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## From sugar to oil: The ecology of George A. Romero's *Night of the Living Dead*

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### ABSTRACT

Reading the zombie as an essentially ecological figure, this article argues that zombie aesthetics are necessarily animated by the combined exploitation of alienated labour-power and appropriation of unpaid work/energy, material resources, agricultural lands and fossilized fuels. Though oil had always been crucial to the globalization of the zombie via the film industry, an overt preoccupation with oil only belatedly seeped into zombie aesthetics, just a few years before the global oil crisis of 1973. Marking a clear shift in zombie aesthetics, George A. Romero's *Night of the Living Dead* (1968) transformed the zombie-labourer into the human flesh-consuming *petro-zombie* horde. It is with Romero's now canonical film, therefore, that the zombie truly enters the age of petromodernity.

### KEYWORDS

George A. Romero; *Night of the Living Dead*; Green Revolution; oil; petroculture; world-ecology; zombie aesthetics

George A. Romero's (1968) film *Night of the Living Dead* presents a turning point – one might say a symbolic revolution – in the history of zombie representations. Earlier films, such as Victor Halperin's (1932) *White Zombie* and Jacques Tourneur's (1943) *I Walked with a Zombie*, featured slow-moving zombie workers as well as zombified white females, reflecting imperialist anxieties of an expanding empire. It was thus Romero's film that famously featured the first cannibalistic zombie hordes, making it, as Jamie Russell (2005) writes, a “watershed movie” (71). Critical analyses have rightly placed much emphasis on the overdetermined year of the film's first screening: 1968 was the year of the Tet offensive in Vietnam; of student revolutions; of the assassination of Martin Luther King Jr.; of the Chicago riots. More broadly, the 1960s was the decade of the civil rights movement, decolonization struggles and industrial strikes. Romero's film was notably invested in these anti-systemic struggles, as demonstrated by its visual and audio references to the Vietnam War, as well as its attacks on the nuclear family and institutionalized racism in the US. Yet from the vantage point of recent research on “petrocultures”, combined with insights derived from work on “world-ecology”, this symbolic revolution can be reread in terms of systemic upheaval and energy transition within the capitalist world-ecology (see Bozak 2012; Macdonald 2013; Moore 2015; Niblett 2015). For there is arguably an even more fundamental shift at stake that is rendered visible within the film: from the end of the 19th

century, oil had emerged as the new energy vector of the world-system, completely reorganizing nature–society relations around the logic of oil extractivism.

Oil is not just a natural resource. It is an entire web of political, economic and socio-ecological relations whose emergence has reshaped landscapes, cultures and socio-economies; created new opportunities and freedoms marked by profound asymmetries; and given rise to a newly integrated world-food-system via petro-fuelled transport and the Green Revolution. As Imre Szeman (2010) writes, oil is not only “an input that can easily take other forms, but [ ... ] a substance that has given shape to capitalist social reality” (34). From *Night of the Living Dead* onwards, zombie aesthetics began to register these changes, giving rise to a new and soon-to-be dominant figure: the *petro-zombie* (see also Oloff 2012). Best escaped from in motorized vehicles, these flesh-eating zombie hordes are by now familiar to movie audiences, yet they only emerged in 1968 – just five years before the 1973 global oil crisis – with Romero’s landmark production. To grasp the nature of this symbolic revolution, it is necessary to read the zombie as a figure that turns on successive revolutions in the dialectical relations between human and extra-human natures under world-capitalism. Within Marxist readings, the slow labouring zombie has long been understood as representing the exploitation of alienated workers: David McNally (2012), for example, reads the zombie as manifesting “recurrent anxieties about corporeal dismemberment in societies where the commodification of human labour [ ... ] is becoming widespread” (4). However, unless we grasp capitalism as a world-ecology, certain aspects of the trajectory of this figure, and specifically the shift towards the *petro-zombie*, remain open to misreading.

For Jason W. Moore (2015), capitalism is a world-ecology: a historically specific and fundamentally unsustainable way of organizing human and extra-human natures via abstract relations of ever-increasing inequality. Importantly, he argues that the generalization of commodity relations depends on widespread appropriation of key energetic resources and that this has historically enabled the survival of the capitalist world-ecology by driving down the system-wide costs of production. According to Moore, appropriation involves “extra-economic processes that identify, secure, and channel unpaid work outside the commodity system into the circuit of capital” (17). This yields the “Four Cheaps” of energy, labour-power, food and raw materials, which serve as uneven forms of energy that feed into the system – whether as calories, watts, muscle-power, emotional nurturing or soil nutrients. This article argues that zombie effects register recurring shifts in the socio-ecological metabolism. Animated by the combined logics of exploitation and appropriation, these symbolic-ecological revolutions turn on shifting relations between value (abstract social labour) and that which is not valued but appropriated (unpaid work/energy). Representations of exploited labour are thus only one particular zombie effect, and cannot account for the evolution of zombie aesthetics over the *longue durée*. The zombie is, in other words, not a static figure but one that is animated by “the inner logic of capitalism” (Shaviro 1993, 63) and corresponding revolutions in the capitalist world-ecology.

### The oil-fuelled zombie revolution

While the *petro-zombie* registers the ecological revolution that began in Titusville in 1859, the zombie figure has its origins in the colonial sugar plantations of Haiti – plantations that were fundamental to the development of capitalism. The sugar-zombie was described by Alfred Métraux (1972) as a “beast of burden” with no autonomous will, forcibly reduced

to his labour-power and ceaselessly toiling for a zombie master (282). This figure registers Haiti's forceful integration into the global market, the brutal separation of an enslaved workforce from the land as source of food and the simplification of extra-human natures through monocultural production. In the 20th century, the zombie transitioned into the US imaginary during the nearly-two-decades-long occupation of Haiti from 1915 to 1934. While clearly shaped by US racist-imperialist ideology, then, the US zombie's representational logic continued to be grounded visually in representations of the socio-ecological relations of the world-system. For instance, *White Zombie* featured memorable shots of zombie workers toiling in an anachronistic sugar mill, which vividly contrasted with the modern US sugar companies actually present in Haiti at the time. Decades later, Romero's zombies produced a fundamental break with these representations. His "ghouls" do not work for anyone but instead wander across the farmlands of Pennsylvania, driven by an insatiable, cannibalistic hunger displaced onto human flesh.

Romero's zombies are creatures of the new, petromodern world-ecology that took shape with the rise of suburbia and automobile culture; the emergence of oil-fuelled global transport networks; the racialized destruction of smallholdings in the American south; and the gradual transformation of wheat and cattle into "rivers of seeds and flesh" (Friedmann 2000, 508). Romero's film thus offers a critical view of the rise of the US as imperial superpower, epitomized by the contemporaneous destruction of Vietnamese lives and lands in a controversial war that was notably fuelled by oil. His zombies clearly borrowed from, but ultimately transcended, the period's cold war imaginary and recurrent geopolitical tropes that were exemplified in two oft-cited influences: black-and-white 1956 film *Invasion of the Body Snatchers* (Siegel 1956) and Matheson's ([1955] 2007) novel *I am Legend*, both of which featured contagious humanoid monsters. In the former, these monsters are mass-bred in pods on farms, while in the latter they are masses of vampires that lack the aristocratic individualism of Dracula. Apart from the more obvious political and ideological differences between the anti-communist *Invasion of the Body Snatchers* and Romero's movie, the latter manages to grasp the relation between changes in the agricultural landscape, urbanization and the rise of automobile culture as mutually constitutive, while the former can only present motorized modernity as cultural salvation from farming gone awry. Further, unlike *I Am Legend*, Romero does not place emphasis on science, but rather on the violence and brutality attending struggles over oil, as well as the limits of technology and of the current ecological regime more broadly.

Many have commented on the 1968 revolution in zombie aesthetics, but what this means for the figure's relation to capitalism has often been misrecognized. For McNally, the symbolic revolution comes at the expense of "the hidden world of labour and disparities of class", and is only ever a "critique of consumerism, not capitalism" itself (2012, 261). This curious failure to appreciate what is at stake in Romero's film is to a large extent due to McNally's understanding of "nature" and its specific relation with capitalism. McNally argues that "the utter uniqueness, some would say perversion, of capitalist society consists in the way money replaces nature as the essential condition of human life" (148). Yet, to state the obvious, money can never literally replace nature as essential condition, even if this is the illusion on which the current world-system is premised. As Friedmann (2000) writes:

[B]y linking and displacing local ecosystems, the modern world-system *obscured* human relations to the rest of nature [sic]. It created the first basis for human illusions about markets and money as the apparent basis of life. The second basis came with industry, which was made

possible by world markets and specialized agriculture. Industrial agriculture not only displaced and obscured earthly cycles, but *ignored* them. (502; emphases in original)

If we understand capitalism as a world-ecology, developing through ecological revolutions, then oil should be seen as not merely an energy input, but the now “dominant energy vector through which capitalism has remade itself since the turn of the twentieth century” (Niblett 2015, 278). McNally reads the zombie as a figure that encapsulates the alienation of labour-power as simply an effect of commodification, thereby reducing it to a metaphor for a specific relation. However, driven by capitalism’s “inner logic” (Shaviro 1993, 63), the zombie necessarily gestures towards processes and sets of relations that are completely and unevenly remade by the emergence of new energy regimes. It registers not only the human cost of alienation, but also the delayed and displaced consequences of the suppression of local materials and associated exhaustion of so-called “natural” resources. As Judith Halberstam (1995) explains, gothic economies function by rendering the mystificatory processes of capitalism visible through their monstrous aesthetics: they construct “a monster out of the traits which ideologies of race, class, gender, sexuality, and capital want to disavow” (102) – a definition to which we have to add Gothic “ecophobia” (Estok 2013, 74).

Romero’s zombies respond to a fundamental change in agricultural relations and food-getting – referred to as the Green Revolution – which introduced industrial techniques into agriculture, including the use of agrochemicals, oil-based machinery and hybridized seeds, from the 1940s onwards. Developing through the deepening of the divisions between humans and extra-human environments, this was the fossil-fuelled revolution that gave rise to today’s endless monocultural fields and terrifyingly cramped animal farming; and that displaced family farms with transnational corporations, favouring, as Sonia Shah (2004) writes, the “big mechanized farms [that] were hooked on oil not only for the fertilizers and pesticides that produced their super-sized crops but also for the machines that would harvest them and the oil-fired transport that would speed crops to distant markets” (18). Green Revolution agriculture thus required an energy input multiplied by “an average of 50 times” (Pfeiffer 2013, 7). The mid-20th century productivity revolution was therefore paid for by cheap oil, by the exhaustion of soils and water reservoirs, by ignoring traditional farming knowledge and disregarding natural limits. The zombie’s aesthetic shift from a figure rooted in the political ecology of sugar to that of oil is one that responds to these systemic changes, belatedly registering the shift from the globalized ecological regime that originated in the conquest period. One may speculate that the reason the figure lent itself to this shift is that there exist certain parallels between the political ecologies of oil and of sugar. Like oil, sugar is a global commodity that provides energy, and whose production has historically been marked by social violence and ecological devastation (see Mintz 1986). Entire societies were structured around it, and bound to its place in the uneven capitalist market with devastating consequences. Sugar’s link with oil is also highly significant. Oil has brought about fundamental changes in food production and consumption – especially of sugar, as this became a fundamental ingredient of highly processed foods – yet this relation is indirect, intensifying the fetishism surrounding food commodities. Oil, then, is different from sugar in terms of both scale and function: oil saturates the entire infrastructure of modernity, producing an intensification of commodity fetishism on a global scale.

What does this mean for the aesthetics of sugar and oil respectively? Sugar aesthetics – like oil aesthetics – have tended towards the phantasmagoric, the gothic and the unreal, registering a feeling of unreality, the violence of production and the intense fetishism

surrounding the product. Commenting on the differences between “saccharine irrationalism” and petro-aesthetics, Michael Niblett notes that

to think oil is to think the world-system. [...] And this is where the problem lies; for to attempt to make oil the direct subject of a narrative is the attempt to subjectivize the world-system – to make it representable in terms of ordinary (subjective) experience. But whereas the lived experience of the effects produced by the system’s petro- driven dynamics would be representable in this way, the system *as such*, as an immense bundle of human and extra-human relations in movement, could not be reduced to such subjective experience. (2015, 275; emphasis in original)

In Romero’s *Night of the Living Dead*, we see this very contradiction at work. Oil saturates everyday reality and is the main visual and plot-based obsession of the film. Yet oil is not only a “direct subject” of the narrative; it also features as a violent dynamic that exceeds comprehension as it devours everything in its path. Oil-as-relation, oil-as-system, is difficult to either imagine or cognitively map. It therefore resurfaces in the symbolic economy of the monstrous that threatens to bring life as we know it to a halt. The unpaid debts – of cheap oil, water exhaustion, soil erosion and increasing social inequality – always return. One might say, perhaps somewhat “crudely”, that the zombie revolution turns on the shift from a figure that was representative of a relation within the system that consumes his humanity to one that, awkwardly, ambivalently, points towards the capitalist world-system itself. There is no longer an easily identifiable zombie-master who can be blamed as events spiral out of control and the world comes to an end; zombies are no longer represented as alienated producers of food-as-energy. Nowadays, they are driven by a never-ending cannibalistic hunger that itself feeds on the caloric resources of the human labour force.

### The (absent) city and the country in *Night of the Living Dead*

To the extent that zombies register shifts in nature–society relations under capitalism, landscape and setting – as well as how these are inhabited by humans – are crucial aspects of zombie aesthetics. A concern with how nature–society relations are reshaped in the car-dominated, petro-fuelled 20th century is prominent throughout *Night of the Living Dead*. Unlike the sugar-zombie, Romero’s zombies would never stop in their path to till the land or work on a plantation. Indeed, the aesthetics of sugar plantations and toiling bodies are explicitly replaced by iconic shots of bloodthirsty ghouls wandering across an otherwise deserted rural landscape, culminating in their instinct-driven mass attack on the farmhouse. While the horror of the movie unfolds in and around this dilapidated farmhouse in the south-western Pennsylvanian countryside, almost all of the protagonists have arrived from elsewhere by car. The film thereby places consistent visual emphasis on fossil-fuelled transport, registering the widespread abandonment of the countryside under petro-capitalism.

This emphasis on travel is evident from the start: the film opens on a slightly shaky long shot of a deserted country road, winding through an autumnal landscape of fields and leading past three distant farmhouses. A car appears in the far distance and gradually – over the course of over half a minute – winds its way into the foreground. As the car exits the frame, the camera cuts to another long shot in the opposite direction, and the car proceeds to move through the frame for, again, almost half a minute. This is followed by a concatenation of further shots of the car advancing along the curvy road, eventually entering a rural cemetery as the camera focuses on a US flag, symbolically positioned in the foreground. The

prolonged sequence of the car's journey with the cemetery as destination metonymically evokes Johnny and Barbra's 200-mile migration from Pittsburgh – where Gulf Oil, US Steel, Westinghouse and Alcoa all held their headquarters – to the countryside, which the visual economy of the movie links to a national past signalled by the flag. The visual introduction of the car passengers is purposely delayed. As Tony Williams (2003) notes: "A low-angle shot frames the car before we see the occupants. This angle emphasises a vision of the dominant technology which most Americans place their trust in" (23). The importance of cars is thus evoked from the very opening scene, as the camerawork subordinates the individual to a culture knitted together by petro-fuelled transport.

In Romero's film, oil is curiously what both protects and ultimately destroys human life. Fuel-driven transport could potentially enable the escape of the protagonists, registering Stephanie LeMenager's (2012) observation that, in the lives of those with regular access to cars, "driving" is habitually associated with "being alive" (70). This point is literalized in the opposition between fast-driving humans and the slow, stumbling zombies that defy the linear temporality of petromodernity and its ideals of speed and progress. The zombie's inability to compete with functioning cars is rendered visually explicit when Judy and Tom drive their truck to the notorious gas pump, while the zombies fall limply behind. Further, as Ben observes, when one drives into zombies, they just "scatter like bugs". Throughout the film, zombies are therefore simultaneously attracted to and repelled by cars, by petroleum and by artificial light. Zombies are frequently shot in the same frame as cars, often shown trying to access vehicles, meaning the gas pump becomes the prime site of terror. The film's infamous scene of cannibalism takes place just after the failed attempt to get petrol from the pump, resulting in the young couple being blown up in the car. Canted shots and shaky handheld camera movements here recreate the sense of panic, as the car – and, metonymically, normalized car culture – explodes. This association between zombies, oil and car culture quickly became the new dominant, as Romero's iconic exploding petrol station emerged as a well-established cinematic trope.

Throughout *Night of the Living Dead*, the semi-peripheral landscape and population of rural Pennsylvania are seen as anachronistic, cut off from metropolitan centres, while news footage of Washington DC positions the seats of power elsewhere. Even prior to the outbreak of zombie apocalypse, the region is marked by stasis and death, symbolized by Barbara and John's visit to the cemetery in remembrance of their long-dead father. Williams (2003) explains that even their relation to his memory is now mediated through consumerism, as they place a manufactured wreath on the grave as part of a ritual visit that has long lost its meaning (24). This sense of anachronism regarding the countryside continues to be central to the plot. Barbara escapes the zombies by taking refuge in a dilapidated farmhouse – a claustrophobic site of horror that evokes a certain type of agricultural relation (family farming), rendered obsolete by agro-industrialization. This is made explicit in the visual association of the farmhouse with a gas pump through a sequence of shot-reverse-shot: in between two shots of the farm, we are offered two of Barbara holding onto the gas pump, metonymically emphasizing the centrality of oil to the new agricultural and social order.

While recent critical analyses of the film tend not to focus on ecology or environmental degradation, this context was clearly visible to Romero's contemporaries. Only a few years prior to the film's release, fellow Pennsylvanian Rachel Carson ([1962] 2000) had published *Silent Spring*, the opening fable of which uses a gothic lexicon to invoke the impact of pesticides on the countryside:

[A] strange blight crept over the area and everything began to change. Some evil spell had settled on the community [ ... ]. Everywhere was the shadow of death. [ ... ] No witchcraft, no enemy action had silenced the rebirth of new life in this stricken world. The people had done it themselves. [ ... ] A grim spectre has crept upon us almost unnoticed. (21–22)

Here, the industrialization of the countryside and its detrimental effects generate a sense of rupture and ecological catastrophe, in a vision strikingly similar to that presented six years later by Romero. Similarly, the Spanish director Jorge Grau released *No profanar el sueño de los muertos* (Grau 1974; *The Living Dead at Manchester Morgue*), shot in Manchester and the Lake District. With clear visual nods to *Night of the Living Dead*, this film offers an environmentalist message that is made visually explicit from the beginning. The underlying reflection on socio-ecological changes in Romero's opening sequence is echoed in a concatenation of shots of Manchester, an urban environment dominated by car fumes, interspersed with shots of a rotting bird and a lone female stalker making a peace sign. As Russell concludes, "the hippie dream has given way to pollution, ennui and the beginning of the strike-filled, unemployment-soaring 1970s" (2005, 81). The two protagonists are thus pitted against reactionary government officials who ignore the threat posed by industrial agribusiness, as symbolized by a giant orange machine: a reified technological agent of oil-based power which, together with the agri-entrepreneur, has replaced the small-scale farmer and further irradiated the ground following the use of DDT. The radioactive machine produces violent behaviour in animals, babies and dead humans, especially the displaced rural poor, thus becoming the 20th-century equivalent of the zombie-master. But where Grau Solá's film offers a relatively simple vision in which the threat can be easily decoded, Romero's zombies are complex, uncontainable figures of excess whose cannibalistic terror is strongly overdetermined by multiple entangled histories.

Critical reception of Romero's film has rightly focused on his strong critique of race relations within the US as well as the core-hegemon's imperialist war against North Vietnam. Ben, the African American protagonist, is gunned down at the end of the film by an all-white police force in a scene that visually resonates with the brutal methods employed by the US military in Vietnam (see Higashi 1992). Yet the film also invites reflection on the political ecology of these very social relations. Though environmental and cold war historiographies have long been "like two ships passing in the night, dimly conscious of one another but unable or unwilling to engage each other" (McNeill and Unger 2010, 4), more recent accounts have emphasized the role of the Green Revolution in US cold war strategy (for example, mobilizing wheat and rice to win "hearts and minds") as well as the intertwined histories of exploration, research and environmental warfare. For not only was the Vietnam War fuelled on both sides by oil provided by Shell (see Wesseling 2000), but the systematic environmental destruction caused by the agrochemical warfare became so integral to US strategy that, as Greg Bankoff (2010) writes, "a photograph of a US Air Force C-123 transport aircraft dispensing defoliants over the emerald green tropical forest below has become almost iconic of how the war is remembered" (215).

At the national level, the Green Revolution was integral to the large-scale displacement of African Americans, as sharecropping agriculture gave way to the mechanized neo-plantation. Clyde Woods (1998) notes that the "rural enclosure movement" destroyed several million African American homes, social networks and centuries of agricultural knowledge and skill, and that, by the 1960s, 95 percent of African Americans were living in enclosed urban environments (87). Consequently, Woods writes, the "centuries-old push for ethnic,

political, and economic democracy which re-emerged under the banner of civil rights in the 1950s was effectively hollowed out by this revolution” (87). The socio-ecology of African American history – specifically the Great Migration and exodus towards US cities – also provides the larger, national context for the role of Ben, a character who was decisively reshaped by the actor Duane Jones. Originally conceived as a white truck driver, “a redneck kind of guy” (Keough [2010] 2011, 171), Jones recoded Ben as a well-educated, presumably urban, white-collar labourer. Partly for this reason, Ben is the most complex character in the film; heroic but flawed, sharply contrasting with the history of African American actors portraying zombies in earlier US films, but also subverting the Sidney Poitier-like character he initially seems to evoke (Bruce 2011, 62). He is also more deracinated than any other character, as nothing is revealed about his family, origins or destination.

Notably, the first attempt to verbalize the horror of what is happening comes from Ben, as he relays his encounter with the zombies at Beekman’s Diner:

[A] big gasoline truck came *screaming* right across the road! There must have been ten, fifteen of those things chasing after it, grabbing and holding on. [ ... ] I guess ... guess the driver must’ve cut off the road into that gas station by Beekman’s Diner. It went right through the billboard, ripped over the gas pump, and never stopped moving. But now it was like a moving bonfire! [ ... ] I still hear the man . . . *screaming*. These things, just backing away from it! [ ... ] by now there were *no more screams*. I realized that I was alone, with fifty or sixty of those things just . . . standing there, staring at me! (Transcript from The International Movie Database [<http://www.imdb.com/title/tt0063350/quotes>]; emphases mine)

As this passage reveals, the “gasoline truck” is symbolically at the centre of the famous gas station chase. In Ben’s monologue, “screaming” is at first anthropomorphically associated with the sound of the gasoline truck’s screeching tyres. The second time, it names the sounds of a man trapped within the burning vehicle. The third time Ben mentions “screams”, it is their absence, which now demarcates the victory of dehumanizing horror, one that is the product of the bind humans have to their vehicles through oil. The racial dynamics are here difficult to miss, as Ben’s encounter carries horrific resonances of lynch mob violence, in which gasoline was employed to burn the victims. The symbolic importance of oil is so strongly overdetermined – figuratively, culturally and historically – because oil simultaneously reshaped landscapes and restructured social relations, and the history of the latter cannot be extricated from that of the former. The sliding signifier of the “screams” thus points to their entanglement, just as the underlying threat of cannibalism signals that which exceeds representation: the inexplicable horror of oil-as-relation, oil-as-the-system, which cannot be easily encapsulated by either the cars or the petrol pump. The “scream” not only reverberates with and within the zombie horror, that is, but gestures towards an intensification of oil-fetishism throughout the petromodern world-ecology.

### Film-making, fossil fuels and Pennsylvania

The rise to hegemony of the petro-zombie can usefully be placed within the history of film-making. Like any modern industry, the film industry is itself drenched in fossil fuels: from the materials used for filming and infrastructure required for distribution, to the drive-in cinemas where Romero’s film was first screened, to the film stock itself which, “like the ink used in modern print media, is essentially petroleum” (LeMenager 2014, 100). Zombie movies frequently involve the breakdown of modern media communication – as in

Romero's film, when the TV eventually stops transmitting – imaginatively threatening the very possibility of film-making: if petromodern infrastructure breaks down, so will the possibility of communicating through TV and film screens. Yet, from its early days, film-making in general displayed a strong self-awareness of its link to (petro)modern industry, to fossil fuels and the enhanced speed, light and transportation they enable. For instance, the early films of the Lumière Brothers famously include *The Arrival of the Train at La Ciotat* (1895), capturing the arrival of a train filmed in a single shot, and *Oil Wells of Baku: A Close View* (1896), showing “huge flames and black smoke streaming from the burning oil wells in Baku” (Murray and Heumann 2009, 19), thus highlighting the spectacular quality of the giant oil gushers. The opening scene of *Night of the Living Dead* could be read as an intertextual reference to *The Arrival*, with visuals of the slow-moving car inviting the viewer to reflect on the shift from coal to oil by foregrounding the individualized “freedoms” of petro-transport. But where hegemonic representations of “the spectacle of [oil] gushing from the earth suggests divine or Satanic origins” (LeMenager 2014, 92), Romero's film clearly does not offer a view of oil-as-spectacle. Instead, it re-embeds oil within socio-ecological relations, gesturing towards its history of violence and dispossession, and warning against capitalism's fetishistic reliance on energetic extraction. Like oil – which, as Vaclav Smil (2008) reminds us, derives from ancient “dead biomass, the remnants of terrestrial and aquatic plants and heterotrophic organisms” (58–59) – zombies rise up from the earth as dead but seemingly animated matter, containing within them the remnants of former life. Oil's powers are likewise so great as to seem fantastic: one barrel of oil is equivalent to 25,000 hours – or 12.5 years – of human labour-power. If crude oil appears to rise “magically” from the ground, oil-as-commodity thus gives rise to an intense form of fetishism that reifies the abstract social and physical labour of petrolic commodity-production. Yet, as is plainly visible from peripheral sites of extraction, oil is neither free – its environmental and human costs are, in fact, skyrocketing – nor is it attained without work. Rather, as has been amply documented, oil extraction is amongst the most brutal, exploitative and deadly modern industries. If the energetic labour-power of the sugar-zombie was easily controlled, therefore, this is no longer the case for the multiplied energies of petro-zombie hordes.

According to Hugh Manon (2011), *Night of the Living Dead* was able to tap into larger developments in a way that springs, perhaps paradoxically, from its “unusually strong investment in the local” (317). This local “investment” is the polar opposite of contemporary Hollywood's location shooting, which typically employs familiar visual reference points – often tourist attractions – in order to evoke a certain geographical or socio-economic setting. Instead, Romero's film supplies what Manon describes as “a profusion of pointedly unrecognizable local details to create a sense of familiar nonfamiliarity” (320). This is partly due to the fact that *Image Ten* was a small Pittsburgh-based production company, meaning the film's strong local investment was bound up with the economic realities of making a low-budget independent film costing \$114,000 USD (Block [1972] 2011, 15). Further, it was shot in south-western Pennsylvania, using real houses and pastures as setting, meaning the material conditions of locality take on a significant, shaping role. The central farmhouse around which all the action revolves, for instance, was an abandoned building about to be ripped down, adding to the sense of dilapidation and the downturn of family farming in rural Pennsylvania, where the farming population had decreased from over 1 million in 1900 to 303,000 in 1970 (Klein and Hoogenboom 1980, 481). It is perhaps no coincidence that the most significant shift in zombie representation since the Haitian sugar-zombie

was first articulated in another peripheralized space, where the socio-ecological costs of exhausted lumber and oil frontiers were acutely, if unevenly, felt.

Despite its peripheral status, however, Pennsylvania was a key site in the emergence of the petromodernity. The advent of petro-capitalism can be dated to the discovery of oil in Titusville, a small and impoverished town in north-western Pennsylvania, in 1859. At the time, this lumber town was expected eventually to disappear with increasing deforestation, but the onset of the oil boom changed its fate overnight as land prices and population rates skyrocketed. By the 1870s and 1880s, moreover, Pennsylvania was suddenly in the position of being the sole producer of a global commodity whose emergence almost miraculously reshaped the region's landscapes, populations, fortunes and imaginaries. As one local editor commented in 1865:

The oil and land excitement has already become a *sort of epidemic* [ ... ] they neither talk, nor look, nor act as they did six months ago [ ... ] all our habits, and notions, and associations for half a century are turned *topsy-turvy in the headlong rush for riches*. (Quoted in Yergin 2012, 17; emphases added)

The editor paints the oil boom as highly disruptive, erasing social habitus, morals, categories and distinctions, and in the process lays the imaginative groundwork for the petro-zombie to emerge a century later.

It is not hard to see how Pennsylvania's oil boom made Romero's de-individualized zombie hordes thinkable. During this first boom, it was not gasoline but kerosene that was able to penetrate the market most effectively, the groundwork for its emergence as a global product having already been laid by coal-oils. Kerosene provided an inexpensive but high-quality illuminant, meaning "man was suddenly given the ability to push back the night" (Yergin 2012, 13), thereby extending the working day. It is unsurprising, then, that Romero's zombies are simultaneously associated with the night and repeatedly shown to be afraid of, but also attracted to, light and fire: early on, for instance, a bottle of lighter fluid becomes central as Ben soaks an entire sofa in the liquid, creating some respite from the zombie attack but also inevitably attracting more zombies to the house. His experience is later confirmed by one of the experts interviewed on TV, who recommends that all dead bodies should be "soaked with gasoline" and burned immediately. Oil again plays a major role in their attempt to escape: Molotov cocktails – made with the kerosene that Tom discovers in the basement – are important in the attempts of the survivors to take possession of the truck. The film's distinction between light and dark, humans and zombies, is repeatedly reinforced by high-contrast lighting; a technique that plays a vital role in photography and cinematography more generally. As Nadia Bozak (2012) explains, the "photographic camera works by capturing and ultimately controlling doses of light, which, when applied to the light-sensitive emulsion of raw film stock [made of oil], are fixed or fossilised into the latent image" (31). Simultaneously repelled by and attracted to oil-based light, zombies are thus once again linked with the very possibility – or impossibility – of image-making.

By the turn of the century, kerosene would be replaced by electricity and the illuminant market for oil would be replaced by the automobile industry and its demand for gasoline. Pittsburgh, where the film's protagonists originate, was the site of the first drive-in service station in the US, located in Baum Boulevard, which was also known as "automobile row" due to the high number of car dealerships (see Wells n.d., n.p.). The service station was operated by Gulf Oil, and offered free air and water as well as selling maps. This conjunction of maps and petrol gestures towards the emergence of a car culture whose transformative

impact included restructuring space, transforming landscapes and creating affective contexts that were, as Mimi Sheller (2004) observes, “deeply materialized in particular types of vehicles, homes, neighborhoods, and cities” (61). Romero’s zombies are clearly a product of this petrolic culture. They are attracted to oil and cars, but they are also inherently mobile and free to roam large territories, unbound by attachments to a particular locality. Unlike plantation-era zombie-labourers, they are no longer producers of value but creatures whose attack on petromodern infrastructure threatens the very possibility of value-production (see Shaviro 1993). Romero’s zombies thus simultaneously express the cultural logic of oil and energy transition *and* anticipate growing anxieties about petromodernity’s potential collapse.

### From labour-power to energy regime

Since its origins the zombie has disturbed the categorization of colonialism, racism and plantation as solely socio-economic phenomena, instead revealing these complex bundles of power and production as fundamentally environment-making processes. As a figure that turns on the world-ecological transformations through which capitalism develops, socio-ecological revolutions, crises and the emergence of new energy regimes have tended to produce new zombie effects. The zombie was fundamentally reshaped as a result of the emergence of petromodern world-ecology, at once registering the systemic shift in energy regime and anticipating the global oil crisis of the 1970s. This new association with non-human, fossilized energy also occurred within literary works both preceding and post-dating Romero’s film: for instance, the protagonist of Ralph Ellison’s ([1952] 2001) *Invisible Man*, initially described as a “walking zombie” (94), an “automaton” (95) and a “mechanical man” (94), famously sabotages the energy company Monopolated Light & Power by illegally accessing their electricity, burning 1369 light bulbs in his basement to feel alive. Meanwhile, Henri Postel, a former political agitator in René Depestre’s ([1979] 1990) *The Festival of the Greasy Pole*, is “electrified” or, rather, zombified by the dictator, and “Great Electrifier of Souls” (121), Zoocrates Zachary (a fictionalization of contemporary Haitian dictator François Duvalier) who heads up the National Office for the Electrification of Souls. Both novels arguably employ the uneven distribution of energy sources as an entry point for thinking through contemporaneous nature–society relations.

In more recent years, sugar has itself re-emerged as a caloric-energy input in petro-zombie films like *28 Days Later* (Boyle 2002). Such films are visually obsessed with junk foods and sodas in a world dominated by zombified consumers and a lack of access to healthy foods (see Newbury 2012). Nevertheless, it is important to acknowledge that the petro- and sugar-zombie continue to exist side by side, just as the “older” saccharine zombie lives on within many Caribbean novels where it continues to register the legacies of colonialism. This simultaneity and multiplicity of zombie figures arises from a world-system that is profoundly uneven; one in which the spectacular benefits and liberties made possible by oil and other energy sources are only unevenly accessible. As a figure that has crossed from the world-systemic periphery to its new hegemonic core, the zombie is one that – perhaps like no other – is inscribed with local and global inequalities. Both the older and the newer figure strongly register the metabolic rifts through which the world-system developed but, unlike the sugar-zombie, the petro-zombie gestures towards representing the unrepresentable: towards the multifaceted and, it would seem, terminal crisis of the capitalist world-ecology.

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No potential conflict of interest was reported by the author.

## Notes on contributor

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