including the reading of literature' (2017, 125). Such changes exert themselves in a renewed attention to novels that attend to catastrophic events. But, warns Malm, not all catastrophes are reducible to the 'very peculiar form of the phenomenon: namely, extreme weather caused by the large-scale combustion of fossil fuels' (126). The category of fiction that Malm identifies to 'close some of the gap' from the literary catastrophes anticipating our concerns to the source of the problem is 'fiction dealing with fossil fuels and imagining some disaster linked to them—or *fossil fuel fiction*' (126). Such literature responds to a conspicuous absence in cli-fi (climate fiction), highlighted by Adam Trexler in *Anthropocene Fictions* (2015), where 'the act of extracting and burning fossil fuels is no more visible than in any other contemporary literature' (Malm 2017, 126).

Malm is by no means alone in his concern for what Tobias Menely and Jesse Oak Taylor call 'Anthropocene Reading' (2017). The concept of Anthropocene Reading suggests that texts written prior to widespread awareness of anthropogenic climate change offer insights for our understanding of deep time, 'an invariably polyglot, salvage practice [...] to discover meaning amid the ruins' (Menely and Taylor 2017, 22). Such reading, exemplified in Timothy Clark's *Ecocriticism on the Edge* (2015), has tended to rely on textual reception wherein environmental warning signs, thought to be of sub-narratorial interest in less environmentally conscious times, are mobilized to address the heightened environmental concerns of the present, and thus reframe the text.¹ At the same time, fossil fuel criticism, in

the literary arm of the Energy Humanities, has seen a comparable critical engagement with petrofiction. In the wake of Amitav Ghosh (2002), this drive has been led by Jennifer Wenzel (2006; 2017), Karen Pinkus (2016; 2017), Graham Macdonald (2012; 2017a; 2017b), Imre Szeman (2017; 2019) and Patricia Yaeger (2017). In this light, literary materials testify to the energy economies that emerge when texts are read in relation to a twentieth- and twenty-first-century reliance on oil, as well as its derivatives—petrol, diesel, and plastics. Scholars working on earlier periods have adapted similar reception models for reading coal-oriented texts (Malm 2016; Niblett 2017). However, reception-based readings present a problem for the historical representation that they implicitly rely upon. They avow the primacy of the environmental concern over the work, which is a legitimate reframing of reading practice, but they do not necessarily respond to concerns that such reading raises for History; that is to say, the task of reconstructing the past to better understand its continuities and discontinuities with the present. Since such criticism asserts an extra-textual historical context of oil extraction and consumption practices to justify the reframing of texts, a more developed historiosophy is necessary, whether the frame of reference be the human-oriented Anthropocene, the economically oriented Capitalocene (Moore 2015), or other models that range from the Plantationocene to the Chthulucene (Haraway 2015).

Malm suggests a Philosophy of History might be useful for reading texts that link fossil fuels to climate catastrophe. Drawing on Walter Benjamin's essay, "On the Concept of History", Malm asks what the *dialectical image* offers as a means to access the past in 'a moment of danger' (Benjamin 2003, 391). Taken from the past, the image offers itself to the present, 'reborn as such in a present day capable of receiving it, or "recognizing" it' (Eiland and McLaughlin 1999, xii). So, 'the "now" is itself experienced as preformed in the "then", as its distillation' (xii). References to coal, oil, and other fuels await our present to become fully formed. They are *latent* (Gumbrecht 2013) because their significance in the past is recognised only when the present understands its continued meaning. Malm sees such images in moments of disquiet that engage readers when they read about coal or oil with an eye towards carbon emissions and the 1.5°C threshold for global warming (Intergovernmental Panel on Climate Change 2018). Reading Ghassan Kanafani's *Men in the Sun* (1962), Malm notes the consistent correlation in the novella between references to oil, the desert, the sun, and a language of heat, which he sets in the context of the significant rise in temperature for states around the Persian Gulf:

[These images] draw their force from their being dreamed up long before the 1990s; written today, refugees grilled to death inside a tank might have seemed a contrived image, but from the summit of the Persian Gulf of the early 1960s, it flashes up with a raw imaginative power. (2017, 129–30)

Since the images must be read both in their own time and ours, they retain the 'raw imaginative power' of their original utterance, with which they convey the urgent demands of our present.

I want to consider how this context might reconfigure how we receive the environmental catastrophism of Émile Zola's nineteenth-century coal-mining novel in the Anthropocene. *Germinal*, the thirteenth novel of Zola's twenty-volume Rougon-Macquart series, follows Étienne Lantier as he finds work at Le Voreux, the coal mine served by the town of Montsou. Étienne undergoes a superficial process of *Bildung* after being taken in by the Maheu family, whose domestic scene illustrates the deprived conditions in which the miners live. Étienne's class consciousness develops alongside an amorous relation with Catherine Maheu, who is in an abusive relationship with the worker Chaval. An intimate conflict unfolds between these three lovers against the backdrop of three significant social

events—catastrophes—that mark the ebb and flow of political relations: a cave-in, a strike, and a flood. The novel ends with Chaval and Catherine dead, the Maheu family impoverished, and Étienne retreating to Paris in the wake of his failed experiment in political agitation. To confine the plot to the barest of actions, we can say that this hypertrophic novel explores 1) personal tensions arising when amorous and political subjectivities clash, 2) economic tensions resulting from the collapse of co-dependent industries, and 3) a prevailing continuity of inequality, with all its determinist features. Étienne and Catherine end up having to decide how love mitigates or transgresses the political struggle: the two forms of subjectivity are absorbed into events that mark their beginning (the ways that Étienne and Catherine begin to notice each other; the way that Étienne's political subjectivity emerges through reading and discussion), middle (the interference of Chaval; Étienne's political agitation), and end (the consummation of their love during the flooding of the mine, followed by Catherine's death; the disillusionment of the miners, and their eventual rejection of Étienne).

Zola configures these political events against the backdrop of longer, more durable forces, which ultimately determine the novel's outcomes: the social, certainly, but also the mythic and the geological. Allan H. Pasco, following Philip Walker's lead, has shown how *Germinal* exploits mythic parallels found in Hesiod's *Theogony*, in particular the links between the novel's troubling end and the birth of the Giants (1973). As a consequence, 'either the workers will through education and law form a revitalizing humanity ruled by justice and reason or the forces of nature will be turned loose in a terrible holocaust.' (Pasco 1973, 749) But, rather than follow Henri Mitterand in his pessimistic assessment of Zola's mythography as "turn[ing] its back on history" (2000, 102), I want to consider how this Naturalism might itself relate to a philosophy of history. These natural forces operate as both mythic and historical at the same time. So, when Zola observes that it is the human species itself that becomes 'une force de la nature' (Zola 1964, 1437), we can read this not only as the recollection of the cosmic forces in Hesiod, but also a prescient anticipation the Anthropocene, or the epoch when human activity has had a dominant impact on climate and the environment. After all, as Walker would later argue, *Germinal* is a text about Zola's 'first great love among the sciences'—geology (1984, 50)—as much as 'a brute mineral, coal' (57). So, *Germinal* offers a compelling example of Anthropocene Reading, not only because it concerns the coal that so interests the fossil fuelers, but because it self-consciously engages with the criticism's main concern: reading literature for indices of stratigraphic *deep time* (i.e. geology). After all, Zola hoped to develop a natural theology from geology that would use stratigraphic imprints to uncover links between natural history and a Prime Mover. In his important review of Victor Duruy's *Introduction générale à l'Histoire de France* (1865), Zola imagines an ideal history that begins not with the origins of a nation, but with the formation of its soil:

L'histoire du monde date du jour où deux atomes se sont rencontrés. Pour l'historien, les annales d'une contrée commencent aux origines d'une nationalité; pour le penseur et le philosophe, ces annales remontent jusqu'à Dieu, la Force première, et embrassent l'histoire de la formation du sol et celle de la création et des perfectionnements de l'être. (1865, 3)

Zola's embrace of the *longue durée* is important because the catastrophism that characterises the events in his work may then be understood as 'simply the continuation of the unending succession of eruptions, earthquakes, floods, and disasters of every other sort that had occurred in the primeval past' (Walker 1984, 55). Zola writes that 'chaque cataclysme apporte son fragment de continent' (1865, 3). Walker draws out Zola's engagement with geology as a form of progress to reframe the apparent pessimism of events in *Germinal* as

subordinate to a longer history of social formation. Although, Zola argues, we, the creatures of the moment, may disappear in history's immense family of creatures, this transience also gifts us with a moral purpose, to advocate for a future of justice and progress.

Evental history, or "individual time" (21), according to Ferdinand Braudel (1972), occurs against the backdrop of middle history—"social time" (21), which includes elements such as economic cycles—and a long history of geographical and social structures, both of which might be seen to be at work in Zola's germinating furrows.² Reinhart Koselleck's contribution to the Braudelian *longue durée* was to bring this question of historical time to the fore (2018). Noting different notions of historical time (to augment Braudel's reliance on geography to "rediscover the slow unfolding of structural realities" [23]) and attributes of the *longue durée*, Koselleck observes that historical time may be faster (i.e. evental) or slower (i.e. economically cyclical) in the changes that it exerts on the *longue durée*, which must be distinguished from homogenous continuity into five distinct structures of repetition. These differ according to 1) the extra-human conditions of our experience, 2) the biological preconditions of life, 3) structures of repetition unique to humans, i.e. institutions, 4) repetitions embodied in singularly occurring sequences of events, and 5) linguistic structures of repetition. Koselleck's effort to differentiate forms of the *longue durée* leads him to a metaphoric association between physical sedimentation processes (such as those that produce coal) and a sedimentary History, which he calls, following Ernst Bloch, 'the simultaneity of the nonsimultaneous [die Gleichzeitigkeit des Ungleichzeitigen]' (2018, xiii; 45). Given that historians frequently depend on spatial metaphors to compare diachronic moments (the 'nonsimultaneous') in a synchronic manner (a 'simultaneity'), Koselleck develops a sedimentary concept of time [Zeitschichten]: 'multiple temporal levels of differing duration and varied origin that are nonetheless simultaneously present and effective' (xiii). Thus, even though the time involved in economic precarity might at first seem inconsistent with the turn towards deep time in much writing of the Anthropocene, we are challenged to think about their simultaneous operation as a result of scale variance (Woods 2014, 133)—a simultaneity that Zola's *Germinal* is well placed to address.

Germinal is perfectly at ease with Braudel's tripartite historical structure, embellished by distinctions between structural preconditioning and forms of repetition. Narrative events in the novel are enabled by a background of political impasse, rendered inevitable by a combination of biological determinism and historical vulnerability through repeated incidents of exposure. Less dramatic than events like the cave-in or the flood, the endemic issues for the miners continue to be long-term occupational health problems associated with coal mining. The Maheu household is described as 'le grand-père toussant, crachant noir, repris de rhumatismes qui se tournaient en hydropisie, le père asthmatique, les genoux enflés d'eau, la mère et les petits travaillés de la scrofule et de l'anémie héréditaires' (Zola 1964, 1357–58). Biological determinism and historical exposure draw the short-term manifestation of particular conditions—Étienne's rage, Bonnemort's cough—into long-term narratives of illness.

Zola, inspired by Cuvier's thesis on cyclical destruction, deems the failure of the strike and the political regression accompanying the flood to be narratively important because they demonstrate the inevitability of biological determinism and catastrophism. At the same time, these less narratively striking signs of exposure are the biological conditions that encode the strike's failure into its inception. European Naturalism emerged as an extremity of nineteenth-century realism, whereby forms of scientific determinism were adapted to rationalize forms of cause and effect. Naturalism depends upon determinism, which is based on extrapolating the consequences of inherited defects and living conditions. For Zola, especially in the Rougon-Macquart cycle, genetic theories of inherited deviance—manifested

in disorders of affect—serve as the underlying basis for personality defects. Accordingly, Zola's naturalist account of the miners determines their (lack of) potential to self-emancipate. These conditions preclude the miners from forming a political consensus more lasting than brief eruptions of violence, like the strike, which means that events necessarily lead to the continuation of a political status quo. The foregrounding of mid- to long-term structures of repetition in the novel, against which characters and events may be viewed as brief 'eruptions,' might be useful when reading for the long-term effects that the author could not be aware of, especially coal's contribution to anthropogenic climate change.

This is more complicated than it might appear. Moments in the novel when coal is considered—in what Freedgood and Schmitt have called 'denotative, literal, and technical' language (2014, 1)—largely pertain to qualities other than its capacity to burn. The text acknowledges the poisonous effects of burning coal, but these effects are contained: 'dans chaque maison, le fer ne refroidissait pas, chargé de houille, empoisonnant la salle close' (Zola 1964, 1281). In order to unpack their significance, we might attend to the essential role of coal effects in the narrative. Obviously, coal causes diseases, most notably black lung, whose effects I've already mentioned. But it also carries sound over large distances, which helps the workers to locate Étienne and Catherine. Methane ('firedamp' or 'grisou'), a by-product of the coalification process, provides the mechanical cause for a narratively necessary explosion. Mining coal is dirty work, so descriptions of shifts are occasionally followed by ablution scenes. Though less narratively important, these scenes reveal a disregard for nudity between the genders, and—more importantly—provide brief moments of privacy for the Maheu parents to discuss their money problems, and to be intimate. Given the importance of coal's essential characteristics, it is noteworthy that the novel seldom dwells upon coal power. Even when coal burns, it does so only to provide heat to 'la salle close,' the workers on the slag heap, or the wealthy beneficiaries of the coal mine. Coal power registers as an abstract commodity that dictates the vicissitudes of capital.

There is a tension, then, between coal in its material aspect (as encountered by the miners and their families) and as a source of power (rather than heat), which gives it economic significance for capital investment. When discussing the latter in *Fossil Capital* (2016), Malm attends closely to the reasons why, in late eighteenth-century and early nineteenth-century Britain, mill owners shifted their power source from water to steam. These decisions were made less for efficiency than to regulate the power that geography holds over labour. Water-powered factories are constrained by altitude, drop ratio, and the presence of running water, which subjects an owner to the collective labour power of people living in those areas. Coal-powered factories, on the other hand, are constrained only by their access to an affordable supply of passable coal. Capital in Britain, argues Malm in *Fossil Capital*, shifted from water to coal because the move allowed the relocation of industries to areas with large concentrations of labour, lessening the power of labour over the production process. Coal did not replace water for technological reasons, but to serve the movement of capital.

Germinal presents the coal industry in a moment when coal is denied its function as a fiscal lubricant: an economic crisis. By diminishing the role that coal production plays as a driver of industry, Zola creates a situation where the imperative to produce more coal is weaker, which highlights the arbitrary nature of the industry. When Étienne first arrives at Montsou, he is told that surrounding factories are closing, reducing demand for coal—the *raison d'être* of the mining community. But, Bonnemort remarks in the opening exchange with Étienne that, with the downturn in production in 'les fabriques,' 'les fosses ont pourtant diminué leur extraction. Et regardez, en face, à la Victoire, il n'y a aussi que deux batteries de fours à coke qui flambent' (Zola 1964, 1136). The failure of the surrounding factories creates a kind of absurdity, since the production of coal becomes nonsensical without factories to use

it, which gives rise to tautological justifications: industry for industry's sake. Zola details the consequences of these macro-economic conditions, such as the management's decision not to pay extra wages to ensure good quality tubbing—the lining of the mine shaft with wooden struts to support the ceiling. Though an act of sabotage by anarchist Souvarine floods the mine in the book's climax, poor tubbing contributes to the mine's vulnerability. This is but one instance of narrative determinism wherein the seeds of existing conditions come to germinate. The novel signals this germination process with parallelisms that anticipate future actions. When Étienne first meets Bonnemort, the old man tells him how he came to acquire the nickname of 'Bonnemort' by surviving several accidents, including a cave-in. This discussion anticipates the moment that Étienne exits the mine after his own cave-in experience as 'ce vieillard' (1590). Similarly, Bonnemort's earlier anticipation that he will work for two more years 'pour avoir la pension' (1135) backfires later in the novel, when he becomes too ill to work. The consequence is a series of cascade effects, where each event comes to function as both result and cause.

The plot of *Germinal* and the history of nineteenth-century coal mining furnish all the elements necessary to formulate a dialectical image around the contradictions of fossil capital: when the economy begins to slow down, and the need for coal lessens, the epiphenomena of emissions, pollution and dust seem less necessary and therefore more outrageous. But this image fails to register the visceral attraction that coal has for Zola, or the full consequences of the mythic metaphors raised earlier. Consider, for instance, this rhapsody by Philip Walker:

Better than any other novelist that I know of, he shows us coal, its cruel resistance to the miners pick, its harsh sonority under the striking steel, its heaviness, the way it crumbles as it falls, its occasional shimmer under the glow of the miners' lamps, its extraordinary blackness, its smeariness, its invasive dust. (57)

Walker evokes the beauty of Zola's writing about coal, over and above its reified usefulness, either as commodity or as geological signifier. Coal, here, affects us, not just as bodies but as readers. Walker's intuitively polyvalent response to coal anticipates the turn, by twenty-first-century studies of Zola, to embodiment, historicity, and textuality to extend the consequences of Zola's mythic metaphors. As Susan Harrow notes in *Zola, the Body Modern* (2010), the modern labouring body parallels the crises that face Zola's literary corpus: 'the relation between the writing of the body and the body of writing' (72). If Harrow recognizes the necessary reciprocity between embodiment and textuality, Zena Meadowsong has further noted that the monstrous machines that populate Zola's novels and crush its characters metonymize the narrative itself read as a "mechanical colossus" that "reproduces the conditions of the mechanized world to disclose [its] terrible realities" (2019, 46). Jessica Tanner considers a parallel mechanism within 'le temps' of Zola's works. Starting from the idea of *le temps* as 'time' and 'weather,' as explored by Michel Serres in *Le contrat naturel* (1992), Tanner suggests that 'we might read naturalism as an ecological realism' through an engagement with weather 'as an agent, marker, and metaphor of flux [that] speaks to the invisible logic of climate as a nexus of temporalities subtending naturalist narrative' (2017, 21, 22–23)—in other words, as both climate condition and literary effect. Tanner, in her concern for the way that shifts in weather signal a more profound change in climate, presents an argument that parallels Malm's, *sans* dialectical image. Drawing on Michel Serres's *Feux et signaux de brume* (1975), she notes that the coal of *Germinal* needs to be seen as part of 'an energy system that drives the series:' 'the sun's heat is coextensive with the coal and fire fueling the steam engine that powers Zola's trains, machines and narratives' (20). Given her attentiveness to 'thermodynamics as the motor of Zola's fiction' (21), as well as her familiarity with climate-based ecocriticism, it is surprising that Tanner follows the

tendency—criticized by Malm—of not addressing the causal role played by fossil fuels, namely coal. This can only be because the point is so obvious and, besides, secondary to Tanner's purpose. The coal mining is not causing the changes in weather that Tanner is interested in tracking—its product is.

Coal mining does provide a possible way of juxtaposing the body, weather, and climate, and not merely for anticipating the climate emergency. After all, body, weather, and climate share an air that has become materially charged by coal that itself is doubled in the novel. Harrow's doubled *corps*, brough low by Meadowsong's doubled machine, might then anticipate Tanner's doubled atmosphere, mediated by Serres's doubled *temps*, and overshadowed by coal, treated by Zola as both commodity and as intrinsically fascinating. These readings need not contradict each other, since each operates on a different spatio-temporal scale. Rather, their juxtaposition presents an opportunity to align them according to the differing scales that are simultaneously present in the novel as sedimentations of time. 'The advantage of a theory of sedimentations of time,' suggests Koselleck, 'lies in its ability to measure different velocities—accelerations or decelerations—and to thereby reveal different modes of historical change and indicate great temporal complexity' (2018, 35). By recalling the simultaneity of the nonsimultaneous velocities in the novel, we can fold the dialectical image of coal back into the sedimented readings of bodies, machines, weather and time as a macroeconomic feature of the plot. A device that crosses these sediments, carrying coal dust in the atmosphere from *le temps* to *le corps*, is breath. Weather, atmosphere, the body and coal are brought together when one breathes.

Breath folds together time and space, scaling between the body and the atmosphere from the past into the future. Sam Kean opens his account of 'the air around us' in *Caesar's Last Breath* (2017) with a reminder that 'the ghosts of breaths past continue to flit around you every second of every hour, confronting you with every single yesterday' (Kindle). Kean's point is that, while the large-scale conditions of breath-become-air might change—its smells, temperatures, and atmospheres—molecular matter is recycled between beings and times. This molecular constancy constitutes his premise: at any moment, we have a chance of inhaling at least one of the molecules gasped out by Julius Caesar as he bled to death in the Senate more than two thousand years ago. We do not need to commit to Kean's number game to appreciate the ways in which breath can index relations between the very large and the very small while linking the distant past to the immediate present; in other words, giving a sedimentary order to the dialectical image. Now, I want to show how the different uses of breath in *Germinal* correlate to different scales of space and time that give Zola's treatment of breath a sedimentary quality, allowing the simultaneity of breath to carry through nonsimultaneous moments of action, as a materialized metaphor.

The first mention of 'breath' appears in the second sentence of the novel in relation to wind:

Devant lui, il ne voyait même pas le sol noir, et il n'avait la sensation de l'immense horizon plat que par les souffles du vent de mars, des rafales larges comme sur une mer, glacées d'avoir balayé des lieues de marais et de terres nues. (Zola 1964, 1133)

The March winds are invoked as breaths or gusts, which initiates a play on 'souffle' that continues through the novel. This ranges from the workers who continue their task despite a lack of breath in their inflamed lungs—'eux, au fond de leur trou de taupe, sous le poids de la terre, n'ayant plus de souffle dans leurs poitrines embrasées, tapaient toujours' (1174)—to the pumps that run like breathing machines: 'jusqu'à l'échappement de la pompe, cette respiration grosse et longue, soufflant sans relâche, qui était comme l'haleine engorgée du monstre' (1136). Breath is also political: the 'peste' that the mine's manager Hennebau

denounces as ‘souffl[ant] sur tous les ouvriers et qui corrompt les meilleurs’ (1321). Étienne’s musings on political economy are filled with hot air, which causes even the trees to sigh: ‘l’on n’entendait que son souffle désespéré, au travers des arbres’ (1378). His words cause the people to speak, but only upon the breath of a storm: ‘les voix reprirent, avec leur souffle de tempête’ (1384). If the environment, workers, and machines all breathe according to the disordered patterns of capitalism, the political associations with breath all conform to a discourse of populism: ‘la clameur recommença. Étienne goûtait l’ivresse de sa popularité. C’était son pouvoir qu’il tenait, comme matérialisé, dans ces trois mille poitrines dont il faisait d’un mot battre les cœurs’ (1381). Recent events in the USA and UK have demonstrated that, under pressure of precarity, an affective response might be unleashed that defies all logical correlation to its best course of action.³ In this sense, the sophisticated infrastructures upon which populism depends can be distinguished from its rather unexamined absorption of ideas in reaction to particular moments. The collectivity of the miners—a sophisticated historical institution—provides the basis on which Étienne can explore his rather unsophisticated set of ideas, with dramatic and devastating effects.

Far from simply acting as a metaphor that operates independently when referring to the natural world (the wind or trees), the mine (the pumps), the miners, or political events, breath is a shared metaphor that operates across these different states of being, becoming the basis for their comparison. Let us consider the opening page once more: when Étienne asks Bonnemort if there is work, their exchange is punctuated by a series of interruptions, either the wind (‘une rafale leur coupa la parole’) or Bonnemort’s coughing fits: ‘le vieux, cette fois, ne put répondre. Un violent accès de toux l’étranglait. Enfin, il cracha, et son crachat, sur le sol empourpré, laissa une tache noire’ (Zola 1964, 1135). Given the established link between the wind and panting—‘le vent redoublait, une bise glaciale, dont les grandes haleines régulières passaient comme des coups de faux’ (1134)—the interruptions are understood through their relation to breath. This is metaphoric in the case of the wind, and metonymic in the case of Bonnemort’s coughing fit. Since it is difficult to link the icy wind to Bonnemort’s breathlessness, not least because of the need to shift from metaphoric language to metonymic language, Zola uses the polyvalence of ‘breath’ and its associated terms to create a triangular relation whereby manifestly dissimilar elements (the wind, the cough) may be juxtaposed through a shared relation to breath.

This sedimentary development of relations is no mere matter of virtual connection. Bonnemort’s coughing fit is a corporeal connection to coal mining, since it presents the signs of pneumoconiosis, i.e. black lung.⁴ This suffocating illness was perceived in Zola’s time as a form of phthisis affecting coal miners. The parallels between Bonnemort’s black lung and the wind develop a pattern of interruptions: the natural world and the occupational health condition end up drowning out the miner’s voice. The political implications of these two developments of breath are felt elsewhere, especially when Bonnemort’s condition is used by Étienne to develop the affective response that results in the strike. Bonnemort’s real malady is treated as secondary to the affect that it can engender in others, becoming ‘un drapeau de misère et de deuil’ (Zola 1964, 1383). Étienne’s rhetoric shuttles between Bonnemort’s actual condition and the circumstances of the miners consolidated as an ideal individual:

Le mineur n’était plus l’ignorant, la brute écrasée dans les entrailles du sol. Une armée poussait des profondeurs des fosses, une moisson de citoyens dont la semence germait et ferait éclater la terre, un jour de grand soleil. Et l’on saurait alors si, après quarante années de service, on oserait offrir cent cinquante francs de pension à un vieillard de soixante ans, crachant de la houille, les jambes enflées par l’eau des tailles. (1383)

This passage anticipates the germination of the ‘armée noire’ at the end of the novel with the idea of an enlightened miner who will no longer accept the conditions that face ‘un vieillard de soixante ans’ like Bonnemort. Ultimately, it is Bonnemort who performs the only real act of vengeance against ‘la bande des actionnaires entretenus comme des filles depuis un siècle, à ne rien faire, à jouir de leur corps’ (1383) by suffocating Cécile Grégoire, the kind daughter of the mine’s major shareholders.

The Grégoire family, the ‘bande des actionnaires entretenus’ execrated by Étienne, are wealthy because of their investments in the mine. In the aftermath of Souvarine’s sabotage, they are moved by Zacharie’s death to visit the Maheu family in an act of patronising charity: ‘bien que cette famille eût mérité en partie ses malheurs, par son esprit détestable, avaient-ils résolu d’affirmer la largeur de leur charité, leur désir d’oubli et de conciliation, en lui portant eux-mêmes une aumône’ (Zola 1964, 1558). When they come to the house, they find Bonnemort in a catatonic state after a massive stroke, which suits their purpose because he can be the passive recipient of charity more oriented to the giver than the receiver. As they watch, he coughs up ‘un épais crachat noir. La cendre en était trempée, une boue de charbon, tout le charbon de la mine qu’il se tirait de la gorge’ (1559), which causes them to recoil, ‘le cœur levé de dégoût’ (1559). Throughout the novel, Bonnemort serves as the reminder and the remainder of the humanity used up in the mining process. The physical repulsion of the Grégoire family in response to Bonnemort’s coal-blackened spit is symbolic of a general antipathy to engaging with the material impact of their financial investment in the mine. When Cécile spends a few minutes alone with Bonnemort, he ‘par[âit] s’éveiller’ and strangles her, leaving the Grégoire parents ‘suffoqua[nt] de douleur’ (1560, 1561). Étienne’s concept of idealised violence against shareholders is realised by Bonnemort as actual violence against just such a young woman, in an action that iterates both his protracted breathlessness and the acute deaths by oxygen deprivation and drowning envisaged by Négrel, nephew to the mine’s manager.

Breath is clearly an important thematic and technical device in the novel. It provides the language for political change and material obstructions to that change, as well as indexing conditions of the body, time, and weather. Since it draws these associations out without conflating them, its polyvalence is sedimentary: connections are shown across different space-time scales without merging those scales. This shows how events function at different levels through the novel, not at the same rate. This nuanced categorisation of the *longue durée* in relation to breath’s sedimentary function allows us to find something that enables the novel to be received as a dialectical image, over and above its problematic reliance on biological and political determinism.

Zola’s breaths are sedimentary insofar as they allude to distinct space-times. These space-times run across Braudel’s divisions between short-, medium- and long-term histories, so breath can bring together conflicting forms of History. This might be said of any material history of breath or air. Tobias Menely (2014) considers how the concern with air produced by increased awareness of carbon emissions alters the way that we receive philosophies of History authored by members of the Frankfurt School, including Benjamin. Benjamin, Adorno, and others frequently return to air as a placeholder metaphor for conditions that are eternal or unchanging, but, Menely argues, climate change turns the air itself into a historically material object (Menely 2014, 93). On this basis, Menely demonstrates that the discourse of materialism has itself become materially charged. Menely and Zola consciously evoke a longer natural history of geological time, which means that their material histories are inflected by the same concerns as Anthropocene criticism.

There is a complex relation between breath, politics, and sedimentary history: breath not only indexes possible futures frustrated by events, but also determines that these futures must be repeated *with variation* for a utopian vision to hold. The hot-headed populist discourse of part 4, chapter 7 of *Germinal*—which I have linked to breath via Étienne’s utterances—is followed by futile protest and violence in part 5, chapters 3 and 4. Although there are significant differences between the ‘hot air’ of populist discourse and the collective breathing of an emergent political body, the one form of breathing might easily be conflated with the other. Parallelisms, which rely as much on their distinctions as their commonalities, can degenerate into undifferentiated iteration if the emphasis on variation is missed. Think of the moment when the strikers threaten to sabotage the elevators: Zola first narrates it through the panicked experience of the trapped miners, then as an ambivalent course of action by the strikers. The event is told twice in a structured pattern. However, the variation in point of view emphasizes a dramatic shift in experience between those whom a crisis of existential and politicised precarity immediately affects physically, and those whom it affects as a socio-political narrative. This is not simply a matter of repeated evental time, since the ‘event’ of the sabotage is experienced in two distinct trajectories: the immediate time of existential threat, and the durational time of political agitation.

This might explain why Zola’s descriptions internal to events are so protracted. After the elevators are sabotaged, Catherine and Chaval must climb the mine’s 102 ladders to exit ‘dans un éblouissement de soleil’ (Zola 1964, 1407)—Zola extends the spatial progression of the climb by describing Catherine’s exhaustion, which progresses in stages marked by the count of ladders. Catherine’s personal experience of the event flows according to the collective movement of the people trying to exit the mine, including their affective states of fear, frustration, and anticipation. If political unity is brought together through a collective breathing, Zola’s reliance on this parallel finds its ironic counterpoint in the collective presence of the panicking miners: ‘l’essoufflement des haleines à présent couvrait le roulement des pas, un rôle énorme, décuplé par la cloison du goyot, s’élevait du fond, expirait au jour’ (1407). This more immediately precarious moment of collective breathing anticipates Zola’s famously ambiguous conclusion to the novel. As Étienne walks away from Le Voreux, he hears, ‘sous ses pieds, les coups profonds, les coups obstinés des rivelaines [...]. N’était-ce pas la Maheude, sous cette pièce de betteraves, l’échine cassée, dont le souffle montait si rauque, accompagné par le ronflement du ventilateur?’ (1591) At the same time, the tapping indicates ‘cette rumeur’ in the land: ‘des hommes poussaient, une armée noire, vengeresse, qui germait lentement dans les sillons, grandissant pour les récoltes du siècle futur, et dont la germination allait faire bientôt éclater la terre’ (1591). The individual experience of La Maheude is closely followed by its promise of some future collective action, but this action cannot simply repeat the events of the novel that ended in failure. As the events are sedimented into the history of any future action, a more complex Philosophy of History is required.

By considering Malm’s Benjamin-inspired dialectical image alongside Reinhart Koselleck’s sedimentary Philosophy of History, I have presented a method of reception that allows *Germinal*’s original political force as a critique of precarious labour practices to be reconciled with latent concerns about coal use when reading the novel in the present. The twenty-first century provides a *now* capable of recognizing the consequences of coal mining *then*, when the focus was on immediate economic survival, rather than the long-term effects of coal use. However, a simple ‘reading for coal’ risks missing the features of the novel that bring the use of coal into a complex political economy, since labour precarity frequently obscures large-scale issues like the climate crisis. For workers concerned with food and shelter, work practices tend to occlude the importance of environmental changes. The

mismatch seems to be reconciled by Zola's material account of breath as something that sediments different forms of time-space. Beyond a geological reading of *Germinal* that introduces us to the literal sediments of coal (Walker 1984), it is worth remembering that the effects of coal *dust* are debilitating, inevitable, and irreversible. By building this account of breath's precarious place in industry alongside other breaths that index political and ecological environments, I propose a philosophy of historical sedimentation associated with new forms of Anthropocene Reading.

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¹ Robyn Warhol considers the subnarratable to be concerns that slip below the threshold of interest in the text as 'literally unremarkable—they need not be told' (2005, 223).

² Jason Moore's *Capitalism in the Web of Life* (2015) is explicitly Braudelian, but this aspect of his project has received less attention in the immense range of critical engagements with the capitalist overtones of the Anthropocene that his work has inspired, especially in terms of his vision of the Capitalocene.

³ See, for instance, Simon Wren-Lewis's *The Lies We Were Told* (2018).

⁴ Zola's understanding of black lung comes from Boëns-Boissau's *Traité pratique des maladies, des accidents et des difformités des houilleurs* (1862): 'pour compléter ce que nous avons à dire au sujet de cette grave maladie qui emporte beaucoup de nos vieux bouilleurs, nous ajouterons que nous avons rencontré deux cas de consommation pulmonaire noire. Les malades, dans ces deux cas, rendaient des crachats, tantôt complètement noirs, tantôt seulement striés de lignes noirâtres. Du reste, l'affection ne différait en rien de ce qu'elle est quand l'expectoration est blanche. Il était évident que la bronchite capillaire chronique, ou la consommation pulmonaire, avait envahi certaines parties du poumon où des molécules charbonneuses s'étaient agglomérées. Ces sujets avaient, en effet, travaillé longtemps dans des fosses à charbon gras, où le poussier est fin, léger et abondant. Les crachats noirs durèrent environ six semaines; ils furent remplacés par les crachats opaques ordinaires, et les malades vécurent encore plusieurs mois après que la consommation noire avait complètement cessé' (110).