



Garvey, Brian and Souza, Edevaldo Aparecido and Rodrigues Mendonça, Marcelo and dos Santos, Crispim Valmir and Portes Virginio, Francis Vinicius (2019) The mythical shapeshifting of capital and petrification of labour : deepening conflict on the agrofuel frontier. Antipode. ISSN 1467-8330 (In Press) , <http://dx.doi.org/10.1111/anti.12541>

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The Mythical Shapeshifting of Capital and Petrification of Labour: Deepening Conflict on the Agrofuel Frontier

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Abstract: In the great civilisations of the past shapeshifting promised a restoration of order in turbulent times in return for the deference of loyal subjects. It was a strategy of the powerful to maintain advantage and could also be used bind opponents to an undesired form. This study finds its resonance in the contemporary shapeshifting that is the supposed transition from the fossil fuel economy. With reference to the fusion of oil, grain and sugar companies in Brazil's ethanol sector it explores how amidst economic, environmental and political insecurity these "old villains" of the carbon economy have fused and emerged as the "new heroes" of the green economy. Accounts of dissenting rural subjects, however, unveil the mythical nature of avowed social gains from this shape shifting. Amidst rural conflict and a successive weakening of regulation, it becomes evident how their petrification, in a metaphorical and increasingly literal sense is required.

Resumo: Nas maiores civilizações do passado, o metamorfo prometeu a restauração da ordem em tempos turbulentos em retorno pela deferência dos súditos leais. Essa era uma estratégia dos poderosos para manter a supremacia e que também poderia ser usada para vincular oponentes a uma forma indesejada. Este estudo encontra-se em ressonância com o contemporâneo metamorfo que é a suposta transição da economia de combustível fóssil. Em referência à fusão de companhias de óleos, grãos e açúcar no setor do etanol brasileiro, o artigo explora como, em meio a insegurança política, econômica e ambiental, esses "antigos vilões" da economia de carbono tem fundido e emergido como os "novos heróis" da economia verde. Narrativas de sujeitos rurais

dissidentes, no entanto, revelam a natureza mítica dos ganhos sociais declarados por esse metamorfo. Em meio ao conflito rural e o sucessivo enfraquecimento da regulação, torna-se evidente como sua petrificação, em sentido metafórico e crescentemente literal, é requerida.

Keywords: shapeshifting, capital, petrification, labour, agroenergy

Palabras clave: metamorfo, capital, petrificação, trabalho, agroenergia

Introduction

Shapeshifting, the metamorphoses of human to another animate or inanimate form, is found in the annals of civilisations across the globe. The ability of a powerful subject to change form in order to gain some advantage or defeat an adversary reaffirmed his or her proximity to the divine, reflected the relation between mortality and immortality, and entrenched relations between the ruler and the ruled. Thus *voluntary* transformation by powerful rulers from man to animal was often proof of ancestral and future power: a guarantee of permanence in a world perceived both as turbulent and destructive. It provided meaning, assurances of fertility and abundance to the prevailing social order, and “confirmed the ruler’s right to rule, defined the social order, described how the universe worked” (Krasniewicz 2000:50). Shapeshifting, therefore, required the deference and “affirmation of his audience” (Krasniewicz 2000:54) and was attached to rituals and sacrifice, that were political as much as religious in that they episodically renewed “legitimacy, power and rulership” (Krasniewicz 2000:50) in steeply hierarchical societies. Where this deference was not afforded, or where opposition to the powerful was apparent, shapeshifting was also evoked as a punitive measure, binding an unfortunate opponent involuntarily to an undesired form, with petrification as an extreme example. The Greek god Zeus, for example, turned the people of Thebes to stone in retribution, while Ovid retells the Greek legend whereby Perseus uses Medusa’s head to transform his opponents (Kline 2000).

These historical narratives serve as a useful analogy for the relations between capital and labour on a global scale and, more specifically, tensions between corporate leaders and rural subjects underpinning the contemporary shapeshifting of capital that is the so-called transition away from fossil fuels towards the “green” economy. The analogy is drawn with relation to the rapid expansion of “biofuels” in 21st century Brazil and across three key dimensions of shapeshifting that are framed by the research questions to be addressed by this paper.

The first of these stems from a belief system based on a divine (i.e. not to be questioned) rule of the market in which money and the nation state are contemporary shared fictions that have engendered collaboration on a global scale (Harari 2011). The privileged access to both international finance and state officials by transnational corporate leaders has permitted a remarkable longevity of “old villains” of energy, sugar and grain trade whose dynasties have traversed colonialism and war of the 18th and 19th centuries into the new millennium. Civil

society's environmental concerns over the fossil fuel based economy and climate change have, however, led to a questioning of these global leaders' *right to rule* (Leff 1995). This is a challenge that, it is argued here, has served ultimately to underscore the ability of these powerful companies with disastrous social and environmental records to move, morph and fuse in order to reproduce their hegemony under new forms, new names and in new territories. In the first place the paper investigates the profound, immaterial dimension of this shapeshifting. The contention here is that apocalyptic warnings of climate change and related populist governance discourses amidst economic instability provide the necessary turbulence through which elitist, techno-corporate solutions to environmental problems retain the eminence of the market. In this light, and by drawing on empirical evidence from the new frontiers of biofuel cultivation, the paper explores (1) "How has the particular discourse and structure of the emerging biofuel economy facilitated the widely marketed emergence of the old villains of the carbon economy as the 'new heroes' of the green economy?"

Central to this entitlement has been the claim that the commodification of biofuels provides a triple winning formula of clean, green energy; social and environmental responsibility; and economic development in the global South (European Union 2009; see also Franco et al. 2010). Brazil has come to symbolise the shift to new energy extraction that is reflected in the marked increase in land devoted to energy or "flex" crops under the influence of the industrial leaders (Borras Jr et al. 2016). The second question posed, therefore, analyses the material bases for, and spatial signature of, this metamorphoses by asking (2) "How are historically powerful sugar, oil and grain barons availing of favourable policy and credit incentives to merge across industrial sectors and into new territories in the Global South in order to lead the transition from the fossil fuel to biofuel economy?"

A third aspect of this paper is attentive to the growing social tensions on the frontiers of biofuel production among the salaried labourers and rural communities affected by the territorial advances above. An unveiling of persistent abuses of rural employees and a 21st century explosion of land-related conflict in Brazil (Mitideiro 2017; Porto-Gonçalves and Leff 2015) point to the impossibility of conciliating social demands from the rural poor with the hegemonic model of agro-industrial growth under the current rulership and has exposed the mythical character of this voluntary shapeshifting from above. In the face of challenges to the social order required by the powerful to sustain their plantation-scale production model, the third dimension of shapeshifting investigated here relates to the increasingly punitive measures taken by the forging of state, landowners and corporate interests against the rural subjects and explores (3) "To what extent has labour been bound involuntarily to the dominant logic of the biofuel economy and how has the capacity for self-organisation—a shapeshifting from below—of peasant agriculturalists and rural salaried workers been petrified?"

The paper addresses these key questions through the following structure. It begins by relating the shapeshifting narrative to colonial agrarian transformations in Latin America through to the present. This provides the rationale for bringing together and updating four key literatures in relation to contemporary energy

production. First, Timothy Mitchell's (2009) conceptual work on carbon democracy is updated in relation to the capital-labour dynamics of the contemporary biofuel model of production. This is linked to a second literature stream in which apocalyptic visions of the world order reinforce populist state-capital relations and discourses that, it is argued here, seek to justify the hegemonic model of biofuel production while rendering alternative epistemologies invisible. The technological advances in energy or "flex" crops constitute the third aspect of literature updated here in relation to their increasing role in Brazil's energetic matrix. While space limits a deeper analysis of the subject in the later discussion, the literature emerging from Latin America on "re-existence" is introduced as a significant means by which to analyse and articulate contemporary land conflicts and illuminate the counter-hegemonic praxis amongst rural subjects that opposes both industrialised monocultural production and discursive fatalism.

The paper then describes the methods by which the material and immaterial aspects of shapeshifting from above are explored and analysed in Central West Brazil, arguably the world's epicentre for sugar-based ethanol production. The subsequent testimonies from rural subjects on the biofuel frontier discredit the new heroes' claims of rural development, economic stability and secure environmental futures. As the accounts of rural workers are corroborated by figures from the labour ministry to expose the mythical character of the shapeshifting from above, the increasingly vicious institutional attacks against both the social organisations and regulatory bodies moves the analysis from shapeshifting analogies to account for the literal petrification of labour. This in turn underscores the urgency for a renewed shapeshifting from below if alternative visions and practices are to be realised in the face of a dramatic return of the old villains. In what follows the key literature that underpins this study is presented.

Agrarian Shapeshifting to the South

In his book, *Open Veins of Latin America*, the late Eduardo Galeano recalls how invading Spanish soldiers on horseback took on a singular, magical form in the eyes of the Mayan descendants, so that the chief Tecum, "beheaded the horse of Pedro de Alvarado with his lance, convinced that it was part of the *conquistador*" (Galeano 1973:18). Mayan legends of shapeshifting and apocalyptic visions of avenging gods from the east were manipulated by the Christian missionaries and armies whose own belief system was similarly steeped in stories of apocalypse, transcendence and transfiguration (Swyngedouw 2010). This colourful account has, of course, a material basis in the history of primitive accumulation and consequent agrarian conflicts over land, resources and labour, not least in Latin America. Beneath the watchful eyes of the divine, earlier civilisations relied on exploiting new areas for growing crops and for the wood they burned to power progress (Mitchell 2009). Historians indicate that it was the exhaustion of forest and soil rather than dissatisfied gods that led to their demise. With the onset of colonialism, demand for natural resources and human labour only intensified. Latin America's rich soils and minerals drew sailors and the taking of slaves became a transatlantic industry, this time the Christianity of the missionaries

providing immaterial distraction from what essentially was unsustainable material expansion and horrific human exploitation.

It is from the latter experience that Galeano (1973:85) introduces a further episode of shapeshifting and this time it is commanded by the less powerful. Evoking an enabling transformation *from below* in the face of intolerable subjugation he cites Montejo's (1969:44–45) story among slaves in the 1870s sugar plantations:

A magic chain gave them power and they flew through the sky and returned to their own land; or they lost themselves in the mountains because everyone wearied of life, and the ones who got used to it were broken in spirit.

There is again a distinct material basis to the story in that fleeing and rebelling slaves did indeed take to the mountains and the enduring, African-descendent, "Quilombo" settlements of Brazil, such as the Kalunga community that features later in this paper, are testament to this resistance. The autonomy of their organisation, working practice and belief systems that have passed down in situ through generations of these and other agrarian communities have a deep resonance in this paper in which both the material and immaterial dimensions of shapeshifting are kept close at hand.

Latin American resources and imported African slave labour were central to the shifting of mercantilism from the Mediterranean to the Atlantic and subsequent industrialisation (Porto-Gonçalves 2006). The latter, of course, demanded relatively vast energy sources and, as Mitchell (2009) points out, the use of coal was fundamental to its expansion. By reducing the need for woodland for fuel, coal granted greater access for local and colonial powers "to large new territories for growing crops, both to supply the food on which the growth of cities and manufacturing depended and to produce industrial raw materials" (Mitchell 2009:402). Hence, industrialisation was the project of rapidly changing European cities and hinterlands but at the very same time it was "agrarian phenomenon—and a colonial one" (*ibid.*).

The energy sector has been central to the subsequent expansion of the capitalist project to a global scale its colonial predecessors could not have dreamed of and a subsequent convergence of dominant oil-based agricultural and manufacturing forms of production have underpinned some of the most lasting economic dynasties in modern history. The gradual substitution of coal by oil is emblematic of capital's remarkable ability to escape its own contradictions, temporarily at least, by finding new spaces for its reproduction and affecting the social order in its interests (Harvey 2001). The closure of mines quickly dissipated the collective industrial strength of the miners and the transporters of coal, compromising broader worker resistance to exploitation and mechanisation of tasks for generations (Mitchell 2009).

At the turn of the century, however, concerns have been growing that our current fossil fuel world order is, like its predecessors, breaching its ecological limits while the inherent contradictions in the globe's dominant model of market competition-based growth are revealing themselves with increasing frequency (Jessop 2014). These factors have presented particular challenges to corporate leaders and Mitchell (2009:423), whose overriding thesis is a negative correlation between oil

producing regions and democracy, concludes that the “possibility of more democratic futures, in turn, depends on the political tools with which we address the passing of the era of fossil fuel”. The institutional response, however, according to Swyngedouw (2010:223) ignores inherent tensions within society and “does not invite a transformation of the existing socio-ecological order but calls on the elites to undertake action such that nothing really has to change, so that life can basically go on as before” (see also Garvey et al. 2015). He joins a chorus of those objecting to how the apocalyptic imaginaries suit an increasingly populist (post-)politics that, “evacuates ... radical contestation of alternative future socio-environmental possibilities and socio-natural arrangements” (Swyngedouw 2010:228; see also Katz 1995; Rancière 2004; Žižek 2006). The “fetishisation” of CO₂ above other serious ecological, not to mention social, problems means that when set against the backdrop of impending doom any techno-institutional response that promises to deliver a lower carbon future is deemed progressive (Birch and Calvert 2015) and, by implication, that objectors are regressive impediments to development.

This helps explain the speed at which biofuels have become an almost “locked in”, lower carbon substitute for petrol and are emblematic of how leading corporations constantly rework and reform state and transnational arrangements to secure the least disruptive transition (Harvey 2001; Unruh 2002). The energetic properties of sugar cane makes it favoured among a growing multiplicity of “flex” crops whereby one crop has multiple industrial uses (Franco et al. 2010; for review see Borrás Jr et al. 2015). Modern factories produce both a range of sugar products, two to three forms of ethanol and energy from the residue, oscillating production between the various commodities depending on market demand and price. While the liquid biofuel economic infrastructure may mimic petroleum, however, the inferior energetic quality of the raw material means ironically that once again there is need for “large territories to grow crops”, this time for fuel. Furthermore the hegemonic, plantation model descended from colonial slave owners involves relatively high entry, investment and fixed costs over a considerable period of time (at least 10 years), and despite mechanisation continues to rely on relatively large workforces in the agricultural section of production (typically around 2000 workers per plant). If oil extraction “freed” capital from the constraints of sedentary labour then the (re)turn to the land for fuel cultivation opens a new chapter in these relations that requires understanding. Borrás Jr et al. (2010:111) concede that:

We know that agribusiness companies are economically and politically powerful, and are able to seize new opportunities to create profits ... But we still have little empirical knowledge about how all these get played out in the context of the recent phenomenon ... The strategic central question is: how are capital accumulation, social relations and power relations contested and transformed within and through the emergence of the flex crop and commodity complex.

To help address this question this paper goes beyond analysis of capital–labour relations in discrete nodes of production, most typical of conventional commodity chain analyses, to acknowledge the broader social implications of a seemingly insatiable corporate demand for vast, flat, sunlit lands that draws the new heroes to the interior of large countries such as Brazil. New logistics, soil and

bio-technologies associated with flex crops brings pioneers of agroindustry into contact with communities of traditional, peasant farmers, indigenous, African-descendent and landless populations. The crescendo of land-related social conflict in Brazil (Comissão Pastoral da Terra 2016) points to a stubborn defence of these territories and resonates with struggles of agrarian and indigenous groups against “mega” mineral, hydraulic and energy projects across Latin America and beyond. Many studies have underscored the human, environmental and cultural rights infringements inherent in these developments (Baka 2017; Baldwin 2009; Finley-Brook and Thomas 2011), but often stop short of a deeper analysis of what the episteme and ontology underpinning these struggles means for a much needed construction of different socio-environmental futures.

Capital production requires the separation of peoples from their historic means of production; a deterritorialisation (Haesbaert 2013). If apocalyptic discourses serve to convince citizens that there is no alternative to the unfolding version of globalisation, then the state’s role in the ongoing “uprooting of people and things” (Escobar 2008:152) has a social, political and psychological effect that prohibits, “different stories and fictions that can be mobilized for realisation” (Swyngedouw 2010:228, after Brand et al. 2009). A distinct Latin American reversion to primary commodity production has forced groups of peasant farmers, indigenous groups and African descendent communities to gradually rediscover, renew and redefine the relationship to their threatened territories, or Re-exist (Mendonça and Nascimento 2017; Souza 2013). Resistance has required a more explicit articulation and defence of particular productive practices linked to territories of distinct “physical, social and psychological dimensions and belief systems” (Ramírez Velázquez and López Levi 2015:127). When understood in this way then a spiritual, linguistic and bio-cultural diversity linked to distinct territories is set in epistemic and political opposition to corporate monoculture, mega projects and homogenising tendencies of nation states under global capitalism (Boege 2017; Escobar 2014; Ontivero and Borquez 2018). A shapeshifting from below can be determined where there is a collective re-configuration of “old” ideas such as “territory, autonomy, self-management and local knowledge” alongside new productive and political strategies across riverine, coastal, forest and mountain based communities in Brazil, Mexico, Ecuador, Bolivia and Colombia (Porto-Gonçalves and Leff 2015). This *re-existence*, then, articulates how communities, even where they have been violently and spatially disrupted, as in the case of mining of the San Luis Potosí in Mexico (Ontivero and Borquez 2018) can *acknowledge* the damage done, yet evoke historic and collective wisdom for a re-appropriation of a world view made possible through collective practices. These are linked to a *re-territorialisation of space* that may involve fragments of both old and newly accessed territories in which cultural patrimonies are observed while new technical knowledge and extended social and political networks are embraced. In place of de-contextualised knowledge that underlies the notions of development and growth (Escobar 2014), and in the face of apocalyptic visions and environmental destruction, these ontologies provide a basis for diverse interpretations and visions of the world that challenge and can replace overarching economic paradigms.

It becomes apparent why the suppression of these ontologies and the often naturally rich, material resources upon which they are gradually constructed are both required for expansionist biofuel capitalism. How the resultant co-option, coercion or petrification of rural labour takes place on the biofuel frontier of Brazil under the influence of the shapeshifters from above was investigated by the methods set out below.

Methodology

Field work was undertaken over a 20-month contiguous period in 2013–2015 in the municipalities of Quirinópolis and Jataí in southwest Goiás State and the Kalunga Quilombo Territory of the northeast of the State by a team of four researchers co-ordinated through the “Territory, Work and Public Policy” research nucleus at Federal University of Goiás. In southwest Goiás individual interviews related to work quality, contracting, safety and security were conducted with 24 male and female employees on seasonal and permanent contracts with three ethanol plants. They were involved in manual and mechanised sugar cane planting, maintenance, and harvesting. A focus group with six male employees involved in industrial processing was held at a local college campus and another two focus groups were conducted with eight female herbicide workers at the house of an organiser for this group. Three interviews were recorded on film. Twelve now redundant workers and three leaders in three landless camps were interviewed about their experience of the sector in three focus groups following a public meeting in each. Six camponês families that were previously the subject of an extensive 2011–2012 study (Souza 2013) were revisited and provided interviews in relation to contemporary challenges from the sugar and ethanol sector. Three key members of two dairy cooperatives and one soya cooperative were interviewed as was one human resources manager for Raizen and the presidents of the rural trade union and transport trade union in Quirinópolis. A survey on work security was conducted with 56 employees of Raizen, Tropical BioEnergia, SJC Bioenergia Ltd and Nova Fronteira Bioenergia SA. In the northeast region of Goiás, participatory research in the Kalunga Territory was linked to the researchers’ involvement in the physical construction of seed banks towards food sovereignty. The organic development of relations revealed historical and current challenges as well as a vivid illustration of cultural activity linked to agroecological practice. Through a snowballing process the number of engaged families rose from three to 40 families from this community and adjacent agrarian reform settlement over the 20-month course of the study. Given issues of limited formal education and literacy among many rural communities, all interviews were noted and recorded in audio with consent provided in writing and audibly. Five interviews with two female employees of the industry, a male and female camponês and landless camp leader were filmed and contributed to the film, *Terra: A Labour of Life*, released in 2016. The material was analysed in relation to key themes of the current structuring of the ethanol sector; experiences of work within it; challenges facing communities in close proximity or threatened by future encroachment; and uncovering of alternative strategies and practice. These themes were then brought together in a workshop focusing on socio-

environmental vulnerability in the Cerrado, hosted at the Federal University of Goiás in October 2016 amidst significant political changes that are alluded to in the closing discussion. The prioritisation of the often ignored testimonies of rural subjects provided diverse and distinct perspectives on the capital, land and labour dynamics on the biofuel frontier that are featured in the following sections.

Voluntary Shapeshifting From Above

The Old Villains from Empire to Liberalism

Contemporary capital–labour dynamics in the Brazilian biofuel sector cannot be understood without a sketch of the colonial history of the sugar, grain and oil trade, and of the trajectories that leading corporations from these discrete sectors have taken towards their mergers in the 21st century.

At the close of the 19th century there was keen rivalry between Dutch and English imperial interests in the Far East. The Dutch East Indies colonial administration had brutally suppressed resistance in Sumatra and Java, permitting a new company, Royal Dutch Petroleum, to develop recent oil finds. In this region two English brothers greatly enhanced their fortunes by switching from transporting shells to carrying volumes of lamp oil in containers from Britain's eastern colonies and the Shell Transport and Trading Company was born in 1897. In 1907 these two companies overcame national political differences and merged to compete with Rockefeller's Standard Oil empire (founded in the US in 1864) and the resultant Royal Dutch Shell assumed control of the oil of the East Indies.

Across the Atlantic, colonial war was a factor in the emergence of what would become the world's largest grain trader. The Cargill family opened its grain store in Iowa towards the end of the American Civil War in 1865 and expanded its business as a result of the rising food prices during successive world wars, opening new offices in Europe and Latin America in 1929 and 1930. It would go on to become the world's wealthiest private company, distributing its US\$2.6 billion among 50 family members by the mid-1980s (Ahlberg 1988).

In the late 1800s another family important to this story, the Omettos, were among the thousands leaving Italy to find fortune in Brazil. With the abolishment of slavery in Brazil that was so fundamental to the enduring plantation scale model of sugar cane cultivation, the Agricultural Congress pressed the imperial government for the immigration of European settlers to compensate for labour shortages. Within a generation the Omettos had moved from labouring in coffee plantations to making sugar and alcohol, taking advantage of subsequent support from the new republic that established the Institute of Sugar and Alcohol to promote ethanol, long considered a mere by-product of sugar, as a substitute for imported oil (Szmrecsányi 1979). This increased state support for the industry enabled the immediate family to establish the São Joao refinery in 1935, the Cosan unit in 1936 and acquire the São Martinho plantations and refinery in 1946 (Xavier et al. 2011).

Broader geopolitical changes in the 20th century increased Brazilian state involvement in energy production. In 1913 the British navy switched from coal to

oil, signifying the competitive economic and political advantages for those controlling this precious energy form. The modernisation of agriculture that was typified by mechanisation, technological advances and intensive application of industrialised fertilisers and pesticides relied on an integration of agricultural and petroleum based inputs that underpinned the ascendancy of northern-based companies such as Cargill and forged the “green revolution” in various parts of the global South, including Brazil (for a critique, see Patel 2013). Although Brazil established its own oil company, Petrobrás, in 1953 to harness local oil reserves, its growing reliance on imported oil across its economic sectors was thrown into stark relief by the OPEC oil crisis.

Escalating fuel costs and the near bankruptcy of Petrobrás triggered the adoption of the National Alcohol Program in 1975 by the military government to substitute petroleum with home-produced ethanol and help balance payments. The regime cemented its elitist approach to import substitution as an economic strategy by twinning an unscrupulous support for land-owning sugar producers with a vicious suppression of labour rights and wages (Ribeiro and Tonella 2010). While this facilitated a territorial expansion of companies such as Cosan in the latter part of the 1980s, the heavy reliance on borrowed foreign capital led to a financial crisis and subsequent structural adjustment measures at the behest of the IMF. The liberalisation of the economy under IMF and WTO rules (Brazil joined in 1995) stripped away state protection to the sugar and ethanol sector that amidst suppressed sugar prices saw the debts of its leading companies escalate by the end of the century, while income inequality peaked.

Elsewhere the leaders of the carbon economy had their own problems. Falling revenues, environmental controversy and social unrest followed Royal Dutch Shell operations in the Niger delta, while share confidence dipped as \$150 million were paid in fines to the US Securities and Exchange Commission and British regulators for overstating their oil reserves to investors by some 20% (*The New York Times* 2004). Cargill too faced accusations of exploiting the 1985 Federal Farm Bill that maintained low commodity prices paid to US farmers (600,000 of whom went out of business between 1981 and 1989), while subsidising high-volume exports and was subject to court proceedings for illegal subcontracting, tax avoidance, environmental crimes, price-fixing, union busting in a number of countries including price manipulation in Brazil (*The New York Times* 2004). At the turn of the century, however, two globally significant events provided opportunities for an economic renewal and an image rebranding for these “old villains” of the sugar, grain and oil trade. Their rebirth as new heroes of the green economy is traced below.

Immaterial Shapeshifting and the Heroes of Neodevelopment

The Kyoto Protocol to combat climate change was ratified in 2005, with governments making commitments to tackle global warming by reducing the rate of CO₂ emissions and sharpening a focus on alternative energy sources to fossil fuels. Within two years, Lehmann Brothers had collapsed, commencing a run on North American and European banks, and leading to a dip in oil prices by 2009 that

coaxed a rationalisation and diversification of major oil company activities. Investors shifted their money to new growth opportunities in countries such as China and Brazil. In the latter they found a newly installed Workers Party government that had risen to power on a wave of popular dissatisfaction with neoliberal policy and resultant inequalities. It was led by a charismatic president and former trade union leader, Lula da Silva, who linked “neo-developmental” opportunities to healthy projections for the biofuel market (alongside a revitalisation of commodity production in general) and offered considerable state support for production of both ethanol and “flexi-fuel” cars that could run on either petrol or this sugar-derived biofuel (Furtado et al. 2011; IEA 2011).

Ironically, therefore, in the three years directly following the financial crisis, the level of international investment in Brazil’s primary production sectors tripled (Olivon 2011). A range of oil, grain and biotechnology multinationals were attracted to the sugar/ethanol sector by some \$28.2 billion in state credit offered between 2000 and 2010 to improve production of various sugar types (VHP, crystal, Refined K, organic), ethanol (hydrated, dehydrated and gel) and energy (from cane biomass and residue) from the single sugar cane crop. While this spelled trouble for hundreds of smaller, indigenous companies unable to compete with the newcomers (see Garvey and Barreto 2016), the stronger Brazilian-based corporations recognised the sudden opportunity to access international finance, markets and redistribute mounting debts (Mendonça et al. 2013). Ninety-nine mergers and acquisitions took place in the ethanol industry between 2000 and 2009 (Pretto 2009).

The foreign corporations encountered a President that was willing to overlook the “slave-like” and often lethal labour record of the industry that had incriminated Cosan among others (Xavier et al. 2011); in return he increased state revenues of the expanding sector promised for his government and its modest social programmes. This (ill-fated) exercise in class conciliation by Lula surprised not a few supporters among the rural labouring classes by calling the sugar industrial leaders “national and global heroes because the whole world is eyeing ethanol” (*Folha de São Paulo* 2007). In return for this favourable publicity and a vigorous rebranding of the sector, however, leading corporations were obliged to deal with the social concerns being raised through civil society, export certification officials, and an increased capacity of state institutions to investigate worker complaints by a government that, arguably for the first time, recognised that the poor, Black, indigenous, and African-descendent citizens had the *right to have rights*.

The avowed social and environmental responsibility of these new heroes was thus celebrated in the widely marketed tripartite voluntary agreement between the industrial representatives association (UNICA), workers representatives, and government. President Lula’s successor Dilma Rousseff celebrated that “[i]n this act, at the time of the United Nations Conference on Sustainable Development, we are demonstrating that the concept of growing, including and protecting is being fulfilled by the sugar-energy sector”. It was for Secretary General Gilberto Carvalho an “historic moment in relations between capital and labour” (UNICA 2012) and presented by bodies such as the European Union, ILO and UN Environmental Programme as a global benchmark for environmental sustainability,

economic trade and rural development opportunities within the green economy (European Union 2009; ILO 2012). In what follows, these claims are measured against the material character of the shapeshifting beneath this discourse; the organisational and spatial signature of the oil, grain and sugar corporations that have merged and moved westwards to dominate production in the Cerrado region of Central Brazil; and the experiences of the rural labourers and communities they encounter.

Material Shapeshifting in the Biofuel Sector

The fusions between sugar, oil and grain and biotechnology corporations contributed to a tripling of sugar and a doubling of ethanol production in Brazil since the turn of the century (Garvey and Barreto 2016). With the saturation of available land in São Paulo state, the most pronounced expansion has been in the Cerrado savannah biome to the Centre West of the country. Here, relatively cheaper, flat and sunlit lands of Goiás State hosted the nation's greatest increases in sugar and ethanol production between 2005 and 2009, with sixfold increase in land devoted to the cane crop. Goiás had only 14 plants in 2005 producing 0.7 million litres of ethanol and 0.75 million tonnes of sugar. By 2016 a total of 35 plants were producing 4.7 million litres of ethanol and 1.9 million tonnes of sugar. In less than a decade the state became the second largest sugar and ethanol producing state in the country after São Paulo, with BP, Petrobrás, Odebrecht, Cargill and Shell among the multinationals diversifying investment strategies into this region, each with their promise of sustainable growth and responsibility (SEGPLAN 2013).

The concentration of technically advanced plants, buoyed by international capital, federal and state incentives are primarily in the southwest and also the central region of the state, overlying the Guarani aquifer and capitalising on free sources of superficial and subterranean water. Central to developments in the southwest of Goiás has been the government's Growth Acceleration Programme, in which a new 2066 km, R\$6.52 billion north–south rail network for commodity transport extends some 203 km through the municipal territory of Quirinópolis, accompanied by an “alcoduct” fuel pipeline designed to export 12 billion litres of ethanol annually (Silva and Santos 2014). While the construction of new biofuel plants on this frontier bear the hallmarks of keen free market competition as new companies take advantage of these infrastructural developments, the fusion of transnational corporate finance with powerful landed, familial interests has led to rapid market consolidation as outlined below.

The first sugar/ethanol agroindustry to capitalise on the new opportunities was St João Group (founded by José Ometto in 1935) who built Quirinópolis' first sugar and ethanol plant in 2007. In 2011 the company merged with Cargill, becoming SJC Bioenergia Ltd with a sugar cane crushing capacity almost three times the national average (Globo 2011). By 2017 the refinery was milling 10.5 million tonnes of sugar cane per year from 100 thousand hectares of land, and the company is now developing the capacity to produce fuel from maize at their sites. The Boa Vista ethanol plant was built in Quirinópolis in 2007 as the third ethanol producing refinery of the São Martinho Group, who's President and key shareholders are João

Ometto, Luiz Ometto and Nelson Ometto. It received R\$681 million in funding from the Industrial Development Program of Goiás, one of the largest financial contributions made from this public source and gained a further R\$248.9 million for energy generation from the National Development Bank (BNDES 2007). Petrobrás injected R\$420.8 million into its new venture with the São Martinho Group, giving it a 49% share in the new company, Nova Fronteira Bioenergia SA. Production subsequently grew between 2010 and 2015 from two and a half million to four million tons of sugarcane milled annually (Petrobrás 2010).

In 2009, Cosan, whose President is billionaire Rubens Ometto Silveira de Melo, a grandson of those first Omettos and the world's first ethanol billionaire, began crushing four million tonnes of sugar cane annually from 32,000 hectares of the Jataí municipality 200 km to the west of Quirinópolis. The company's US\$20 billion fusion with Royal Dutch Shell to form Raizen was announced as a landmark in ethanol commodification in 2010 and it immediately commanded a 23% share in the national sugar market (Raizen 2012). Further technological investment in the R\$600 million Jataí plant, considered to be the country's most modern, raised production levels to a record of over 20,000 tonnes of sugar cane milled and 1.8 million litres of ethanol distilled in one day (Bosch Projects 2016). This is more than double the combined output of all 14 plants that existed in Goiás in 2005. By 2015, members of the extended Ometto family along with their transnational partners controlled five of the top 20 sugar and ethanol companies in Brazil (Oliveira 2015).

On appearance, the merging of corporate and local state interests across grain, sugar and energy trades that underpinned the voluntary shapeshifting from above had successfully delivered the promised economic, social and environmental returns to this locality. The replacement of pastoral farming with monoculture crops increased the value of the municipal agricultural exports from under \$US5 million in 2007 to over \$US152 million by 2013. GDP per capita for the municipality rose from R\$5227 in 2000 to R\$20,957 in 2011 with the "new" biofuel corporations setting up a range of educational, training and environmental programmes in partnership with the local authority (Oliveira 2015). Below, however, the extent to which the shapeshifters' right to rule is affirmed and accepted, imposed and resisted is questioned by relaying the experiences of those who have worked these so-called "marginal lands" for centuries.

Shapeshifting From Above and Petrification of Labour *The Camponês*

Traditionally a producer of livestock, beef cattle and milk production, agriculture in southwest Goiás was tied to regional livelihoods that distinctly linked territory and place and features in nationally treasured literature and music of the "sertão" (Souza 2013:30). The arrival of sugar cane served only to exacerbate a localised population shift to urban areas that saw a fourfold decrease in rural dwelling from 25,000 in 1970 to under 5000 by 2010 (IBGE 2010). By 2015 sugar cane commanded a staggering 70% of all agricultural land in the municipality that had increased in price threefold (IBGE 2015). The *spatial* petrification of the camponês families that had resisted selling or renting land to the ethanol producers was evident in the community of Pedra Lisa,

where only one quarter (64 families) of the original community remained in 2015. Population loss had compromised their interdependency and extent of social networks on which their small-scale farming and cultural life depended. The historically fluid territorial identity of the community that transgressed official boundaries had been disrupted not just by recent sales and leases but by the rail road and new sugar cane transport corridors that crossed their landscape.

The remaining farms were increasingly disparate geographically, traditional corridors between cattle pastures were disrupted and, while still notable with their diversity of crops, vegetables, trees and birdlife, the plots were completely encircled by monoculture. Common complaints from interviewees were of how the dust from the trucks passing on newly established corridors left the grass inedible for cattle, while new fly species introduced as a biocontrol for sugar cane had infested the farms, forcing farmers to buy new treatments for cattle that they could ill afford.

Donna Maria (58) was tearful as she pointed to dry water courses. Camponês traditionally, sacredly, divert a small stream of water from nearby rivers through their plots to ensure a modest and continuous flow of water. Rivers and ground wells were, she and others reported, lower than any time in memory and blame was apportioned to the huge volumes of water commanded by the sugar cane crop and the contamination of existing sources. Acknowledging the dearth of a collective political voice, Larissa (44) stated that the individual complaints made to the nearby plants regarding crop loss, dust and the death of an artisan bee colony were easily ignored by companies and the municipality. In her view the closure of the rural school with its distinct, rural pedagogy and decision to bus their children to the town for their education was further evidence of their invisibility from municipal decision making. Resolute, but lamenting on the future, Manuel (66) explained how the proximity of the agroindustries was killing his produce. The fertilisers, herbicides, fungicides and maturing agents that were designed for sugar cane were fatal for the mangos, papaya, lettuce, tomatoes, bananas and beans upon which his livelihood depended. His only resort when he heard the planes was to “go out and stand in the corner [of his plot] and wave a white towel to chase them away so they don’t kill the crops”.

Diogo (65) had refused to lease or sell his land, after his brother who had encountered the social consequences of doing so in the neighbouring state of Minas Gerais advised him not to. To give in, he considered, was to condemn another generation of young people to unemployment and drugs on the periphery of urban towns, yet the pressure on him was relentless. He described a typical encounter with one of the land agents, hired by agroindustry on commission:

They come and say, “Hey Uncle, look you have been working hard all your life, why not sell up, take the money and move for an easy life in the town; send your children to school there; rest a little, look it is more money than you will ever have. Why not do a test. Rent the land for one year. We will even pay you a full year’s rent for your land in advance, one payment.” Lots of people did this. But then after one year they can’t return. The soil is changed. The fences change. They are surrounded by sugar

cane. The poor don't have the money to invest to change it back. So the company offers them another deal to take the land off them, but this time for less money because they know he is stuck. (Interview, 2015)

Several parents were resigned to the fact that many sons and daughters of Pedra Lisa community found paid work either clearing pasture, forest and grassland for sugar cane planting and cultivation, or labouring within the local distillery. But they lamented that to do so the young had to leave their rural home for the poorer "periphery" of Quirinópolis as the company forbade private transport to the workplace, collecting workers daily from specific urban sites only. It is the character of the work that is the focus of the following section.

Salaried Labourers

In Quirinópolis over 25% of all employment (4900 workers) was directly linked to the two local sugar and ethanol plants by 2014. In neighbouring Jataí, the Raizen refinery employed 1300. Since 2003 the corporations had to contend not just with rising labour costs accruing from a Workers Party commitment to the poor voters (a 77% rise in minimum wage in real terms 2003–2015; DIEESE 2016) but also an increased investment in the Ministry of Labour tasked with investigating labour abuses. The most immediately notable factor of this biofuel frontier was the absence of manual sugar cane cutting. Leading corporations dealt with charges of exhaustive manual labour by disappearing it altogether. One harvesting machine replaces 80–100 workers representing a competitive cost saving for companies with the suitable economies of scale to command a fleet of these. Ricardo (34), originally from northeastern Brazil, told of how workers like him had followed sugar cane expansion to Goiás from São Paulo where mechanisation had taken hold in the hope of finding manual work. On discovering that harvesting was mechanised there too he was resigned to "auxiliary" roles, only for much poorer wages than he had known previously.

Despite the loss of manual jobs, seasonal work was still very much apparent. In Jataí the purpose-built hostel adjacent to the Raizen plant housed hundreds of workers also from the poorer states of Alagoas, Bahia and Maranhão. As part of the voluntary agreement to improve working conditions, the industrial association, UNICA, and its members undertook (unsuccessfully it has to be said) to phase out "third party contracting of seasonal labour" that has been synonymous with slave-like labour conditions in the sector. It was evident, however, that seasonal employment, historically a means to reduce labour costs and organisational capacity, remains with leading corporations contracting (albeit directly) up to two-thirds of the workforce at the beginning of the harvest season (January to April). As groups of young men played football in the grounds at the end of their shift, several workers spoke from their dorms and explained how they are dismissed on the conclusion of the season (December) on the grounds that the best and most compliant workers can be chosen for the following year.

A lack of job security was not confined to seasonal workers and was reported by 48 of 56 "permanently" employed respondents to a survey. This was

corroborated by a strikingly high aggregate annual and monthly turnover of staff in figures provided by the local Ministry for Labour for the two companies in Quirinópolis. With an average turnover of over 50%, up to 200 workers were being replaced monthly. Tucho (28), a mechanic, and Darcy (32) who worked in weed control gave accounts of entire teams being laid off with little notice. Cost cutting was the ubiquitous reason from management. On an evening in July 2014 three skilled workers who had been summarily dismissed after three years' employment in the St João plant recounted how, on gathering their belongings from their lockers, they encountered their replacements getting changed to begin their shifts on the very same day. Over 100 workers had arrived from a distant ethanol plant in Alagoas the previous day on two hired tour buses. When interviewed in the local hotel where they were staying, two confirmed that they had been called in just one week before by their manager who explained they had been offered a contract for one year in Goiás where salaries were better. They would be housed in a hotel for the first two weeks until they found alternative accommodation.

This story illustrates vividly how a standardisation of tasks in modern distilleries, linked to lean quality assurances and digitised performance management systems, is superimposed upon the historical industrial networks of the powerful owners. This facilitates a circulation of staff across units in disparate states, serving to reduce the annual augmentation in wages and labour overheads. The transience of the workforce makes workplace organising too risky in the accounts of many interviewees and impossible for even the most earnest of trade unionists who have tried in vain to bring the notoriously low pay to the levels in neighbouring São Paulo state with a stronger history of industrial trade unionism. A wage comparison between the São Martinho owned Boa Vista refinery in Quirinópolis and the São Martinho owned Santa Cruz refinery in Araraquara, São Paulo showed as much as a 60% difference in the basic wages of workers performing the same tasks and an average wage difference of 28% across eight job categories.

This petrification of labour agency is further complicated by the fact that many established trade unions never recovered from co-optation during the military rule of the 1960s, and are themselves implicated in improper labour practices. Existing corporatist labour law that was modelled on Mussolini's Italy and untouched by the Workers Party rule continues to grant established unions monopoly control over their designated category of employee and of their chosen geographical area. This means that each category of worker employed by the ethanol company will belong to a different union and for workers it is legally impossible to organise independently of the established structure. When the president of the local rural union, who had faced allegations of corruption, was interviewed he rather disingenuously denied that Petrobrás had no capital invested in the plant in which his members worked, and was unable to provide details on the number of members he had in the locale. He denied there were pertinent issues to be addressed and refused to answer why members were not involved in collective bargaining discussions. The severe implications of his protection of the status of the union as opposed to the wellbeing of his members was evidenced by the mostly female

workers tasked with spraying herbicide from 11 litre tanks carried on their backs. Elsa (28) and Larissa (37) recounted the events from 2012 as a plane passed over the field in which they were working:

Elsa: The poison is there every day there, contaminating ... He [pilot] flew passed and one girl that was working, she collapsed.

Larissa: She stayed at hospital for 11 days. But they didn't take her to the state hospital.

Elsa: In the same area where the people were working, they pulverised it. I think she had convulsions.

Larissa: They pulverised our entire bus! I was outside and then they got me into the bus, everyone was running, and it pulverised the whole bus. We drove away from there and after two kilometres I started feeling bad.

Elsa: No, that other one, she didn't get better, No. They moved her to another area. Now all the time she gets in contact in with herbicide she goes back to having a whole reaction and gets bad again.

Three of these women who were organising colleagues in order to collectively address inadequate protection, substandard changing, toilet and eating facilities and objectionable potable water were dismissed, ostensibly on the grounds of cost cutting, during the period of the study. There has been a 40% increase in reported Goiás poisonings from agrottoxins between 2007 and 2014 (Bombardi and Garvey 2017).

The Landless

Unsurprisingly, given mechanisation and the rate of staff dismissals, former employees of the sugar and ethanol industry figure prominently in the several landless camps in the region. For Luis (46), joining the camp was a "last resort for workers like me". The lack of opportunities for rural work now that sugar cane dominated cultivation was exacerbated by the persistent black listing of workers who had been laid off. "When you are let go from one place the owners communicate, keep a list", Luis explained with several men and women nodding in agreement: "One phones the other and we never get the job". For Cristina, however, a 37-year-old mother of three children, the occupation, despite the difficulties, was preferable to the prospect of raising them in the city periphery. "We are rural workers", she said: "That's what we know. We want to raise our families away from the crime, the drugs in the town".

Like hundreds of thousands across the country, these camps house Brazil's poorest, and in the dignified occupations of unproductive land they seek to force a redistribution of land for familial farming under the constitutional article on agrarian reform. In the early years of the Workers Party rule they had reason for optimism as the government gave legal rights to a record number of settlements, a striking rise from 36,000 settlements in 2003 to 136,000 in 2006. Since then, however, the fivefold decrease in new settlements (only 26,335 in 2015) helped to explain the frustration and sense of abandonment among a

gathering in a second camp of some 80 people on a Saturday afternoon. Some had been camped out for eight years, continuing to draw water from hand-made wells or the local river as the local authorities refused to provide services to the camp despite the many children present. In 2015, 14% of the 120.6 thousand families involved in territorial disputes in Brazil were in Goiás State, the greatest number of any state in the country (Comissao Pastoral da Terra 2015). Yet the geographic isolation of this camp in the southwest region of the state meant that they had no access to the legal or political support traditionally provided by the landless organisations, such as the MST, who had mobilised over 3000 families just outside the state capital Goiânia, 300 kilometres to the north at the same time that these interviews were conducted. Hence the residents remained in limbo without immediate prospects for resettlement, symbolic of the sacrifice of rural subjects required for agroindustrial expansion and evidence of power asymmetries that render their situation invisible to the biofuel project at an institutional level. In what follows, however, statistics for labour law transgressions and land-based conflicts further unveil the mythical nature of the shapeshifting from above and in doing so reveal the face of the old villains once again. How the powerful have responded to this temerity from public institutions and social organisations and the means by which they have stymied potential shapeshifting from below are the focus of the final section.

The Mythical Shapeshifting of Capital and the Literal Petrification of Labour

Even by their own historically poor standards, the manner by which leading corporations breached their own voluntary accord and national labour law was so blatant that the government was forced to revoke the National Commitment for the Improvement of Labour Conditions in the Sugarcane Industry only one year after its inception. By the end of 2013, 60 out of the 169 companies that had been approved under this scheme were in court for serious violations of labour law. In Goiás State, 39 workers involved in mechanised cane cutting had been subjected to 27-hour working periods without a break; two workers involved in a serious accident had been working in excess of 20 hours (*Repórter Brasil* 2012). In the harvest of 2015/16 it was found that 19 of the 31 ethanol producing plants in São Paulo that received the Bonsucro certification (necessary for sugar and ethanol export to Europe) had not subsequently conformed to the labour and environmental laws that the certificate requires. Of these, eight of Raizen's 13 certified plants were under investigation for inadequate provision of rest for workers, neglect, blacklisting workers, and outsourcing of their primary activities as were those of the São Martinho Group and SJC Bioenergy Ltd (Jesus et al. 2016).

Rather than meet the new social standards, the biofuel companies have, among many other corporations, successively leveraged Brazil's economic and political crisis of 2015–2016 to lobby for a weakening of existing laws rather than abide by pre-existing regulations. Amidst turbulence emanating from corruption scandals, party political manoeuvring and economic recession they were first invigorated by the particularly pro-business government of Michel Temer who was

installed after the extremely controversial impeachment of President Dilma Rouseff disrupted the popular democratic process and ended over a decade of Workers Party rule. The new administration was all too willing to ignore, isolate and criminalise rural workers and their communities and drastically cut familial agricultural investment in 2016 by R\$400 million as it “forgave” R\$47.4 billion in debts of the major agroindustrial companies, the greatest amnesty for 10 years (Fernandes 2019). The budget of the Ministry of Labour and Employment was slashed by over 45% (Magalhães 2017), explaining the 47% drop in the number of national cases investigated for slave-like labour between 2013 and 2017 (Magalhães 2017). Amidst wage stagnation the bastion of Brazilian labour law that prohibited the outsourcing of the principal tasks of a company was abandoned.

Under this new administration, the old villains could dispense with any visage of social commitment and drop any platitudes to the working population and to the environment. Large-scale layoffs of workers was the typical response to economic pressures, yet these did not stem from rising debts in the sector that reached some R\$95 million in 2016, prompting the government to launch the “RenovoBio” project with a further R\$72 billion for plant renewal and marketing of the ethanol sector (Ministerio das Minas e Energia 2018). With oil prices improving the green biofuel brands, so celebrated at the turn of the century for their carbon sensitivity, flexed further into fossil fuels. Petrobrás withdrew its investments from the São Martinho group and ethanol sector as collapsing share prices followed revelations that senior directors had been involved in a \$3 billion scandal with a cartel of 16 companies and a swathe of politicians (*The New York Times* 2015). This didn’t prevent Raizen’s key stakeholder Cosan, already with natural gas and fuel distribution in its portfolio, from approaching Petrobrás about an oil refining partnership. Meanwhile Raizen bought up a Buenos Aires petroleum refinery, 665 retail stations, and marine and aviation fuel downstream assets from its parent company Shell. A joint venture between São Martinho and Raizen to assume yet another smaller and struggling São Paulo ethanol company signalled further consolidation in the sector among the Omettos as the return to uncomplicated, elitist industrial relations was cemented by the Agricultural Ministry’s Agribusiness Projections 2011/12 to 2020/21. These indicated that the plantation scale model of agroindustry, boosted by foreign investment, was to progress undeterred with Goiás state singled out for the largest increases in production of sugarcane, a staggering 41% forecast over this period. The scheduled public–private investments move the sugar cane frontier steadily towards the northern parts of the state and into further confrontation with Camponês, Quilombo and agrarian reform settlements.

The Quilombolas

In 2016 the planning minister Romero Jucá gave assurances that the military had been monitoring the Landless Workers Movement of Brazil as one of its key activists in Goiás was imprisoned, his parole dependent on his abstention from political activity (Interview, 2016). By the end of that year the total number of land conflicts in Brazil had increased from 998 in 2015 to 1295, the highest number in

the 20-year record with a 22% increase in assassinations, a 39% increase in death threats, and a 185% increase in imprisonment of land activists from 80 to 228 (Mitidiero 2017). President Temer all but froze agrarian reform, slashing 86% off its budget and reducing the resettlement rate of 0.01% of 2006 levels, while in 2015 only one demarcation of African-descendent Quilombo territory was designated from the 1552 waiting to be given legal status (*Brasil de Fato* 2017). One such territory in dispute lies to the northeast of the state, settled 300 years ago by slaves “wearying of life” in sugarcane plantations and gold mines. Despite their legal recognition since 1988, the 6000 inhabitants in the 162,000 hectares of the Comunidade Quilombola Kalunga de Monte Alegre of Goiás (straddling the municipalities of Cavalcante, Monte Alegre de Goiás and Teresina de Goiás) had endured illegal land grabs by large-scale farmers and the temporary expulsion of families by heavily armed men in 2014. They had successfully repelled hydrodam construction and had been pressing for a return of the full extent of their native territory for some 30 years (Santos 2015). Local leader, Dona Procópio, humbly recalled:

at the beginning of it all it was just me with a bunch of blind, deaf and illiterate seeking these roads these roads towards Brasília and Goiânia seeking the recognition of the rights of our people. The right to land, to school, to health. (Interview, 2015)

Deliberate isolation had helped them preserve their distinct practices and the President of the Association of Kalunga (Bantu word for sacred) explained how the diverse seeds and agroecological practices that had been first learned from the indigenous groups of the area (who would later take refuge among the Quilombolos) and adapted to the soils and climate of the region were intrinsically linked to food sovereignty, cultural practices and festivals at planting and harvest times that stretch back to the foundation of the settlement. The marked reorganisation at this community level and the mobilisation to affect political influence in the face of encroaching corporate interests and state intransigence was a local reflection of a broader wave of large demonstrations in Brasília that brought together Quilombola and Indigenous movements in 2015, 2016 and 2017. In Goiás, this re-existence was made all the more impressive by the eventual concession by the state of some 75,200 hectares of arable land and biological reserve to the president of the Quilombo Kalunga Association, Vilmar Souza Costa, in July 2018.

This audacity, however, singles out communities like this for the newly elected President and former military officer, Jair Bolsonaro, who emerged from economic and political chaos with the promise to restore permanence and social order. He will do so by going back, “to how Brazil was 40, 50 years ago” (*The Guardian* 2018). With markets responding favourably, he disappeared the Ministry of Labour, suspended the national agrarian reform institution and promised to close agrarian reform schools and give not a centimetre of land to indigenous and African descendent Quilombolas. The latter, he declared in 2017, “do nothing; their procreation does not serve a purpose”. He thus handed the future of their territories and those of indigenous peoples to the Land Affairs of the Ministry of Agriculture, headed by the notoriously conservative president of the landowners’ Rural Democratic Union. With the mythical nature of shapeshifting so visibly laid bare,

the powerful have dispensed of any allusions to the promises made by the new heroes in the previous decade. With alarming ease, social reforms have been swept aside and a new alliance of economic, political and military interests has converged with the resolve to further weaken, petrify and humiliate rural labour. The tensions of the frontier have been stoked and as the powerful revert to forms more familiar to a previous era of military ascendancy, the challenges to those involved in organising, analysing and narrating the shapeshifting from below are now clear.

Conclusion

In the great civilisations of the past, the steeply hierarchical rule of the powerful relied, as it does today, on a complex set of belief systems that required constant deference and affirmation from the society over which it presided. Shapeshifting represented a link to a higher, divine order, offered a restoration or order and permanence during turbulence and was a strategy evoked by the powerful to gain advantage or to punitively bind unwilling subjects to a new form. In tracing the capital and labour relations in Brazil's biofuel sector, the shapeshifting of capital and petrification of labour depicts how leading oil and grain corporations established in the 19th century during colonial war continue to capitalise on economic disruption and alarmist climate change discourses to fuse with established sugar barons while containing, co-opting and coercing rural labour and their communities. The convincing discourse of social and environmental commitment from these "new heroes" is accompanied by voluntary agreements and market oriented certification that sit atop the rapid territorial and technological advances of the sector. Closer analysis reveals market consolidation among transnational companies availing of generous state credit, and powerful families rolling over mounting debts through these mergers in order to expand and diversify production.

From the accounts of peasant *camponês* families, ethanol distillery employees, unemployed landless labourers and African descendent *Quilombolos* it becomes evident how the isolation, repression or petrification of rural subjects is essential to the biofuel project and how novel technologies linked to lean organisational techniques of these new biofuel companies dovetail with older practices of labour suppression in the sugar cane fields. Consequent deepening of power asymmetries help resolve the risk of militancy from sedentary labour for companies required to "fix" themselves in sites with ample land and labour, while ensuring there is ample land available for the expansion of the raw material cultivation necessary for competitive advantage. Ministry of Labour statistics for breaches of labour law and violent repression of mobilisations by rural communities determined to reproduce their distinct economic and social practices—or shapeshift from below—unveil the mythical nature of this shapeshifting from above. Amidst further political and economic turmoil that demonstrated the inability of the Workers Party to enact deeper structural change, conciliate class interests, or avoid corruption, the populace have been assured of stability by a return of the old villains with a sequential weakening of labour regulation and violent attacks on minority groups and the rural based social movements in word and deed. With those in power nostalgic for the past military regime, any

facade of social and environmental commitment has been ended. The green biofuel companies that have been boosted by further debt forgiveness and state liquidity are investing heavily in offshore fossil fuels while also continuing biofuel crop expansion north and westwards in Brazil. The contemporary explosion of social conflict traces the (re)encounter of these rapidly advancing monocultures with the centuries-old traditions and diverse practices of rural communities. Considering the material and immaterial dimensions of this encounter reveals what is at stake for the imagining and realisation of alternatives to destructive models of energy production. It begs closer attention to the necessity for, and possibilities of, a shapeshifting from below for genuinely socially and environmentally committed futures.

Acknowledgements

This research was supported by the Economic and Social Research Council (ESRC), the State of Goiás Research Foundation (FAPEG) via the Newton Fund (ES/M011577/1) and by the Brazilian National Council for Scientific and Technological Development (Edital CNPq/MDS-SESAN N.º 027/2012). Sincere thanks to Dr Kendra Briken at the University of Strathclyde Business School for her constructive comments on the paper.

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