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Fossil Knowledge Networks: Industry Strategy, Public Culture and the Challenge for Critical Research

Bret Gustafson[1]

It is 'frightening'. So spoke Steven Leer, the clean-cut CEO of Arch Coal, one of the world's largest coal companies. Arch Coal is headquartered in St Louis, Missouri, home also to Washington University in St Louis, where I teach, and on whose board of trustees Leer also sits. Also a member of one of the university's advisory boards on research, energy, and sustainability, Leer had been invited to speak to an audience of several hundred at a university forum on 'America's Energy Future'.[2] Leer's message was simple. Coal is cheap and abundant, and we are competing with China for access to resources. American coal is the future. Against alternatives, coal was cheap. 'I'm a capitalist,' he said, 'and I believe in the free markets.' Despite his assurance that coal had a 'voice in the Senate', he dismissed the promise of renewables and then attacked the threat of new regulation of carbon emissions. Ultimately, what Leer thought was 'frightening' about America's energy future was not global warming, environmental degradation or even the poor air quality of St Louis, which leads the nation in asthma.[3] Rather, Mr Leer was referring to the 'frightening' scenario that the United States Environmental Protection Agency (EPA) might evade corporate lobbyists in Congress and act on its own to curb carbon emissions under the Clean Air Act.

What was remarkable was that a position in defence of the carbon emissions status quo could be voiced within the prestigious halls of Washington University, which prides itself on the rhetoric of greenness and sustainability and on its initiatives in public health.[4] Yet the fossil men speaking as collaborators of the university continued expounding their fossil knowledge. Following Mr Leer, one Mr Frederick Palmer, with hair like Mark Twain and a gravelly, twangy voice, spoke as vice president of government

relations of Peabody Energy. Peabody, the world's largest private coal company, is also headquartered in St Louis. Its CEO also sits on the university's board of trustees.

Palmer treated the audience to a rousing story about how 'near zero emissions' from coal burning would be achieved soon with carbon capture and sequestration. With bar graphs representing 'coal' in the colour green, he preached that we will no longer talk of clean coal but of 'green coal' – the 'world's future fuel'. He led the audience through a vigorous defence of the 'normal people' of the coal industry doing good work providing cheap electricity for the public. Denying any political affiliation, he said, 'Our political party is coal.' To a smattering of applause from, among others, the university scientists and engineers receiving support for 'clean coal' research, he took his seat with other panellists to take questions. A student asked a rather modest question about the other costs of coal, like mountaintop removal. Palmer dismissed the question as a false issue, saying mountaintop removal provided little to the overall production of coal. Sitting beside him, the representative of St Louis's regional electricity company, Ameren UE, also dependent on coal-burning (and whose company is also represented on the university board of trustees), spoke too. He argued that coal had contributed greatly to the socio-economic benefit of local communities. A young lady in front of me squirmed and turned in her seat, whispering, 'What about poverty in the Appalachians?' Palmer then returned to the microphone to dismiss another question about Europe's success with cap-and-trade. 'Europe?' he sneered. 'There is nothing about Europe that we should emulate.' This was curious, given that an earlier presentation by the university's chancellor had spoken glowingly of how efficient Europe was with its energy. In fact, Palmer explained, we should emulate China, a model of growth, a country 'run by engineers, not by lawyers'. Here he gestured towards the panel of distinguished notables, university professors, scientists, and administrators sitting before him, 'like our own Chancellor Wrighton [a chemist]'.

At the event just described – a conclave in which the 'experts' were distinguished university scientists and these industry leaders – 'America's energy future' seemed to reside in a curious set of contradictions: science and anti-science, fossil power and democratic retreat, and a free-market ideology bolstered by generous government subsidies. Put another way, the university was positioning itself – in the name of science – alongside industries which spoke of merging corporate and public interests through the language of price and national security. At the same time, this expert knowledge promoted transfer of control over public goods (air, knowledge, democracy) to private hands. Dirty air, ideologised science and police states were not frightening scenarios for these fossil men. The university, as suggested by Stefan Collini, describing how universities are redirecting their research toward corporate contracts and interests, was 'supping with the devil'. Here they did so with a very short spoon.[5] Meanwhile, the university charges ahead with its work on 'clean' coal, public health, and 'sustainability'. For its part, two months after the forum, based on its claims that the science of global warming was spurious, Peabody joined nine other energy countries in a collective industry attack on the EPA's power to regulate air pollution.[6]

In this chapter I offer observations on characteristics of fossil knowledge – representations of truth, sentiment and experience produced by, or in relation to, the oil, gas and coal industries. I draw primarily on the perspective of the United States, drawing on observations of the public politics of oil knowledge as expressed in advertising and popular culture, regional 'regimes' of fossil power, think-tank production, and the implications of corporate support of university research. My objective here – based on my concerns about global warming and the anti-democratic agenda of the American fossil industries – is to consider where and how scholars in relatively marginal fields like anthropology might best engage and critique hegemonic models of fossil knowledge production and diffusion. To this end, I suggest that the broadly networked character of fossil knowledge – which articulates private sentiments, public culture, and the institutionalised hypocrisy of science and anti-science – is an ideological project sustained through diverse, multi-scalar interventions into public life.

I understand knowledge here, with a nod to Latour (1993, 2007), as a networked phenomenon which traverses and mobilises different nodes of actors, resources and symbolic projects – some more, some less reliant on the discourse of scientific truth. My use of the concept of networks does not, however, share Latour's concern for critiquing scientific practice or positing 'networks' as the privileged metaphor of social organisation. Following Barry (2006), a Latourian formulation does not displace a political–economic understanding of structural power. Clearly, fossil power and knowledge is a manifestation of capitalist power in the United

States. While it uses 'science' selectively, what is merged, purified and performed by fossil knowledge is not 'pure' science, but a culturally mediated public truth about the 'good' of fossil fuels. As evidenced above, and whether cast as science or advertising, fossil knowledge expresses at its core an ideological project. What is at stake is a struggle against the dispossession of public goods by private interests, a struggle being waged with agents who – by virtue of the geological and geopolitical materialities of hydrocarbons – hold an inordinate amount of power to influence, and thus appropriate, public goods, space and desire. To explore fossil knowledge as networked knowledge is to draw attention to political strategies and to better understand connections, nodes, and flows – such as those linking corporations and universities. This requires thinking in a Gramscian way about the complex war of position being waged on the terrain of public culture. In what follows, I juxtapose expressions of fossil knowledge in distinct manifestations – from the culture of automobility to think tanks and universities. I draw attention to the performative and spectacular qualities of fossil knowledge, and to the contradictions of its articulated fabrications, which seek to merge the culturally mediated valuations and transformations of oil – as power, masculinity, security, desire, and technology, to name a few – with regimes of science. Making these processes visible, I suggest, raises questions of theoretical interest, but also sheds light on political strategy. In particular, the very grounded modes through which fossil knowledge comes to ground in regional political assemblages suggest that work aimed at an empirical and ethical critique of nodes and articulations, like that of the university supping with the devil, is of proximate and primary importance.

Fossil knowledge is a spectacular vortex which seeks to entangle itself with public interest and popular desire, and does so through an identifiable assemblage of institutional arrangements, each with inevitable geopolitical dimensions. It is powerful, yet not hegemonic, and is thus in constant ideological struggle, on a war footing, against leakage, spillage, attack, and exposure. Barry (2006), borrowing from Harvey (2003), offers the metaphor of the vortex, because the fossil industries both spew out and obscure or devour 'knowledge'. Using the example of transparency – and following the general argument of this volume – Barry points out that claims to transparency necessarily entail strategies of exuberant knowledge diffusion and performance about what companies supposedly do; but he also suggests a necessary obfuscation. Any cursory contact with fossil self-representations, in newspaper and media advertising

for example, shows that fossil industries strive to be visible and audible, spewing forth (mis)representations of the industry in print and Internet imagery. At the same time, industry seeks to blot out other truths about reserves, revenues, bribes, chemical use, security arrangements, fossil impacts, and so forth.[7] In the realm of science, fossil industries invest intensely in 'scientific' research and embrace 'technology' as the solution to the world's ills, while working to mislead the public on climate science or to challenge evidence tied to the violence and socio-environmental impacts of extraction (see the case discussed by Sawyer 2003). This vortex-like production of knowledge draws our attention to a series of contradictions, but should remind us of the inherent weakness of fossil knowledge as a claim to truth, and reveals the inherent defensive nervousness of an industry that faces the inevitable demise of these energy resources.

A second characteristic of fossil knowledge is its spectacular production of imaginaries and desires. This is a characteristic of oil knowledge regimes more broadly, which tend to produce grandiose visible signs of development, power and wealth, despite hollow, narrow-based economies, and fragile social fabrics.[8] The rise of oil architecture in sites like Dubai, Baku, and Houston is one such manifestation of the spectacular. One might find numerous others in the flamboyant projects and tactics of oil states and oilmen, from Rockefeller to the less memorable Glenn McCarthy, immortalised by James Dean in *Giant*. In the realm of knowledge production, the performance of grandeur is tied not only to specific actors or ideological projects (which, as above, seek to make invisible the faultlines like exploitation and natural destruction), but aims at aligning corporate interests with public sentiments and structures of feeling. Of late, these efforts have been tied to the propagation of fear and a discourse of security, the notion of inevitable technological innovation, growth and a maintenance of current patterns of consumption, and the production of gendered and classed consumptive desires. I return to these themes below.

A third characteristic of fossil industries and fossil knowledge is tied to its geopolitical grounding in specific expressions of regionalism and nationalism, despite its trans-territorial operation and global reach. Fossil knowledge may of course be linked to relatively progressive nationalist projects and social agendas, as in such places as Bolivia or Brazil. Yet for the consuming north – and in oil enclaves globally – fossil knowledge produces national and regional space-times of a certain kind. This privileges autonomous regional enclaves, wherein the temporal priorities of free extraction

and dependence on coal or oil or gas predominate beyond the consumer into regional, corporate cluster economies.

At this regional scale, fossil industry seeks to capture relevant institutions and symbols, while expelling other kinds of social pressures or obligations.[9] Fossil industries rely on these corporate friendly clusters and enclaves (Houston, St Louis, Bakersfield) where their need to manage trans-local fossil extraction networks seeks political and institutional synergies that allow them to perform narratives of good citizenship while distancing themselves from wider regulatory control. In the case of St Louis, growth elites have of late explicitly embraced the language of corridors, clusters and nodes, an anti-national promotion of uneven development as the core strategy of growth.[10] Tactical alliances between 'regional' interests and fossil interests follow. Positioning itself as a region of 'science', St Louis embraces Monsanto, Boeing, Arch Coal, Peabody and Patriot as anchors in its striving to become a satellite node or 'hub' for trade with China, a fantastical dream that has yet to congeal. Additionally, the city is positioned as a carbon-dependent transit node (river, rail, highway, pipeline) along a carbon corridor linking strip mines in Wyoming and the tar sands of Canada with points south, including the massive refinery just across the river. While global city regions like New York position themselves as financial managerial centres, carbon regions like St Louis offer another 'niche'. Physical and institutional occupation of such regional niches shapes fossil knowledge production intensely, and is key to their recent embrace of regional universities as part of a broader strategy of enclaved self-defence.

The fossil industry – as knowledge and experience producer – works hard to reproduce the very short temporalities linked to individualised concerns with price and the impulses of desire in the US context. In a parallel way, knowledge production at broader regional and national scales that is sympathetic to the fossil industry generally frames its concerns within atemporal, futuristic and dehistoricised narratives about security. The convergence of short-term desire and long-term security displaces other temporal frames and knowledges that might subvert fossil power. As observed by Logan and McNeish (n.d.), the struggle over temporality is ultimately a struggle between the public and the private, and as such is inseparable from projects aimed at making space and scale, the terrains on and across which political struggle unfolds.[11] At the national scale, the battle, as Logan points out, is over the narrative of transition or stasis between forms of energy production and the

urgency (or not) of regulation and control. The core ideological stance of the fossil men is to push into the future the question of renewables and to position present government taxation, regulation or control as obstacles to short-term growth and accumulation. National narratives of security and prosperity, to which I return below, characterise these knowledge and time-fabricating priorities.

In the sections below I consider these characteristics through two fields of fossil knowledge, one tied to the cultural production of public sentiment, the other to the academic production of 'social scientific' knowledge.

AUTOMOBILITY AND THE AMBIGUITY OF DESIRE

At the risk of converting a point of national pride (the American car) into a source of national embarrassment, it is useful to consider how deeply imbricated particular forms of fossilised sentiment, desire and experiential knowledge are tied to automobility and the making of personhood in this country.[12] If one asks – as I often do of my middle- to upper-middle-class private university students – what we know about oil, very little substantive empirical knowledge is forthcoming. While some general comments on oil and conflict, the Middle East or Venezuela may bubble up, students have little to say until the conversation turns to the price of gasoline, and from there, to the automobile. Car driving is a nearly ubiquitous experience for this segment of American youth and the wider population. The 'culture of automobility' is the dominant matrix through which hydrocarbon knowledge of some sort is produced and experienced. The geological and geographical sources of oil, modes of extraction, transport and processing, historical connections between the USA and extractive regions and countries, and the linkages between oil and anti-democratic politics at home and abroad, are all opaque at this scale. Clearly, the advertising work of the fossil industry deploys its spectacular vortex here – foregrounding an array of eroticised possibilities tied to oil consumption while creating distance from oil's origins and other manifestations. That 'oil has something to do with' situations and relations with places like Iraq is certainly acknowledged by the informed student-citizen, but little is known about the dynamics of oil and the United States at home or elsewhere. The rare activist or environmentalist provides the exception. For the individual, oil knowledge is about gasoline price knowledge and the deeply emotive characteristics of automobility

culture (Sheller 2004) and the 'driver–car' assemblage as a reflection of American personhood (Dant 2004).

Of late, the American love for automobility retains its centrality despite the collapse of Detroit and the Deepwater Horizon oil disaster. Along with the recent public relations onslaught of the American Petroleum Institute (API), the government-backed attempt to revive Detroit converges with a renewed celebration of the car in advertising. It is here that oil, in particular, works to redirect class ideologies and articulated identities into liberatory, usually masculinist and white fantasies of nationalist power. These surround oil-fuelled symbols such as the Dodge Ram, whose recent ad campaign invoked working men and tough trucks, sharing the optimistic message, 'My tank is full.' Despite rising unemployment and the decline in audiences, the nation's most popular spectator sport, NASCAR (National Association for Stock Car Auto Racing), exerts an enthralling power through massive spectacles marked by red, white and blue, flyovers of F-14 fighter jets, heroes, villains, fried chicken, cold beer and the roar of combustion. Admittedly, the roar of 30 stock cars passing close by the fence pushing nearly 200 miles per hour is an unparalleled sensory experience, one deeply imbricated with the production of (largely white, male) working-class culture in much of the country. Another example is the movie *Cars*, which raised to a near religious status icons of the road trip, heroic individualism and sexual conquest – all in a children's movie – while offering a near tear-jerker, which illustrated the 'driver–car' fusion of human bodies and cars in the American psyche. Surrounded by peripheral ethnic others and a dim-witted yet loveable working hick of a tow truck, the race car hero Lightning McQueen and the sexy Porsche, Sally Carrera – whose rear end is even adorned with a tattoo colloquially known as a 'tramp stamp' – bring hetero-normative American sexualities into play with a nostalgic celebration of the road trip westward. Cars traverse a natural landscape with buttes and plateaus shaped like the hoods of 1940s-era Chevrolets. Here again a subtly populist narrative of small-town survival contradicts the movie's embrace of cars, which fuelled patterns of capitalist expansion that undermined these very imaginaries. If pressed, one might conjure up critical traction in the movie as a critique of modernity and capitalist abstraction. Indeed there are throwaway lines against oil conspiracies, the villainy of hostile takeover banks, and the sponsorship of the flamboyant, yet fossilised, dinosaur oil company. Yet the ultimate narrative is one of a love story – with ourselves, with our nation, with consumption

and with our cars. The 'our' of course, is the white American. *Cars 2*, out in the Summer of 2011, goes global – with nefarious offshore oil dealings and new Others: Japan, Germany, Italy, Spain, France, the United Kingdom and Brazil. The storyline has the cars racing in a World Grand Prix – backed by a British oil baron, Sir Miles Axelrod, who has used his wealth to invent the alternative green fuel of the future, Allinol. Stay tuned for its twists and turns on global automobility.

What is absent from most everyday fossil-related popular culture and knowledge is any sustained critical narrative against the political–economic relationships between privatised oil-industry power, the nation state and individualised citizen–consumers. There is of course a subtly resistant experiential knowledge and intuitive critical morality among the public that is suspicious of 'Big Oil'. This diffuse public suspicion articulates around contradictory sentiments bridging gasoline prices and a populist distrust of flamboyant oil wealth and power. Big Oil as a cultural phrase thus has a negative valence. Yet the contradictions make this a shallow moral reserve of critique, based as it is on a kind of moral economy – as long as prices are low or reasonable, the wealth and power of Big Oil is not questioned. Note for instance that the TV series *Dallas*, which ran from 1978 to 1991, and in which J.R. Ewing, an oilman, was the villain, emerged in the wake of the oil crisis. An earlier series, *The Beverly Hillbillies*, among others, romanticised the possibility that we all might become Big Oil. The spectre of Big Oil arises in times of high prices or perceived oil-industry malfeasance, but otherwise lies dormant, because of its dependence on the subjectivity of the consumer–citizen. The fossil industry understands this moral economy well. Recent ad campaigns by Chevron in fact try to resignify Big Oil and embrace the ambiguous label, proclaiming that Big Oil helps the [little] 'people' and 'small business'. Similarly, the API's recent media strategy includes mockumentary video that reports how ordinary people, retirees and shareholders in fact own and benefit from Big Oil.[13]

In a somewhat more politicised vein that transcends price–consumer moralities, popular culture productions like the movies *Syriana* and *There Will Be Blood*, among others, do restage the trope of Big Oil as evil. Yet most such movies suffer the narrativising work of Hollywood which transforms structural violences into morality tales. *Syriana* leaves viewers with a sense of individual disempowerment against the military–oil–intelligence regime. *There Will Be Blood* demotes Sinclair Lewis's impassioned socialist tract,

Oil, into a tale of moral degradation.[14] Whether seen through cars or *Cars*, popular fossil knowledge and culture revolve around individual subjectivities, desires, agencies and moralities linked primarily to the position of consumer–citizen. Outside of activist arenas, there is little diffuse evidence of a critical popular cultural knowledge that critiques the wider structural and political workings of fossil power.[15] While this may seem obvious to some readers, it is radically divergent from the very different histories of popular knowledge and oil in sites like Bolivia, Venezuela and Brazil. In such places, popular knowledge articulates a quite different set of relationships between sentiment, subjectivity and oil from the position of nationalist and citizen narratives constructed around anti-imperialist sentiments and the critique of inequality and exploitation (Gledhill 2011). As I discuss further below, the fossil industry is also hard at work fomenting a particular kind of nationalism that is precisely *not* like these popular Latin American forms.

THINK, TANKS

At a very different scale, the labour of professional knowledge producers in think tanks is also deeply imbricated in the making of public fossil knowledge. These include institutions like the Brookings Institution (e.g. Pascual and Elkind 2010), the Council on Foreign Relations (e.g. 2006); the CATO Institute, and perhaps most prominently, CERA (Cambridge Energy Research Associates). The latter, associated with the author of *Prize*, Daniel Yergin, has positioned itself as the leading global purveyor of fossil fuel knowledge, a commodity that can be bought and sold by those engaged in the workings of the industry. CERA's work echoes the generally Whiggish treatment of oil narrated by Yergin, producing knowledge that furthers the priorities of access and extraction that has long characterised American dependency on foreign oil. Agencies like the Brookings Institution, while offering some critical assessments of oil dependence, are also concerned with particularly 'national' priorities like 'energy security' (advised, in fact, by Daniel Yergin). Merging security concerns tied to geopolitics, economics and the environment, such efforts orient research guided by the paradigm of 'energy security'. By this is meant the 'access to secure, adequate, reliable, and affordable energy supplies'. As such, security discourse mobilises a concern to produce macroeconomic knowledge about price shocks and the management of risk, as well as geopolitical knowledge related to national security and concerned with the fact

that oil and gas are 'concentrated in unstable regions'.[16] The concern with energy security is linked closely to a paradoxical convergence of market liberalisation (which brings with it 'commodity price risk') and the resurgence of national oil companies (and questions of security of 'access'). The issues of access to reserves and the regulation of flows, or 'networks', of fossil commodities are of crucial importance to the fossil-dependent industries and the fossil industry itself. Research with these ends tends to predominate in the world of 'think-tankery'.

For its part, the American Petroleum Institute also works to produce knowledge in the form of business consulting and research. These efforts complement the production of ads on television, radio, and in print that seek to shape public 'knowledge' of the industry. These 'studies' are carried out by Beltway consulting firms or friendly academics, and are *timed* for release in relation to key debates, such as that over offshore drilling (e.g. Vidas and Hugman 2008), debates over taxation (Wood Mackenzie Energy Consulting 2010), or the putative contributions of the industry to jobs in the midst of the economic crisis (Price, Waterhouse and Coopers 2009). The API also projects itself as having a role in educating the public, with dedicated interactive websites to test your knowledge and to teach you about oil, such as the mock college course, 'Oil and Gas 101' (API 2011a). The API maintains a network of websites, each named differently yet all in some ways subsumed under the API umbrella. These offer 'knowledge' on oil and gas, the 'building blocks' of society, defend the industry against critical documentaries such as *Gasland*, and attack social and natural scientists who produce critical knowledge as questionable academics.[17] The industry's own 'academic' efforts circulate as press releases to industry media and the popular press (Porter 2011; Legere 2011). The API also mobilises imaginary popular 'movements' of people through its Internet sites. These 'movements' conjure up the image of a mass national public whose interests are defended by the industry. These fictive movements speak of a security-oriented populist vision of 'we the people' joined together in an 'energy nation' of 'energy citizens'[18] working hard against taxes, regulation and government intervention, and for 'American' energy, revenue and jobs. All of these sites rely heavily on video and YouTube pages that purport to share the voices of hard-working Americans. 'Energy Citizens' has 10,000 Facebook fans. The pages here are distinctly red, white and blue, with energy – and the private fossil industry – portrayed as defending 'our way of life'. This attempt to popularise Big Oil

– against the image of the white male oilman as the prototypical corporate executive, the 'villain' of popular media – has also led to an API effort to represent itself through women. Although it sounds like the title of a calendar of spurious prurience, the API's 'Women of Oil and Gas' is a series of YouTube videos of testimonials by female industry executives (Energy Tomorrow 2011). These women recently travelled to Washington to testify about oil's commitment to the American family, thus seeking to domesticate oil through patriarchal ideologies that position women as nurturers rather than violent conquerors. The group also included a few women of colour, ostensibly a bid to diversify what has long been a deeply racist corporate project (API 2011b).[19] Clearly, the industry, with a deep and intimate understanding of the American audience, is on a war footing and wages its struggle over truth at multiple scales and on multiple fronts.

UNIVERSITY CAPTURE

The industry has also expanded its efforts in recent years to embed itself within a range of university research centres that have emerged to address questions of energy. Most of these are linked to the hard sciences. Many are financed directly by fossil capital. At my own university, the giant coal companies (including Arch Coal, whose CEO opened this chapter, and Peabody Energy) collaborated in promoting research on 'clean coal'. Small groups of students have mobilised to contest this fusion of scientific work with corporate branding. Yet the university defends its work as part of the pursuit of sustainability (through carbon sequestration) and its wider support of a pro-growth 'clustered' regionalism that seeks to articulate with the perceived hegemony of China in the arena of coal, carbon sequestration and future markets. These efforts are necessary, participants suggest, given that China will continue consuming coal (as will we), and that we must find solutions to coal emissions in the near term. As a result, we both compete and collude with China in the search for workable carbon sequestration technologies. Again, inevitability, both a particular temporality and national security pervade these ways of talking about and making knowledge. These discourses in defence of 'science' ignore wider political agendas (such as the industry attack on the EPA) and more obvious deep contradiction with public health issues regionally. My own university's emphasis on sustainability is rife with other such contradictions, and, as with other university–industry

collaborations, the relationship is tightly managed as part of the public 'branding' of the university.

As these 'energy institutes' proliferate geographically, they reaffirm the spatial and geopolitical materialities and particularities of fossil fuels as embedded in distinct places, institutions and actors, as described above. This sets up region-specific regimes of knowledge production where fossil capital attempts to capture universities – as it also seeks to capture and redefine energy cities and regions – while proclaiming a distinct kind of loyalty to place and people (or portions thereof). Aberdeen's own embrace of the label 'World Energy City' – along with others in the World Energy Cities Partnership – goes along with the broader tactics of uneven neoliberal development and sets the stage for attempts by industry to capture, sequester and reorient university labour as well as other region-specific cultural and political processes and spaces.[20] Congruent with a wider turn toward the discourse of regional 'autonomy' here and elsewhere in the world, this model of corporate–scientific regionalism mirrors the uneven development of neoliberalism and capital flows by creating a network of knowledge nodes globally, nodes that are geographically and politically linked to specific places and institutions (regions and universities) (Gustafson 2006, 2009). The logic of the university–industry nexus suggests in part that industries maintain an interest in outsourcing their own research and development to relatively cheaper scientific labour. In addition, in the case of publicly questioned sunset industries like oil and coal, industries seek to use the veneer of university and scientific prestige to polish their reputations through the language of scientific validation. However, within university settings there is a clear bias toward the hard sciences. In intellectual milieu marked by commercialisation, the marginalisation of the social sciences and humanities, and hard (but unprofitable) disciplinary boundaries, tend to mean that the social sciences in general, and more particularly any sense of critical social research, have little relevance. This nexus of fossil industry and university 'science' has little room for critical social science.[21]

Yet there is social science carried out under industry sponsorship at other such energy institutes. A survey of the scholarship of these university think tanks, for instance the list of publications generated by the Baker Institute at Rice University and the Oxford Energy Institute over the past few years, reveals a central concern with the paradigms of 'security' and price 'risk' and the management of both. Albeit a limited sample, out of 82 research publications generated by Rice and Oxford's respective energy institutes, 43

focused on market concerns (supply, pricing, regulation), 16 were on geopolitical disputes, 15 directly invoked the theme of security, five were on renewable energy, and three on resource management.[22] As above, this reflects an intellectual and ideological orientation toward market liberalisation, in which academic labour is aligned with corporate sponsors' interests. The geopolitical positioning of this intellectual work is at once regional, national and transnational, but firmly aligned with the interests of the consuming north. This may seem obvious and unremarkable to those engaged in this work, yet there are clear epistemological and ideological implications for knowledge production. Consider, for instance, how such a research institute or think tank might craft their research priorities were they writing from the stance of the global south, or more precisely, an oil-dependent nation of the global south – or better yet, from the perspective of social movements affected by oil regimes in the south. Even when delving into issues like poverty – as did one of scores of articles published by the Baker Institute – the approach highlights energy access as the key to poverty reduction, as might be expected.[23] A testament again to the geographic and geopolitical specificity of these research ventures themselves, Oxford's publications included 20 on Europe and associated regions, with particular concern for gas supplies to Europe, while Rice, based in Houston, had no publications on the European situation, but focused more broadly on extractive regions (Latin America, Canada, the Caspian, and the Middle East) linked directly to US foreign policy and corporate concerns with access. Clearly the fixation on security as an epistemological anchor is productive in multiple ways, addressing issues of supply and access that worry companies, but also working discursively to frame academic and public conversations in a defensive stance. As the anthropologist Daniel Goldstein suggests, 'a public that is highly fearful of perceived external threats may be more likely to authorize extraordinary state [or corporate] powers in exchange for a greater sense of personal or collective security'.[24]

As related by Fernandes (2011), and reviewed by Agpak (2011), the 'embeddedness' of the oil industry in the academy of the consuming global north parallels the academy's rapid militarisation, commercialisation and securitisation. Fernandes (cited in Agpak 2011), writes of the (now) scandalous embrace of Qaddafi by the London School of Economics – a relationship in which oil was transformed into academic credentials, with connections to BP's interests in Libya. Agpak notes that a BP executive sat on LSE's board at the time. Among scores of other such examples, as this book went

to press, news accounts emerged of the oil-rich Koch Brothers and their virtual purchase of the economics department at Florida State University, where they will have a say in the hiring of economists who promote free enterprise and critique regulation.[25] Even without such public scandal, the shifts reflected in these university–industry relations highlight deeper challenges to the autonomy of universities – both public and private, and to knowledge production more generally as a public good threatened by dispossession (Washburn 2010; Simms 2003). In the US context, Washburn, working from the relatively progressive think tank, the Center for American Progress, reported on the ten largest of 55 research agreements signed between universities and energy companies identified in 2007 and 2008. The top ten were all associated with Big Oil, with funding ranging into the hundreds of millions of dollars, most of it aimed at research tied to the putative pursuit of alternative energy technologies, most of it in biofuels. What was most significant, the report argues, based on the analysis of contractual agreements, was the overall trend toward cession of intellectual authority from the university to the corporations. In nine of the ten cases, public universities ceded majority control to the companies over the boards that oversaw these research activities, ceded control over open publication rights and information sharing, and weakened the peer review system as it pertained to overseeing grants that emerge out of this relationship. The implications are that academic integrity yields to corporate commercial concerns, and university labour is skewed against public funding that might influence other types of research, whether in the social sciences or in the hard sciences, aimed at post-fossil energy. As with public schools, the reorientation of public universities toward private interests, while touted as 'public–private' partnership, suggests a privatisation effect through accumulation by dispossession. Such corporate strategies appropriate the value and legitimacy of public institutions and knowledge workers. It is of little consequence that, as Washburn points out, these investments are relatively small compared to oil industry revenues.[26] It suggests merely that knowledge production is cheap for Big Oil, and is significant as theatrical spectacle, perhaps even more so than as economic functionality. Moreover, such arrangements – as with the touting of the region of science or the energy city – tend to exert a hegemonic urge to control the wider 'academic culture' and its ideological underpinnings, exercising the vortex effect by absorbing universities into the language of entrepreneurialism while devaluing knowledge pursuits that have little market or 'branding' value.

REFLECTIONS

Barry (2006) suggests that what is at stake is not a reification of the networked quality of oil knowledge, nor, following Huber (2009), a reification of all-powerful 'oil'. Rather, what is of concern is how the very specific agents and relations tied to oil regimes articulate (or oppose) relationships between 'scientific and technical expertise and political action' which may 'demand new ways of thinking about politics'.[27] It would seem then that the task of critical social scientists, anthropologists and their colleagues in related fields is not only to inquire into the local impacts of hydrocarbon regimes, nor to theorise the transformative work of oil regimes in processes of value transformation and circulation. Rather, taking a cue from investigative journalists, it seems that anthropologists might turn their rhetoric of 'public engagement' toward attention to the vertical and horizontal workings of fossil knowledge networks. Against the tendency of traditional anthropological research to focus on the individual, culture, and moralities of consumption (Wilk 2009), such ethnographic work might try to describe and critique – through traces I have tried to sketch here – the practices and relationships through which fossil knowledge captures, articulates and contains critical ways of knowing. The multiple nodes of connection and articulation between public and popular experience – as described through our embodied car-selves and the everyday of consumption – and the work of institutionalised knowledge production, set out a range of scales and nodes for engaging in critical knowledge work. Thinking in a Gramscian way, through wars of position, requires understanding critique not as a singular dialectic but as a multidimensional cultural struggle over truth. The API certainly has captured this understanding, and uses it to great advantage. Critical scholars should work to position themselves to critique and dismantle the nodes of these fossil knowledge network articulations at different scales.

CODA

> Oil has a right to be heard. And aid to higher education is a responsible approach, however much one may quail at the assumption that the search for knowledge should ultimately reveal private enterprise as the highest creation of man and however much one may deplore the support of education in so rich a society by the back door of corporate generosity. But when viewed in the context of the full range of oil's courtship of the American people, from broad advertising to political persuasion, this concern for education emerges as one more tactic for dealing with public reactions, for reinforcing public acceptance of private power and privilege. (Robert Engler, *The Politics of Oil*)[28]

Robert Engler's 1961 study – a manifesto of sorts – reveals that much of what I have presented here is not new, but reflects a longer history of the joint ascendance of oil power and American power in the post-Second World War era. Engler detailed how the API had since its founding in 1919 maintained a singular strategy that worked to confuse the public interest with the interest of privately held oil giants – as it still does today. In the 1930s, the API targeted 'New Dealers' and progressives, but in the 1940s it rolled out the idea that 'petroleum is progressive' against regulation and in defence of the idea that supply and demand were behind price. The chairman of the board of Standard Oil, Frank Abrams, gave the first speech announcing the need for business to stake its place in higher education in 1947. In the 1950s, the API's 'Oil Information Committee' sought to merge oil interests, national interests and security interests, while intensifying efforts to cultivate and shape the work of prestigious university researchers. By 1955, oilman K.S. Adams, of Phillips Petroleum, was speaking at Drury College in Springfield, Missouri against the perceived threat of nationalism. As if speaking against the bogeyman of socialism today, he argued that 'only when the entire field of production is privately owned and operated will the spirit of man be free'.[29] The oilmen targeted public education as well, seeking to shape curricula and promote oil interests in schools, a precursor of intervention into public goods which has shifted today to the oil-funded onslaught on public education and public-sector unions.[30] Along the way, the fusion of oil with the mythic aesthetic of the wealthy oilman preached to the American everyman that 'you may be next', fuelling, as it does today, the notion of a nation of consumer citizens who enjoy the benefits of oil, and who might, like Jed Clampett in *The Beverly Hillbillies*, strike it rich at any time.

Engler finished his book in 1959, the year of the Cuban Revolution. While we witness the apparent decline of oil power and American empire, it is clear that the aggressive attempt by the fossil industry to capture public interest, sentiment and goods – and in many ways, the state itself – is intensifying in a new cold war of sorts. In this new context, Engler's message is still useful. He

argued that oil had so permeated American society that it was able to obscure the 'full nature and impact of the private government of oil', a reality that came into direct conflict with the ideals aimed at 'creating the proper climate for a responsible and democratic society'.[31] He called for a rethinking of the preponderant 'national concern with production, efficiency, and pecuniary incentives' and questioned the 'concentrated international government of oil'.[32] As if he were writing today, he also detailed how in the name of 'national interest' and 'national security' (along with freedom and enterprise) the oil industry had captured law, governmental apparatuses and public opinion while reaping benefits and privileges unavailable to other industries.[33] Particularly prescient, albeit unconsciously so, Engler wrote of the contradiction between private power and public purposes as a growing threat to democracy:

> The nation has been living on the fat of its heritage and wealth that has allowed an unparalleled margin for error and waste. Moral smugness has fostered an attitude of superiority and fear, rather than understanding toward the multiple revolutions convulsing much of the world. This insensitivity places the United States on the brink of war wherever people are on the march against want and tyranny. At home ignorance and mass absorption in personal advancement have resulted in complacency toward fundamental antidemocratic developments.[34]

Engler died in 2007; but were he able to sit in our university auditorium to hear coal-man Palmer wax poetic on how nice 'America's energy future' would be with a China-like state led by scientists and businessmen, and to hear the applause of university officials, he could not put it better than he did in those lines from 1959.

NOTES

1. I thank John-Andrew McNeish and Owen Logan for the invitation to participate in the 'Flammable Societies' project, and for the critical suggestions and insights by them and others that led to the ideas formulated here. Owen Logan provided sources that allowed me to draw crucial conceptual connections. Conversations with Nicole Fabricant, Glenn Stone, Lia Haro and with the participants in the Flammable Societies Conference held in Bolivia in 2009 also contributed to this chapter. Its shortcomings are mine alone.
2. These statements were taken down by me as field notes at the event, on 2 November 2009.

3. St Louis led the nation in asthma in 2009, was second in 2010, and dropped to sixth in 2011. St Louis is a region characterised by urban sprawl and high commuter rates and an economy heavily dependent on its role as a crossroads in rail, interstate, river and air transport and warehousing, and is surrounded by coal-fired power plants, manufacturing and hospital centres – large emitters – and a large oil refinery. Rankings from the Asthma and Allergy Foundation of America (www.aafa.org).
4. See www.wustl.edu/initiatives/sustain/.
5. See Collini 2011.
6. Based on the now debunked claim that the East Anglia emails undermined climate science, in February 2010 Peabody and nine other energy companies submitted petitions questioning the EPA's endangerment finding of December 2009 on the risks posed by key greenhouse gases to health and future generations; see EPA 2011 and Peabody Energy 2011. Peabody's petition was signed by Frederick Palmer, among others. The climate-science denial website Science and Public Policy (www.scienceandpublicpolicy.org) published and circulated the petitions of Peabody and other energy companies, all of which were denied by the EPA in 2010. On Science and Public Policy's site, one finds links to several books for sale, among them *The Many Benefits of Atmospheric* CO_2 *Enrichment*, which according to the site was co-authored by Peabody's former director of environmental science Craig Idso. Idso, who, like Palmer, hails from Arizona, also runs the Center for the Study of Carbon Dioxide and Global Change (www.co2science.org/). This centre was funded at one time by ExxonMobil, and allegedly funded by Western Fuels, where Palmer was previously president; see Greenpeace 2003 and exxonsecrets.org 2011. Without the need to speculate on circumstantial connections, Palmer's own view of science parallels these climate-science deniers. The association between these companies and Washington University is paradoxical, given that the university positions itself as a bastion of science (though it receives support from Peabody Energy for its 'clean coal' research). In an interview with PBS (2000), Palmer said,

   > Well, one thing we will keep doing is, we will keep funding scientific research to try and help answer the question: Are we going to have an apocalypse or not? So far, everything we see is extremely reassuring in terms of not only are we not going to have an apocalypse, but things are going to be better on earth because we're putting more CO_2 in the air.

7. Consider for instance, the recent onslaught of advertising waged by the American Petroleum Institute (API), in juxtaposition with the energetic refusal by companies involved in 'fracking' (hydraulic fracturing) of 'tight' or 'shale' gas to disclose the chemicals used in the process.
8. Apter 2005 examines oil, spectacle and the production of race and nation in Nigeria; Coronil 1997 examines the spectacle of oil power in Venezuela. On narrow-based economies and spectacles of power in Bolivia, see Gustafson 2006.
9. See Zalik 2009 on oil techniques for containing and expelling 'social' connections to place. On autonomy as a priority of capital in general, see Comaroff and Comaroff 2001; on oil enclaves, Ferguson 2005 and Reyna 2007.
10. See the 'one region' campaign of the St Louis Regional Chamber and Growth Association, which promotes St Louis as 'perfectly centered, remarkably

connected' (www.stlrcga.org). As with clean coal, the regional chamber's initiatives, such as the 'St Louis Climate Prosperity Project', suggest deep contradictions and a rather cynical embrace of climate talk given the 'carbon lock-in' (Unruh 2000) that characterises the regional economy more broadly.

11. On the centrality of temporality as it relates to the cultural and political making of natural 'resources', see also Ferry and Limbert 2008.
12. See Margonelli 2007 for a popular treatment of American gasoline consumption. Urry (2004) and others in *Theory, Culture and Society*, vol.21 (4/5) address systems of 'automobility' more widely. Huber 2009 approaches gasoline through the lens of use value. As with my argument here, Huber highlights how the cultural meanings of gasoline consumption – or in my framing, a mode of experiential knowledge articulated with the tactical knowledge-making efforts of the fossil industry – undermine critical political action aimed at transforming the broader structures of fossil power.
13. See www.chevron.com/media/ads/printweagreesmallbusiness.pdf, and API's 'Do You Own an Oil Company?' at www.api.org/aboutapi/ads/upload/Do_You_Own_2011H.wmv.
14. Sinclair's book was a blistering condemnation of oil as it was linked to a politics of dispossession, political corruption and the exploitation of labour. On *There Will Be Blood*, see Klawans 2008.
15. Benson and Hirsch 2010 argue that capitalism, through its tactical manipulation of science and doubt, pursues self-defence through the active production of political 'resignation'. The argument, which addresses long-standing strategies of corporate crisis management, has some utility for thinking about oil knowledge in cases of industrial impact, litigation and scientific dispute. Yet fossil knowledge is not only, or even necessarily, a unilinear battle over science and public truth, but is a networked and multi-scalar phenomenon of cultural production, social relations and geographically uneven political economies that works in a more diffuse way than dyadic public–corporate conflicts or even 'science wars' suggest.
16. Bordoff, Deshpande and Noel 2010, p.214.
17. Most recently, this was reflected in the API defence of 'fracking' used in 'tight' shale gas fields. A research note by Cornell University scientists (Howarth, Santoro and Ingraffea 2011) had drawn attention to the dangers posed by fracking – research attacked by API via www.energyindepth.org and other outlets.
18. See www.energycitizens.org and www.energynation.org.
19. The articulations between American ideological and structural racism and the oil industry are beyond the scope of this work, but on America's plantation-style occupation of Saudi Arabia, see Vitalis 2009.
20. Based on unpublished summaries of conferences and exchanges with the University of Aberdeen. Thanks to Owen Logan for these documents. See also www.energycities.org/; and on university capture, Simms 2003 and Agpak 2011.
21. As full disclosure, I received a grant from Washington University's I-CARES (International Center for Advanced Renewable Energy and Sustainability) to carry out pilot ethnographic research on the gas pipeline running between Bolivia and Brazil. I do not know the direct source of university funding to this centre, which totals $55 million, of which a small portion, some $500,000 each year, funds research projects by faculty, mostly in the physical and biological sciences. Grants range from $5000 to $50,000. I received $7000. I thank and acknowledge I-CARES for this support, which facilitated acquisition of some of the insights reported here. See http://icares.wustl.edu/.
22. Thanks to Nicole Solawetz for tabulating these publications, drawn from each institute's respective website.
23. Clearly a concern for fuel poverty is a central component of any critical or justice-oriented approach to hydrocarbon issues. However, as with coal company deployment of rhetoric about electricity consumption as a measure of well-being, there are clear differences in the ways that discourses on fuel poverty are articulated in relationship to wider views of the industry–state nexus, whether these relate to the promotion of liberalisation (Baker Institute Energy Forum 2009) or the critique of liberalisation and privatisation's effects (Foster 2007).
24. Goldstein 2010, p.127.
25. Hundley 2011.
26. Washburn 2010, p.8.
27. Barry 2006, p.244.
28. Engler 1961, p.472.
29. Cited in ibid., p.466.
30. Ibid., pp.428–45
31. Ibid., p.482.
32. Ibid., p.497.
33. Ibid., p.9.
34. Ibid., p.485.

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14
Conclusion: All Other Things Do *Not* Remain Equal

John-Andrew McNeish and Owen Logan

Why can't we simply finish with oil? The world today is completely reliant on oil. This reliance will not become any less with time as the world's population increases and more people at the same time are brought out of poverty. On the other hand, if we continue to use oil as we do today, the escape of carbon dioxide and climate change will make the world impossible to live in. This is the dilemma that both challenges and inspires us. (Award-winning Statoil advertisement, Aftenposten, 23 May 2011)

CRUDE SOCIO-ECONOMICS

It may be an inescapable fact that humanity is currently reliant on oil, but as we have argued in this book there are options for its governance. This may be stating the obvious, given the details of the cases studied in this volume and the contrasts between them. However, as the text of the full-page advertisement[1] printed in all of Norway's leading newspapers in May 2011 might suggest (through what it omits to say as much as through what it does say), the general recognition of these options remains largely tacit. It is not that there is no recognition that fundamental changes in the global energy economy are likely to occur; but for the time being at least, its driving factors are beyond our collective control. In these final pages we try to redress the balance between the spoken and the unspoken, highlighting some of the critical uses of this book as we go along. A closer examination of the Statoil advertisement will be our vehicle for collecting together these concluding points.

Reading between the lines, and thinking about the wider context in which this advertisement has been produced, makes it obvious that Statoil is well aware of and concerned with the possible power and influence of public opinion. Why else mount such an expensive and notably text-laden advertising campaign? Society, it would appear, still has a key role in determining through vote and