Cultural Materialism, Media and the Environment

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Abstract: In this article, we examine two interrelated characteristics of the cultural materialism exemplified in Raymond Williams's work. The first is an analytical focus derived from his critique of 'militant particularism'. The second is the integration of an ecological perspective into arguments for social transformation. We expand his 'ecological argument' via biosphere perspectives, linking local ecological catastrophes to global environmental realities, seeking to honour Williams's socialist ethico-political commitments to labour and his idea of militant particularism while pressing for a deeper analysis of the eco-crisis. Focusing on problems of environmental and occupational risks in media technology production and disposal, we argue against a narrowly consumerist, or neoliberal, view of cultural materialism, and provide opportunities to illustrate what an eco-materialist study of culture might offer.

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> As the spectacular expansion of the global economy has undermined the environment, the need to control unlimited economic growth has become increasingly urgent. There is a patent conflict between the need to reverse or at least to control the impact of our economy on the biosphere and the imperatives of a capitalist market: maximum continuing growth in the search for profit. This is the Achilles heel of capitalism. We cannot at present know whose arrow will be fatal to it
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> Eric Hobsbawm, *How to Change the World*[1]

> The hard issues come together on two grounds: the ecological argument, and changes in the international economic order
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> Raymond Williams, *Towards 2000*[2]

The Backdrop – Militant Particularism(s)

In the spring of 2012, 8,000 coal miners in the northern Spanish provinces of Asturias and Leon went on strike to protest the central government's order to cut subsidies to the coal sector. The strike lasted nearly four months, with miners arming themselves with rifles and makeshift rocket launchers to ward off attacks from the Guardia Civil, Spain's paramilitary force. Strikers took over towns, occupied mines, and set up barricades to mark the borders between

their communities and the outside reality of austerity policies adopted by Spain under pressure from the International Monetary Fund, the World Bank and the European Central Bank. They became the most militant workers in the country in terms of industrial action.[3]

The region has a long history of anti-capitalist trade union militancy, symbolised not only by the outpouring of solidarity from the international trade union movement but also by the outrage expressed by the sons and daughters of the region, generations of whom were fed and nurtured by the northern mining economy. One of them is Spanish football star David Villa, proud of his roots in the Asturian mining town where he grew up listening to stories about his great-grandfather, a revolutionary in the anti-government miners' revolt of 1934 who was known locally as 'Trotski'. Villa used his celebrity to call for wider solidarity with the miners in the face of an official gag order on media coverage. In a spectacular action to bring further attention to their struggle, hundreds of miners marched 450 km to Madrid, joining ongoing protests that had begun with the 15 May 2011 anti-government occupations and eventually inspired the global Occupy movement.[4]

At stake was not just a wage or livelihood, but the integrity of a way of life. The coal economy was struggling to meet Spain's growing energy demands and dependence – Spain imports between 70 and 80 per cent of its energy, mostly in oil, gas and coal.[5] The subsidies that were slashed by the right-wing Mariano Rajoy government were designed to bolster the domestic sector and finance programmes to shift workers from mining to jobs in green infrastructure development, in keeping with the previous government's legislative effort to move Spain to renewable energy consumption.[6] The contradictions were obvious if complex for a progressive politics, as if one person's job and wage were another's air and water, and reactionaries were claiming to protect the latter. In the contradictory mess of Spanish politics, deals were still made for green infrastructure and forward-looking energy policy. The promises included green jobs, with training, and a public subsidy to minimise the pain of transition in affected communities. After the crisis hit, the austerity fix cancelled all government obligations to the green transition, and the miners responded in kind.

Their strike references three interrelated characteristics of the cultural materialism exemplified in Raymond Williams's work. The first is an analytical focus derived from his critique of 'militant particularism'.[7] The second is the use of alternative forms of media and cultural expression to bring this struggle into the wider political culture. And the third is the integration of an ecological perspective into arguments for social transformation. In this essay, inspired by the Asturian resistance, we draw on a decade of our scholarly and popular writing about the environmental impact of the media, including the 2012 book *Greening the Media*, to illustrate his first and third points.[8]

The miners' strike was not merely a local flair up of militant action. In keeping with the militant particularism endorsed by Williams, it expressed a transterritorial, multi-generational struggle against European government policies that threaten workers' rights, autonomy and wellbeing. The contradiction between capital and labour unquestionably defines the miners' lives in a particular place and time, but also resurfaces in the shared histories of intergenerational conflict, resistance and solidarity. The regional identity of Asturians is built on both working-class formations and cultural-linguistic differences that express the ties of local particularities to structural forces in the global political economy.[9] The battle lines they drew in this conflict were deeply rooted in knowledge of the roads, valleys, rivers and mountains where the miners took positions to outwit and out-gun, when they could, the better armed paramilitary representing state and capital.

The role of the alternative media emerged at the height of the strike, before the late summer withdrawal back to work in the mines. At that time, the fight clearly linked the situated realities of working-class community to forms of communication that reached regional, national, and international audiences already positively predisposed to a socialist understanding of the miners' actions. In the media events organised with the iconic Villa (also known as *el guaje*, 'the kid', in Bable, the Asturian dialect) and those focused on the miners marching to join anti-government protesters in the capital, we can identify the kind of transmission, reception, and response that resists the 'dominative' forms of communication that Williams criticised two generations ago in *Culture and Society*.[10]

The miners' struggle is an instance of oppositional media events confounding mainstream control over the signification of resistance, as per the Occupy movement's strategy to frame protests as acts of 'the 99 per cent'. In contrast to Williams's time, when broadcasting and print were predominant, today's on-line media sources (streaming video, YouTube archives and other web-based media) allow us to retrieve information almost instantly about the miners' struggle and hopes, to hear about their friends, families and neighbours, and to understand their disgust with national political leadership. We can more readily find electronic channels through which to contribute money and other expressions of solidarity to their cause. Of course, such access to information and communication is not immune to manipulation through framing and propaganda, but it can enrich the empirical basis of analysing struggles through cultural materialism, in particular when exposing how workers survive the capitalist political economy during its periodic crises. Though it's risky to say, we can imagine that Williams, after warning against technological determinism, would welcome these media tools into the mix of reportage, theorisation, abstraction and polemic that informed his cultural materialism.[11]

The miners' strike exemplifies a cultural landscape in dialectical tension with the wider world of policy, law, international trade, mass communication and newer mediated forms. The power struggle at the heart of the Spanish miners' strike of 2012 hinged on one of the 'hard issues' for the left that Williams identified in *Towards 2000*.[12] Environmental despoliation threatens the planet. But political action that aims to mitigate the destruction wrought by industrial growth will fundamentally change the character of industrial societies and, with it, whole ways of life. The question for Williams was how, in the face of 'the ecological argument', can a cultural materialism, and more generally a socialist politics, be imagined. This is especially acute in the Asturian example, where a right-wing state is seeking to retrain workers and restructure employment in the name of a greener and more efficient world.

In the early 1980s, Williams found little to praise in proposals to address threats to labour posed by the ecological and industrial decline of advanced capitalist societies. Some activists raced ahead with calls to reject industrial production and return to subsistence agriculture, local crafts, the pastoral life – but few were followed. The reason, he argued, was not because these were 'unavailable ways of life' but rather that they were 'unavailable as whole ways of life for existing populations of urban industrial societies'. To make such 'unrealistic proposals' the central platform of anti-capitalist critique was 'either an indulgence or a betrayal'.[13] Such environmental politics engaged in a shallow form of militant particularism that lacked a connection to general interests, misunderstood the international political economy and internalised dominant forms of expression. For Williams, its proponents were 'friends of nobody, and to think that they are allies in the ecology movement is an extraordinary illusion'.[14] He argued against the temptation to 'jump' into these forms of environmentalism with 'indifference towards all other organised and institutionalised political and social forms'.[15]

By the time of the miners' strike in Spain, such worries appeared unnecessary. A conservationist concern with the local environmental impact of coal mining, for example, might still be 'a friend of nobody' but also have little political traction given the deeper, greener sense of militant particularism at play in the miners' struggle. Drought, flood, habitat decimation, species decline – all these local ecosystem calamities are widely acknowledged today as products of global biosphere processes, and directly attributable to capitalist industrial and development practices.

Understanding the biosphere is not a simplistic matter of acting locally–thinking globally, which has led to lots of posturing without much empirical research or working through methodological issues (which cannot be resolved via awkward locutions like 'glocalism'). Biosphere thinking provides an exit from sentimentalising local, embedded cultural practices. It also presents a stark

ethical dilemma about how to address the threats to the 'whole way of life' that are engendered by a means of production largely responsible for the eco-crisis. This is precisely the ethico-political challenge posed by the coal miners' strike in Spain to cultural materialists, one that serves as the background for our analysis of media technology, environment and cultural materialism.

Note to Materialists – Revive Socialist Project

Some avowed adherents to Williams within cultural studies have travelled some distance from the necessary blend of twenty-first-century socialism and environmentalism. The shift is breathtaking. These writers have disclaimed their leftist roots and invested instead in Schumpeterian entrepreneurs, evolutionary economics and 'creative industries'. They never saw an 'app' they didn't like, or a socialist idea they did.[16] They dismiss Marxist perspectives on class exploitation and environmental despoliation, which one commentator scorns as part of a 'leftist backlash against digital media'.[17] The lives of workers seem to matter little when compared to technological innovation, as new products and services destroy existing ones, with anyone left standing the beneficiary.

Consider a prominent study prepared for capital and the state entitled *Working in Australia's Digital Games Industry*. It does not refer to working conditions in rare earth metals extraction, factories where games are made, or electronic waste dumps – all of which should fall under 'working in Australia's digital games industry'.[18] In this research, media technologies are benign drivers of growth that somehow transcend the toxic realities of their origins – a dead idea that survives, zombie-like, in such industry research as this 2013 report from PricewaterhouseCoopers (PwC): *The UK Film, TV and Video Games Industries Today – Powering Ahead*.[19] The pro-growth salute to 'powering ahead' privileges the productivity of industry while forgetting the materiality of bodies, experiences, careers and habitats. By and large, the risks to environment and to the people who actually make media technologies are excluded from the dominant discourses of high technology. It is as if telecommunications, cellphones, tablets, televisions, cameras, computers and so on sprang magically from a green meritocracy of creativity, with by-products of code, not smoke.

These new-media *savants* like to invoke pre-capitalist philosophers of play and thought, particularly the Ancient Greeks, thereby dodging questions of state and capital by heading for an aesthetics devoid of any relation to contemporary political economy. Their reliance on high art and high technology brokers a high neoliberalism that rests on the banal possessive individualism of neoclassical economics. Far removed from the messy

realities of inequality and injustice, reactionary game analysts, for example, are content to study virtual 'environments' to understand 'whole societies under controlled conditions', neglecting or caricaturing history and ethnography as they do so.[20] This transcendence of reality resides in a fantasy world where old (print, live) and middle-aged (screen) media are irrelevant – where *La fin de la télévision* [the end of television], *La televisión ha muerto* [television is dead] and other Olympian pronouncements suggest the very end of media-as-we-know-it.[21] Media and cultural studies are instructed to make themselves anew because new technologies are helping our species evolve as we wreak creative destruction on aged hierarchies.[22]

And while it might be historically true that new media supplant or supplement earlier ones *as central organs of authority and pleasure* – newspapers versus speeches, films versus plays and records versus performances – the fact is that the new blends with the old in a pattern of incorporation that finds television modelling the internet and vice versa, while print and telephony expand due to their convenience and durability.[23] Established cultural producers dominate across these media, which are really rather distant from cybertarian sweatshops and elite techno-bohemian wet dreams.[24] The BBC offers news produced by a lot of professionally-trained journalists; YouTube has drama features material from TV; and Wikipedia follows the eighteenth-century format of an encyclopaedia.[25] This traditional tendency becomes apparent with minimal critical, historical, sociological, or spatial reflection. We are prone to a 'new frenzy for images' that would have been familiar to the generation of 1860–80, entranced by trickery and overt re-assemblage, with photographers aspiring to art and painters hoping for verisimilitude.[26]

Along with this repetition of genres comes a repetition of claims and fantasies. In the nineteenth century, people were supposedly governed by electrical impulses. Telegraphy was conceived of as a physical manifestation of intellect that associated the essence of humanity with communicative labour. In the early twentieth century, radio waves were said to move across the ether, a mystical substance that could contact the dead and cure cancer. George Orwell described this rhetoric seventy years ago in ways that resonate today:

> Reading recently a batch of rather shallowly optimistic 'progressive' books, I was struck by the automatic way in which people go on repeating certain phrases which were fashionable before 1914. Two great favourites are 'the abolition of distance' and 'the disappearance of frontiers'. I do not know how often I have met with the statements that 'the aeroplane and the radio have abolished distance' and 'all parts of the world are now interdependent'.[27]

During the inter-war period, it was claimed that the human sensorium had been retrained by technology. By the 1950s and 1960s, machines were thought to embody and even control consciousness. This mad mixture of science and magic continues into our own digital culture as cyber-enthusiasts fetishise each new 'upgrade' as if it could reboot their identity into a perpetual now-ness. Facebook features 'Peace on Facebook' and claims the capacity to 'decrease world conflict' through intercultural communication, while Twitter modestly announces itself as 'a triumph of humanity'.[28] Two decades ago this frenzy was captured on video as people lined up to buy the Windows 95 operating system, amid Microsoft's advertising futurism.[29] Today, the excitement gathers around a different firm's wizardry; tomorrow it will be yet another ….[30] Machinery, rather than political-economic activity, is the guiding light. Even the United Nations Conference on Trade and Development, long a key site for alternative theories and representations of the economy, has joined the chorus.[31]

Today's version of this perennial yet endlessly naive technological optimism is both predictable and shocking. It blends with a deregulated, privatised, individualistic, anti-collective perspective that has been dominant across the consumerist social sciences for decades. This optimism is not only indifferent to the inequality and the violence of capitalist development that preoccupied Williams's cultural materialism; it is consciously opposed to Williams's socialism. If cultural materialism aims to take issues of class and environment seriously, it must look to Williams's socialism and critique of militant particularism, then merge these with a contemporary biosphere perspective.

Greening Cultural Materialism – the Media Example

The Metaphor

The philosopher John Dewey first suggested that communications exerted environmental influence upon the organisation of society. Dewey stressed technology's inexorable link to 'things and acts', 'instrumentalities' deployed on behalf of other goals 'of which they are means and predictive signs'.[32] Marshall McLuhan spoke of environs of media technologies as the central concern of a field of 'media study', promoting the idea that media analysis was 'resolved with a metaphor' of environments.[33] This substitution still obscures the ecological context of media technology (search any database for media and environment, environmental impact of media, media and ecology, or related phrases, and you will see what we mean).[34] Williams's careful scepticism of is a useful corrective. This passage from his 1972 essay 'Ideas of Nature'

describes a despoiled landscape that must see a shift of vocabulary if it is to be understood as a purposive rather than accidental result:

> The slagheap is as real a product as the coal, just as the river stinking with sewage and detergent is as much our product as the reservoir … [T]he pollution of industrial society is to be found not only in the water and in the air but in the slums, the traffic jams, and not these only as physical objects but as ourselves in them and in relation to them … [W]e cannot afford to go on saying that a car is a product but the scrapyard a by-product, any more than we can take the paint-fumes and petrol-fumes, the jams, the mobility, the motorway, the torn city-centre, the assembly line, the time-motion study, the unions, the strikes, as by-products rather than the real products they are.[35]

Landscape

From a biosphere perspective, media environments look more like this: transmission and reception towers, guy wires and transmission cables altering land use, obstructing the flight path of migratory birds, killing tens of millions of them (over two hundred species) in North America every year and an estimated 174 million annually across Europe and the United States.[36]

Consider one particularly telling instance of the biosphere's political-economic changes: Guiyu, in the Guangdong Province of China. Once a farming town, over the last two decades it has become a centre for recycling electronic waste (e-waste) from the 'creative industries' of the West. The environmental impact of this transition to e-waste recycling includes persistent organic pollutants saturating the human food chain. With soil and water poisoned, it is unsafe for Guiyu residents to return their agricultural lands to productive use. Perhaps 20 per cent of the recyclers lack basic protection against toxic metals, with lead exposure at fifty times the 'safe' levels (82 per cent of the city's children under aged six suffer lead poisoning). Contaminants of residual waste from incinerators and landfills have saturated local dust, soil, river sediment, surface- and ground-water and air. People living in proximity to the sites carry lethal dust residue on their clothing and into their homes. Of Guiyu's more than five thousand e-waste workers, many are pre-teen girls, picking away at dangerous materials with little or no protection (this is all too common among the estimated 700,000 working in unregulated e-waste processing throughout China).[37]

History

These landscape stories are invisible to orthodox histories of media technology, which recount a non-ecological, teleological narrative of heroic business innovators and plucky independent inventors dialing up freedom and fun for consumers, ringing in new forms of public knowledge to satisfy an innate desire for progress and artistic realism. This mimetic fallacy assumes that the power of artists' and audiences' desires drives technological innovation in the media.

Despite Williams's counter-example, in accordance with the dominant foundation myths, media history is rife with narcissistic accounts from the media themselves, which often tell us that digitisation derived from the laid-back musings of California dreamers rather than the military-industrial-entertainment-academic complex. And digitisation fused the media in the 1980s to create today's *Aufklärung*, delivering text, voice, data, video and music to consumers and enabling them, *Gestalt*-like, to become producers. 'Prosumers' supposedly emerged from the dream to take over the means of production, streaming onto computers of every size and resolution.[38] The prosumer is subject to the simultaneous triumph and emptiness of commodity aesthetics, where signs substitute as sources and measures of value. The symbolic power of media technology is enhanced by the idea of a liberated consumer, which, like the commodity sign, provides no residual correspondence to a reality other than its own.

In a materialist cultural history, the heroic march to aesthetic realism, digital media and consumer sovereignty looks starkly different. In parallel to a succession of key moments in capitalist development, environmental effects of media technology began to emerge in small, incremental stages in the fifteenth century. The volume of toxic drips and harmful puffs increased over four centuries, spreading across the Earth in a pattern of uneven development established by merchants, mercenaries and missionaries. The Industrial Revolution brought crucial transformations in the scale and scope of media technology, as the convergence of chemical, mechanical and electrical processes accelerated the accumulation of toxins in the environment. In the twentieth century, these innovations launched the era of electronic media and US hegemony while increasing the burden borne by the Earth's ecosystems.

Take film. The type and volume of chemical waste emitted into the air and waterways by large-scale film stock production is traceable to the chemical process for extracting cellulose from cotton and wood pulp, which was invented in the 1800s for papermaking. This process required large volumes of clean water and a variety of chemicals, including alcohol, sodium hydroxide, camphor and nitric and sulphuric acids. From the mid-1920s, the Kodak Park

Plant was churning out 200,000 miles of film stock annually, sucking more than twelve million gallons of water daily from Lake Ontario and spewing the used water, along with chemical effluents, into the Genesee River. At the end of the century, when it supplied 80 per cent of the world's film stock, Kodak Park was using thirty-five to fifty-three million gallons of fresh water a day. By then, the company was the primary source of carcinogenic dioxin released into New York State's environment. Rochester was 'ranked number one in the US for overall releases of carcinogenic chemicals' from 1987 to 2000.[39]

A fog of enchantment clouds a materialist history of media and environment. But this is an old story of technological hype, with advertising serving as the main source of the mysticism. In Williams's words:

> Advertising, in its modern forms, then operates to preserve the consumption ideal from the criticism inexorably made of it by experience. If the consumption of individual goods leaves that whole area of human need unsatisfied, the attempt is made, by magic, to associate this consumption with human desires to which it has no real reference. You do not only buy an object: you buy social respect, discrimination, health, beauty, success, power to control your environment. The magic obscures the real sources of general satisfaction because their discovery would involve radical change in the whole common way of life.[40]

Likewise for the philosopher Max Horkheimer: the supposedly resistant consumer is susceptible to a new mastery, a new servitude, for those who labour to serve and shape that consumer – who might otherwise be a different kind of person in another role.[41] Meanwhile, marketers delight in selling digital media as an historical arrival of a 'New TV Ecosystem'.[42]

Labour

This encourages us to think about the media in terms of work and the environment, as per the contradictory situation of the Asturian strikers confronted by right-wing green restructuring. The thought experiment required by desire to support the miners that must confront the horror their industry has wrought is also required to rethink the media as agents of material impact rather than consciousness.

Since the 1970s, 'knowledge workers' have gained in status among economists thanks to information-based industries that promise endless gains in productivity and the purest of competitive markets.[43] They form what Joel Kotkin calls an 'aristocracy of talent' elevated by the meritocratic discourse of progress, informatisation and the 'creative industries', and luxuriate in ever-

changing techniques, technologies and networks. And because their work is abstracted from physical, dirty labour they thrive in the twilight zone of the technological sublime. On the left, Michael Hardt and Antonio Negri graphically, romantically and inaccurately refer to the exchange of information, knowledge and emotion by computer as 'immaterial labor'.[44] Business people love this form of talk, as they even dream up 'virtual workers'.[45] Right-wing futurist Alvin Toffler invented the related concept of 'the cognitariat', which has since been taken up and redisposed by progressives; Negri more helpfully uses it to describe people mired in contingent media work who have heady educational qualifications and a grand facility with cultural technologies and genres.[46]

This Pollyannaish decoupling perhaps reaches its acme in telecommuters, who not only have paper-free offices, but office-free work. Like the defence attorney Mickey Haller in Michael Connelly's hardboiled Los Angeles novel *The Brass Verdict*, who works in a Lincoln Town Car driven by an ex-client, they operate from wires and cell-masts rather than buildings. But the net energy benefit from telecommuting in the US is, at best, 0.4 per cent, for while people no longer drive to work, they still live in suburbia and hence travel sizeable distances to experience something resembling commercial and governmental life, in addition to increasing their domestic power use.[47]

The ephemerality of place and environment in these accounts of elite knowledge workers on the move could divert us away from the militant particularism that brings the labour and lives of communities into sharp relief. Williams thought about this. He suggested the term 'mobile privatisation' to capture the paradoxical feelings of being distinct from others yet capable of continuous connection with them.[48] For Williams, the automobile, radio and television epitomised mobile privatisation – they were industrial forms suitable for the social regulation of populations in the name of individual freedom that twentieth-century capitalism necessitated. Today, the technology that best exemplifies the social condition of mobile privatisation is the mobile phone, which derives its appeal from political-economic arrangements that have seen a rise in two-income families, increased commute time and other characteristics of an overworked, debt-ridden, divided society.[49]

Materialist studies of labour and culture must go further into the ecological history and environmental risks associated with work in media technology. Since the age of print, media technologies have needed and emitted toxic substances, creating modern risks to ecosystems and workers. Print workers, past and present, must contend with poisons from solvents, inks, fumes, dust and tainted wastewaters. Similar conditions affected workers in film-stock manufacture, where cotton dust added the additional risk of 'brown lung'. Occupations involving batteries have historically been some of the most

dangerous, with exposure to lead and other pathogens causing fatal injury to the lungs, skin and nervous system. These illnesses not only make battery workers in the United States the top risk group in the world for lead poisoning, but the expansion of production, salvage and recycling has extended the problems around the world. The manufacture and disposal of plastics have caused increasingly greater damage, with brain, liver, kidney and stomach cancer associated with carcinogenic dioxin and hydrochloric acid released into the environment. Plastic flotsam accumulating in the open waters of the North Pacific (nicknamed the great Pacific garbage patch), North Atlantic and Indian Ocean have threatened habitats and drawn attention to the unthinking habits of consumers addicted to plastic, which is recyclable but not biodegradable – it breaks down into ever smaller fragments but isn't absorbed into the Earth's sink and can last for thousands of years. And microwave communication workers can suffer from 'chronic exposure syndrome', and there is growing concern with lower-level radiation emitted from televisions, computers, electronic games, computer monitors, mobile phones, laptops, networks of telecommunication and electrical towers and power lines. Biothermal risks exist for workers continuously exposed to radio, TV and telecommunication equipment, as well as high-rise office workers near high-power transmission antennae.[50]

Conclusion: i-Thing, I Think I Love You. But I Want to Know for Sure

As we drafted this essay, the latest in Apple's retinue of innovations was upon us via the iPhone 5 – the supply of new designs from the company seems unlimited, along with its ability to stimulate demand and over-production through imitation as the supposedly 'virtuous circle' sees expensive prototypes copied by other firms more cheaply once a market has been established.[51] Whether in the form of a phone, tablet, or computer, the new model will inevitably arrive in a sleek, minimalist package of wonder that offers to transport people across time and space. This bit of magic is precisely how corporations sell high-tech products – they promise transcendence from both our present world and technology's dirty industrial origins.[52]

Apple clearly exercises a special hold on much of the public imagination, but there is a wider question here about the belief we outlined earlier that new and enduring freedoms and pleasures accompany digital gadgetry, particularly via mobile privatisation. That faith makes it especially difficult to find a secular view of technology, one that refutes the totemic, quasi-sacred power that industrial societies have all too frequently ascribed to modern machinery – an old, old story that, as we have seen, ironically reappears, albeit with new

actors, on a routine basis. Williams's insistence on the historical materiality of communications is a valuable corrective.

We can shake off the magic if we treat innovation sceptically, questioning the planned obsolescence that confuses an abundance of i-things with wellbeing and creativity. We would gain something in return: a connection to the present where we can comprehend the deplorable working conditions that bring these high-tech wonders into the world and the ecological impact of such cool stuff. Cultural materialism shows a way.

In this article, we have revisited Raymond Williams's cultural materialism to expand the 'ecological argument' via biosphere perspectives, linking local ecological catastrophes to global environmental realities. We have tried to honour Williams's socialist ethico-political commitments to labour and his idea of militant particularism while pressing for a deeper analysis of the eco-crisis and forms of labour that contribute to it. This presented a number of arguments against a narrowly consumerist, or neoliberal, view of cultural materialism, and provided opportunities to illustrate what an eco-materialist study of culture might bring. As the Spanish miners understood, the greening of industrial political economies is a strife-ridden, transformational moment that calls on worker participation to move livelihoods and cultural norms toward a society of sustainability. The challenge posed by the militant miners of Asturias and other working-class communities facing similar transformations might just be the most productive place for eco-cultural materialism to ply its trade.

Notes

1 Eric Hobsbawm, *How to Change the World: Marx and Marxism 1840–2011* (London: Little, Brown, 2011), 12.

2 Raymond Williams, *Towards 2000.* (London: Chatto & Windus/The Hogarth Press, 1983), 255.

3 Martin Roberts, 'Spain: The Miners' Rebellion Against Austerity', *New Statesman*, 20 June 2012, https://www.newstatesman.com/world-affairs/world-affairs/2012/06/spain-miners%E2%80%99–rebellion-against-austerity; William Rogers 'Spanish Miners Continue their Resistance to Austerity Measures', *Left Labor Reporter*, 6 July 2012, http://leftlaborreporter.wordpress.com/2012/07/06/spanish-miners-continue-their-resistance-to-austerity-measures/; 'Asturias, Madrid y Castilla y Léon Fueron las Regiones con más Conflictividad en 2012', *Nueva Espana*, 2 April 2013, http://www.lne.es/economia/2013/04/02/asturias-madrid-castilla-leon-regiones-conflictividad-2012/1391064.html.

4 Luis Martín, 'Vivo pensando en el fútbol', *El País*, 3 July 2010, http://elpais.com/diario/2010/07/03/deportes/1278108009_850215.html; Aníbal Malvar, 'Trotksi, el abuelo del héroe nacional', *El Mundo*, 22 June 2008, http://www.elmundo.es/suplementos/cronica/2008/662/1214085602.html.

5 Trading Economics, 'Energy Imports: Net (% of Energy Use) in Spain', http://www.tradingeconomics.com/spain/energy-imports-net-percent-of-energy-use-wb-data.html.

6 Allan Hughes and Elaine G. Leigh, 'The Spanish Miners' Fight is our Fight Too', *New Internationalist*, 26 July 2012, http://newint.org/blog/2012/07/26/spanish-coal-miners-strike/.

7 Raymond Williams, *Resources of Hope*, ed. Robin Gale (London: Verso, 1989), 242–50; David Harvey, 'Militant Particularism and Global Ambition: The Conceptual Politics of Place, Space, and Environment in the Work of Raymond Williams', *Social Text* 42 (1995): 69–98.

8 Richard Maxwell and Toby Miller, *Greening the Media* (New York: Oxford University Press, 2012). Also see our articles in *Psychology Today*, *The Guardian*, *The New York Times*, *Huffington Post*, *Clarín*, available at http://www.tobymiller.org.

9 This also propels us towards George Marcus' notion of 'multi-sited ethnography' and Laura Nader's conception of 'studying up', in concert with Williams's work: George Marcus, 'Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography', *Annual Review of Anthropology* 24 (1995): 95–117; Laura Nader, 'Up the Anthropologist – Perspectives Gained from Studying Up', *Reinventing Anthropology*, ed. Dell H. Hymes (New York: Pantheon, 1972), 284–311.

10 'Te lo mereces, guaje', *El País*, 13 March 2013, http://deportes.elpais.com/deportes/2013/03/13/champions/1363133292_203000.html; Raymond Williams, *Culture and Society* (Hammondsworth: Penguin, 1966), 301–6.

11 Raymond Williams, *Television: Technology and Cultural Form* (New York: Schocken Books, 1975).

12 Williams, *Towards 2000*, 248–67.

13 Williams, *Towards 2000*, 256.

14 Raymond Williams, *Socialism and Ecology* (London: Socialist Environment & Resources Association, 1982), 14. Reprinted in Williams, *Resources of Hope*. Williams was arguably ahead of his time in forging some sort of basis for green socialism. It wasn't until his death in 1988 that social theorists and journals like *Capitalism Nature Socialism* represented a consistent ecological turn in the social sciences. See Michael Goldman and Rachel A. Schurman, 'Closing the "Great Divide": New Social Theory on Society and Nature', *Annual Review of Sociology* 26 (2000): 563–84.

15 Williams, *Resources of Hope*, 250.

16 Terry Flew and Stuart Cunningham, 'Creative Industries After the First Decade of Debate', *The Information Society* 26, no. 2 (2010): 113–23; Michael Keane, 'Understanding China: Navigating the Road Ahead', *Economia della Cultura* 1, no. 1 (2009): 19–34; George Ritzer and Nathan Jurgenson, 'Production, Consumption, Prosumption: The Nature of Capitalism in the Age of the Digital "Prosumer"', *Journal of Consumer Culture* 10, no. 1 (2010): 13–36, incarnate and summarise these positions.

17 John Hartley, *Digital Futures for Cultural and Media Studies* (Malden: Wiley-Blackwell, 2012), 182.

18 Australian Research Council Centre of Excellence for Creative Industries and Innovation, Queensland University of Technology, and Games Developers' Association of Australia, *Working in Australia's Digital Games Industry: CONSOLIDATION REPORT* (Brisbane: Australian Research Council Centre of Excellence for Creative Industries and Innovation, Queensland University of Technology, and Games Developers' Association of Australia, 2011).

19 PricewaterhouseCoopers LLP., *The UK Film, TV and Video Games Industries Today – Powering Ahead* (London: PwC, 2013), http://www.creativeengland.co.uk/wp-content/uploads/2013/01/Screen-Event-Website-version-RM1.pdf. PwC's powering ahead metaphor might also be applied to its attitude toward paying its corporate tax obligations,

http://www.guardian.co.uk/business/2013/apr/25/pricewaterhousecoopers-complex-structure-tax-properties.

20 Edward Castronova, 'On the Research Value of Large Games: Natural Experiments in Norrath and Camelot', *Games & Culture: A Journal of Interactive Media* 1, no. 2 (2006): 163–86.

21 Thomas Streeter, 'The Moment of *Wired*', *Critical Inquiry* 31, no. 4 (2005): 755–79, outlines the history of this discourse in *Wired* magazine. Sigfrid H. Steinberg, *Five Hundred Years of Printing* (Harmondsworth: Penguin, 1955), 260; Jean-Louis Missika, *La fin de la télévision* (Paris: Seuil, 2006); Javier P. De Silva, *La Televisión Ha Muerto: La Nueva Producción Audiovisual en la Era de Internet: La Tercera Revolución Industrial* (Barcelona: Editorial Gedisa, 2000). Wander here for more: http://www.mediapost.com/futureofmedia/.

22 Hartley, *Digital Futures*. Sometimes these changes and predictions are celebrated; at others, denounced. On the one hand, media studies buys into the individualist fantasy of reader, audience, consumer, or player autonomy – the libertarian intellectual's wet dream of music, movies, television and everything else converging under the sign of empowered fans. On the other, it buys into the corporate fantasy of control – the political economist's arid nightmare of music, movies, television, and everything else converging under the sign of empowered firms. Those antinomies shadow the fetish of innovation that informs much talk of media technology and consumerism while ignoring the environmental destruction and centralised power that underpin them. See Toby Miller, '"Step Away from the Croissant": Media Studies 3.0', in *The Media and Social Theory*, ed. David Hesmondhalgh and Jason Toynbee (London: Routledge, 2008), 213–30.

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27 George Orwell, 'As I Please', *Tribune*, 12 May 1944, http://telelib.com/authors/O/OrwellGeorge/essay/tribune/AsIPlease19440512.html.

28 'A Cyber-House Divided', 61

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