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Towards a modern history of Gondwanaland

Alison Bashford, Pratik Chakrabarti and Jarrod Hore

Abstract: Gondwanaland was a southern mega-continent that began to break up 180 million years ago. This article explores Gondwanaland's modern history, its unexpected political and cultural purchase since the 1880s. Originating with geological and palaeontological research in the Gond region of Central India, 'Gondwana' has become recognisable and useful, especially in settler colonial contexts. This prospectus sets out a program for a highly unusual 'transnational' project, involving scholars of India, Australia, Antarctica, southern Africa and South America. Unpredictably across the five continents of former Gondwanaland, the term itself signals depth of time and place across the spectrum of Indigenous land politics, coal-based extractive politics, and, paradoxically, nationalist environmental politics. All kinds of once-living Gondwanaland biota deliver us fossil fuels today – the 'gifts of Gondwana' some geologists call southern hemisphere coal, gas, petroleum – and so the modern history of Gondwanaland is also a substantive history of the Anthropocene.

Keywords: Gondwanaland, deep history, geopolitics, Aboriginality, environmental history, Anthropocene, coal.

Notes on the authors: see end of article.

Earth scientists know a great deal about the ancient geological history of the megacontinent Gondwanaland and its breakup commencing 180 million years ago, eventually creating present-day Africa, Australia, New Zealand, South America, South Asia and Antarctica. Most of the southern hemisphere of the earth was once connected, a pre-human global south. Fast-forward 180 million years BP to 1885, and we find that Gondwanaland has a modern history too. As historians, we join geologists – our fellow scholars-of-time – with thoughts on Gondwanaland’s history over the 19th, 20th and 21st centuries, scoping its significance across science, culture, literature and politics. Gondwanaland suggests a new antipodal history for the Anthropocene, but an unusual one: at once entirely pre-human and deeply human; at once indigenous, nationalist and neo-colonial; at once environmentalist and extractive.

Our modern history of Gondwanaland is inspired by a strange gap between national understandings of Gondwanaland in the present. The modern history of Gondwanaland starts in, and is named for, the Gond region of central India, the ancient and present homeland of the *adivasi* Gond people. As Chakrabarti (2019) has shown, the Austrian geologist Eduard Suess named Gondwanaland in 1885, building on Indian fossil evidence linked to other geological and palaeontological research that had accumulated across the southern hemisphere over the 19th century. It would be difficult to think of a more literally and locally grounded term for a hemispheric phenomenon. And yet many Australians consider the term Gondwana to have an origin local to them, invented as a vaguely Aboriginal one, and in ignorance, usually, of its central Indian history. ‘Gondwana’ has everyday currency and positive purchase in Australian cultural politics, something that, in turn, would surprise the members of the Gondwana Ganatranta Party (for example), which seeks a separate Indian state. How, why and with what effect does the ancient megacontinent Gondwanaland retain popular currency in multiple national and continental contexts? Extending beyond South Asia and Australasia, what if we bring Gondwanaland back together again, so to say, and consider its modern history in South Africa, South America and Antarctica too?

The deep past and the modern present are linked through Gondwanaland in a further way. On the one hand, Gondwanaland offers a pre-human time to the order of hundreds of millions of years, the deepest of environmental histories in temporal terms. On the other, its remnants fuel our present in every literal sense. All kinds of once-living biota deliver us fossil fuels today. Coal was formed, then discovered, then mined, becoming the great driver of industrialisation. Global modernity’s favoured energy source, coal and carbon define the Anthropocene epoch. Gondwanaland thus folds the deep past directly into the contemporary world offering an important substantive case for a new historiographical interest in deep time (e.g. Currie 2019; Shryock & Smail 2011), and reminding us of the origins of the phrase ‘deep time’ in

John McPhee's study of American geology (1981). This is the closest of material linkages between a pre-human past and the present. The place-time, 'Gondwanaland', is mythic too, and powerfully so, inviting cultural analysis.

Here we offer a prospectus, an initial exploration of a modern (or an Anthropocene-era) history of Gondwanaland. What cross-humanities and cross-science possibilities emerge when we take this particular part of the Earth's past out of geology and think about it not just as global environmental history, but also as modern cultural, political, colonial and postcolonial history? Gondwanaland even has a literary history. We begin with an explanation of how and where the ancient megacontinent Gondwanaland was discovered and named, and how knowledge of it fits within the history of geosciences and the human sciences: it is linked to geology, anthropology, and biogeography. We then discuss the geopolitics of Gondwanaland, beginning with *adivasi* of modern Gondwana in which deep past-in-place is part of the high politics of belonging, of land-claiming, and even land-rights. Yet depth of time and depth of place is characteristically useful for appropriative settler colonialism too. Little wonder that in some contexts 'Gondwana' is a high-value brand used by organisations and companies across the spectrum from environmental to extractive politics. Ironically for an ancient megacontinent, Gondwanaland has served as a much-used idea within nationalist cultures as well. Finally, we consider the significance of Gondwanaland in and for the Anthropocene, for its multiple temporalities, and for a new antipodal history of coal and global capitalism.

Discovering Gondwanaland: modern geologies of the South

The Swiss geologist Eduard Suess adopted and adapted the term Gondwanaland from the Gondwana region of India, observing similarities in the geological formations across the southern regions of the earth: they resembled those of Gondwana. The proposition was based on the discovery of certain plant fossils in the distant continents, which suggested that these were all once connected. The most significant of these were within the *Glossopteris* genus, a fossil fern found initially in the coalmines of Central India, South Africa and later in Australia, South America, and finally in Antarctica. Thus Gondwanaland became a global category through the geological imaginations of an ancient landmass that encompassed different parts of the southern hemisphere. The term Gondwanaland, however, provoked debates among earth scientists since this geological name was derived from an existing region in Central India. The debate invoked a rare sojourn by 20th-century geologists into the 18th- and 19th-century world of the East India Company 'discovery' of Gondwana, its Marathan then British rule, and the long history of the Gond tribes in India. They debated the

appropriateness of using the term ‘Gondwana’ – the ‘land of the Gonds’ – as a geological category for the Palaeozoic megacontinent of the southern hemisphere, which had little to do with the Gond tribes. Some geologists argued that the term Gondwana should be used instead for the ancient continent, as the ‘land’ in Gondwanaland was redundant since Gondwana already denoted a place. Eventually, consensus emerged among geologists that the two terms should signify two different entities. Gondwana should refer to the historical region of India while Gondwanaland to the ancient continent (Sorkhabi 1996).

Prior to Suess’s geological work, supposed similarities between southern fauna and peoples had for some time fuelled fanciful speculation regarding lost land bridges, ancient explorers and sunken continents (Ramaswamy 2004). But Suess’s Gondwanaland theories were more substantiated and became the precursor to the early 20th-century idea of ‘continental drift’ proposed primarily by Alfred Wegener and Alexander du Toit and suggesting that the southern continent had split into several different continents. This idea itself morphed into plate tectonics theory in the 1960s (Oreskes 1999; Frankel 2012; Greene 2015). On the research foundation of Gondwanaland, then, continental drift and plate tectonic theories developed successively over time, based originally on shared southern hemisphere exploration of the Earth’s stratigraphic archives and occasionally the people who lived among them.

While Gondwana drifted into the megacontinent of Gondwanaland, the specificities of the different ‘Gondwanas’, as discovered in the 19th century, were not entirely lost. An analysis of Gondwanaland research from botany, geology and physics, to geography, petrology and palaeontology provides rich information about the creative syntheses of sciences. All kinds of stratigraphers, mineralogists and palaeontologists undertook fieldwork in multiple former Gondwanaland sites, creating a considerable network of researchers. W.T. Blanford (1832–1905), for example, was a longstanding member of the Geological Survey of India, geologist of Indian coal-fields, student of *Glossopteris* subspecies in South Asia, who then travelled across Africa, developing a theory of the Indo-African continent as the genesis of the idea of the southern continent. E.J. Dunn (1844–1937) was a mining geologist, surveyor and anthropologist charting coal reserves in southern Australia, mineral deposits in the Cape Colony, and Gondwanan rocks in Victoria. Alexander du Toit (1868–1948), South African geologist and continental drift theorist, stratigrapher and mining consultant, mapped the Karoo region, and undertook fieldwork in Paraguay, India and Brazil, as well as visiting Australia in 1914 to study the Gondwana beds and the Great Artesian Basin (Chetty 2021). The imperial geologist, Lewis Leigh Fermor (1880–1954) was Director of the Geological Survey of India, and fieldworker on Gondwana coal in India, Kenya, South Africa and Southeast Asia. He spent his entire career in the first half of the 20th century exploring the mines of Indian Gondwana, in Kenya,

South Africa and Malaya, suggesting that the key difference between Gondwanaland and ‘non-Gondwanaland’ was the considerable mineral wealth that the former presented to the latter (Fermor 1944). And to take a final example, I.C. White (1848–1927) was involved with the expeditions leading up to the first Geological Survey of Brazil (1907) and in 1908 identified the Gondwanan *Glossopteris* flora within the Brazilian coal beds.

This network continued to confirm and extend knowledge of Gondwanaland through fossil evidence, and was key to the many geological surveys that established and developed Gondwana coal deposits. Linked to the distinguishable *Glossopteris* fossil leaf, southern coal deposits stretch right across former Gondwanaland – across the Global South – from the Paraná basin in Brazil, to the Bowen basin of Queensland, through the Karoo basin of South Africa. Searching for coal and petroleum drove the many mineralogical and geological surveys both before Gondwanaland’s ‘discovery’ in 1885 and in the light of it: in Brazil (1818, 1876, 1907), Colombia (1822, 1887, 1916), Argentina (1823, 1904), Peru (1827, 1876, 1924), India (1851), Tasmania (1859), Victoria (1861), North and South Queensland (1868), New South Wales (1875), the Western Cape in South Africa (1895), the Transvaal (1897), the Cape of Good Hope (1889). In Antarctica too, there were surveys to look for Gondwana coal; the Chilean Antarctic Expedition (1947) and the British Antarctic Survey (1962), for example. Such early economic geology continued and continues in commercial coal and petroleum exploration and extraction, through Cerro Corporation and ExxonMobil in South America, for example, and through the state-owned Brazilian oil giant Petrobras (Figueirôa 2019). Gondwanaland has thus featured in the modern history of minerals and in contemporary international mining extraction. In Australia today, one mineral exploration company is even named after the ancient megacontinent, Gondwana Resources Ltd.

Thinking through Gondwanaland suggests a new antipodean orientation for the history of modern geosciences, challenging the northern orientation of canonical histories of geology, mineralogy and palaeontology (e.g. Secord 2018; Oreskes 1999; Bowler 2000; Rudwick 2014). What does the history of modern Earth sciences look like when investigated by historians of Australasia, South Asia, southern Africa, Antarctica and South America? At the very least, ‘Gondwanaland’ may help us see a new geography for the colonial history of Earth sciences, opening up the history of geology through intersecting colonial histories, not just that of the British Empire and Anglophone world, but of the Iberian and Dutch imperial world as well. ‘Gondwanaland’ enables a multi-continental geography for histories of imperial geosciences. At the same time, it expands our knowledge of ‘whole Earth’ thinking, our understanding of how a hemispheric geography emerged. South African Gondwanaland theorist Alexander du Toit (1937), for example, understood his

southern geology to completely rewrite ‘the elaborate architecture of the Globe’ (see also Chetty 2021). Presumably, this altered conceptualisations of the northern hemisphere as well. And yet, we are hardly the first southern hemisphere scholars with northern lives and connections to be enticed by the fabrication of a northern/southern globe. ‘A Laurasian Looks at Gondwanaland’, Amherst-based uranium geologist George W. Bain titled his lecture to the Geological Society of South Africa (1964), referring to the ancient northern continent, Laurasia, equally real, equally mythic.

Chakrabarti (2019) has shown that from the beginning, Gondwana geological research was intricately linked both to theology and to early anthropology in India. In original usage the term and idea ‘Gondwana’ came to represent the ancient, primitive and prehistoric across South Asian geological and ethnographic records (Leviton & Aldrich 2012). While the intellectual and disciplinary transition from geology to anthropology – ‘from rocks to race’ – is well recognised (e.g. Griffiths 1996; Strange & Bashford 2008), one question is whether the geology-aboriginality connection that Chakrabarti tracks in India’s Central Provinces was duplicated in other sites of former Gondwanaland. In early Australian public science at least, Indigenous involvement seems to have been limited, however there are suggestions that more complicated interactions took place on the margins of official science, in zoology and botany, and in the field (Hoffenberg 2019; Olsen & Russell 2019). The key question remains: how were connections between land and people or between geology and Indigeneity constructed in 19th-century theories of this massive southern continent that turned into multiple continents, and over modern times into empires and nations, including what in some contexts came to be called First Nations?

We know that in general the connection between 19th-century geology, deep human history and Indigenous presence is a close one. And it is clear that Gondwanaland geological research became one repository for various colonial imaginations of pre-history and (different) aboriginalities. In South African history, Dubow (2004; 2014a) has been instrumental in analysing the convergence of 19th-century geology, palaeontology and anthropology in the Gondwanaland Karoo region, with a particular interest in human origins (that is to say, deep time in human history, but shallow time in Earth history). In South America, historians have shown how palaeontologists and geologists were jointly involved in ancient continent surveys (e.g. Figueirôa 2007), in the process developing new ideas of Antiquity, as in the Indian case, inventing, for example, an ‘Anthropozoic’ period of planetary history (Appelbaum 2013). A modern history of Gondwanaland will tell not just the story of geology’s connection to early ethnography and palaeo-anthropology, but also (and related) to settler-colonial geopolitics too.

There is an historical biogeography, or perhaps a political biogeography, to be analysed through Gondwanaland as well. In some contexts, the biogeography of

Gondwanaland has become strangely tied to separated national(ist) environmental histories. For many science communicators and historians of geological sciences, Gondwanaland offers a useful origin point, a narrative of ancient connection from which separations and distinctions created unique flora and fauna ecologies that now ‘belong’ to particular territorially and politically separated humans. It is a kind of nationalist environmental individuation. In the geological history of Australia, *Shaping a Nation*, Gondwanaland gave birth to the nation; the island-continent continent came ‘Out of Gondwana’ (Bradshaw *et al.* 2012): true enough. For Libby Robin (2007), the Australian continent-that-became-a-nation broke away, like a rebellious teen. But Gondwanaland turns out to be fickle, even adulterous, belonging to New Zealand too, for example in George Gibbs’ historical biogeography *Ghosts of Gondwana: The History of Life in New Zealand* (2006). Here, New Zealand is proudly now ‘unique on Earth’ in biogeographical terms: also true enough. Tim Flannery’s *The Future Eaters* (1994) has been influential, explaining the biogeographical and geological links between modern-day Australia, New Zealand and Antarctica. But like many Australian scholars Flannery only occasionally observes the larger links to South America, southern Africa or South Asia. This is an attenuated modern Gondwanaland. Environmental historian Tom Griffiths (2001), by contrast, has suggested that a ‘Gondwanan’ regional identity has served to destabilise long-held notions of Australian isolation, serving a kind of anti-nationalist agenda: in evolutionary and geological time Australia is neither European, nor Asian, nor even Australasian but ‘of’ the southern hemisphere. He has extended this observation to Antarctica too (2007). But where are the Gonds here? Nonetheless, it is a foundational insight to carry forward as we seek to both connect and compare the ancient and modern histories of Australasia, South Asia, South America, southern Africa and Antarctica.

The geopolitics of Gondwanaland: between indigenous, environmental and national histories

Unearthing a modern history of Gondwana offers the exciting conceptual prospect of folding a geologically ancient phenomenon not just into 19th-century conceptions of Earth’s deep history (Rudwick 2014), but also into more recent and even current landscape-based nationalisms. Gondwanaland has remained a dynamic category in the geopolitics of India and Australia especially. But this is a strange geopolitics in the present, a mobile idea that is sometimes continental and sometimes signals place-of-origin, a homeland, even a land right. On occasion, ‘Gondwanaland’ signifies a loosely environmental idea, while at other times it means precisely that. It can be nationalist

and subaltern in different places. It can be mythic at the same time as recalling the actual megacontinent of the deep geological past. And yet through all this malleability, the present-day geopolitics of ‘Gondwanaland’ rarely, if ever, signals a connection between people across the polities of what was once the megacontinent. Indeed for the most part, it is deployed locally in ignorance of the significance of Gondwanaland elsewhere. Paradoxically, then, we perceive sharply separate ‘national’ histories of Gondwanaland. The two cases we summarise here are firstly India’s aboriginal or *adivasi* significance of Gondwanaland; and secondly Australia’s imagined or invented Aboriginal reference on the one hand, and its environmental reference to, and use of Gondwanaland on the other.

‘Gondwanaland’ as an idea operates firstly in the culture and politics of Indigenous, *adivasi* and aboriginal origin and belonging – the geopolitics of homeland. In Central India, Gond activism is longstanding, one current expression being the Gondwana Homeland Party. And it is intergenerational. Gond leader Shatali Shedmake, for example, follows her parents, activists in the 1970s, extending their work into a new world of digital activism, currently leading the Humans of Gondwana facebook group. Yet at least since the 1980s, Gond *adivasi* have claimed their homeland with explicit and complex reference to ancient ‘Gondwanaland’ and even to the 19th-century geologists who ‘discovered’ it (Patankar 2018; Chakrabarti 2020: 186–8). Faced with sustained political and economic marginalisation, contemporary Gond leaders have adopted Gondwanaland as a key theme for their articulation of rights over land. Since the 1990s, the Gondwana movement, which began in response to the growing sense of loss of tribal land, became more politically active with demands for a separate Gondwana state for the Gonds (Poyam 2017). In this complex search for an *adivasi* homeland within the modern geopolitical nation state, Gond political leaders, artists and poets have turned to the deep past of Gondwanaland. As Mayuri Patankar has shown, in contemporary Gond oral, visual, and literary traditions, Suess and Wegener’s ideas of Gondwanaland feature as the original homeland of the Gonds (Patankar 2016).

Patankar (2018) explains how Gond popular literature and visual art from the mid 1980s ‘mobilises a geological map-making of a deep past toward a revivalist narrative of origin in which Gondwana is imagined as the birthplace of the Gondi people, their ancestral homeland, which later broke into five continents.’ A key source and inspiration, she explains, was a 1916 account of Gondwana, penned by Eyre Chatterton, the Bishop of Nagpur, and read by Gond activists in the 1980s. This book details the long and complex history of the Gonds, working mainly from Muslim chronicles, their four kingdoms, ruled in the 18th century within the Marathan Empire, and from 1818 the British Empire. There is no mention in *The Story of Gondwana* of late 19th-century geology or of ancient megacontinents. It is a local story of human history, not a

global story of Earth's history. And yet, as Patankar tells us (2018; 2020), the book mobilised new religious and political identities seventy years' later that folded the Gond's belonging to land, even authorised it via *Gondwanaland* and even via Sues. In this convoluted and inter-textual way, present-day Gond homeland politics redeploys 19th-century geology very directly.

The Australian geo-cultural meaning of *Gondwanaland* is entirely different, its relationship to the depth of time and place of Indigeneity less direct, and more twisted, to the extent that it is likely a construction of white Australia not Indigenous Australia at all. Most importantly, the term *Gondwana* is strongly recognised. It has powerful cultural purchase and most people hold some knowledge of the ancient megacontinent to which it refers, and of which the nation-continent of Australia was once a part. Almost no-one, however, is aware that it was in fact named for a Central Indian region and people: even Australians of Indian descent know of 'Australian' *Gondwanaland* but do not link it to Gond people, with whom they are also familiar enough. On the contrary, 'Gondwana' is commonly understood – misunderstood – to have an Aboriginal resonance, perhaps to be an Aboriginal term, or an instance of the quotidian wrangling of Aboriginal place-names, a constant across the continent. It is clear that this misconstrual – unwitting enough – holds for many non-Aboriginal and 'white' Australians. It is not yet clear, however, what 'Gondwanaland' means to highly differentiated Aboriginal people across the country. For some it may well mean nothing at all. For others, it seems to be a reference point of some significance: for the CEO of Indigenous-owned wine company *Gondwana Wines*, for example; or for Tasmanian Aboriginal man Gary Worete Deverell, author of *Gondwana Theology* (2018). Occasionally, then, Australian Aboriginal people themselves deploy the term *Gondwana* as their own, explicitly or implicitly.

What is clear is that the term is immensely popular across a wide spectrum of endeavours. It is one of Australia's more successful and recognisable 'brands'. If it were copyrightable, it would have been. In broader Australian cultural politics, and *ex post facto*, 'Gondwana' has come to mean 'ancient' and 'pure' and 'untouched', an idea vaguely connected to a pre-contact Indigenous semi-mythic, semi-real land-before-time, or possibly to an even purer land-before-time-and-people. It is – ironically – a strongly insular idea, referencing depth of time and place on the island-continent. The sense of ancient environmental and ancient Aboriginal belonging has been absorbed and owned by white Australia and turned into a version of 'good' nationalism. It always registers positively, for almost any branding use – 'deeply ancient, deeply Australian'. And so, there is a folk-rock band *Gondwanaland*, that notably combined the Aboriginal didgeridoo with western instruments; a land and environmental management company *Gondwana Consulting* that includes (Aboriginal) Cultural Heritage Management; *Gondwana Galleries*, Alice Springs, Central

Australia; and Gondwana the children's choir, perhaps the closest welding of purity and antiquity.

There is also a more authentic 'Gondwanaland', so to say, linked to land and environment, and thus also to ecology, biota and resources. The term 'Gondwana' is familiar within the domains of conservation, environmental protection, eco-tourism and resource extraction. On the one hand, the 'gifts of Gondwana' – coal, gas, petroleum – give rise to Gondwana Resources Ltd, the Melbourne-based mineral exploration company. On the other, Gondwana Link in Western Australia has since 2002 sought to restore and protect biota in the south-west of the continent. It works and reworks the landscape with local Aboriginal groups.

On the other side of Australia from Gondwana Link's inclusive project of landscape restoration, the identification of relic populations of Gondwanaland-derived flora has given rise to a different kind of geo-heritage and geo-conservation. The Gondwana Rainforests across New South Wales and Queensland are a UNESCO World Heritage Area now stretching across fifty-six protected reserves along the escarpment of the Great Dividing Range. The 1986 World Heritage listing recognised the remarkable living links to geological and biological Gondwanaland, lineages which, alongside the distribution of the reserves over five hundred kilometres, have drawn comparisons to the Galapagos Islands (IUCN 1993). Coal is not the only remnant of life 180 million years ago when the megacontinent started to break up. The *Araucaria* pine and southern beech of the remaining subtropical and temperate rainforests in Eastern Australia are Gondwanaland-derived and are linked to similar South American and New Zealand forests, one basis of the World Heritage status. Scientists have traced a faunal lineage too, in freshwater crustaceans and isolated communities of the velvet worm, which is descended from the Onychophora phylum, with origins in the Cambrian period 500 million years ago. The most significant cluster of reserves surrounds the erosion caldera of the Wollumbin-Mt Warning volcano in the Tweed Valley, which provided refuge for rainforest species as the Australian continent drifted north and became increasingly arid after its final break with Antarctica approximately 30 million years ago. Although World Heritage status was endorsed on the basis of a range of criteria that included scenic interest and endangered species protection, the technical evaluation carried out by the International Union for the Conservation of Nature accentuated the 'Gondwana element' as the truly distinctive and valuable argument for nomination (IUCN 1986). This distinctiveness was only recognised in name in 2007, when the 'Central Eastern Rainforest Reserves (Australia)' became the 'Gondwana Rainforests of Australia' as a result of an expansion of the protected areas (Valentine 2019: 80–93).

These rainforests initially came onto the World Heritage agenda in the 1980s as a threatened wilderness and were therefore freighted with all the cultural baggage that

accompanied such designations in a settler society. The key difference here was that Gondwanan biota, in particular, were at risk not just from the modern expansion of settler agricultural frontiers but also from a much older encroachment of dry sclerophyll forest, which evolved alongside Aboriginal fire ecologies to outcompete rainforests in nutrient-deficient soils. By the late-20th century these two factors had combined to replace all but 0.3 per cent of the rainforests that had once covered much of Australia, and the sub-tropical and temperate rainforests represented in the World Heritage Area were but a tiny fragment of this. For ecologists like Len Webb and Geoff Tracey (1981), this trajectory was profoundly threatening. As continental drift became accepted in the 1970s scientists began to revise their hypotheses about the origins and environmental history of the Australian rainforests, which had originally been understood to have spread quite recently from the Indo-Malayan rainforests in the north. Webb and Tracey argued instead that the sub-tropical and temperate rainforests of eastern Australia were an ‘archipelago of refugia’ from far more ‘primitive’ Gondwanan flora (Webb & Tracey 1981: 609, 661). Conservationists and politicians quickly seized on this insight and the rainforests became that potent symbol of nationhood: a vulnerable wilderness in need of protection (Sanderson 2008).

This new southern history of the remnant eastern rainforests also secured their position within an older settler colonial wilderness frame that typically failed to note the significance of any of these sites to the First Nations people to which they belonged (Hore 2019). State governments, which hold most responsibility for national parks and conservation in Australia, have since begun to remedy this foundational exclusion. The secret/sacred Mt Warning, for instance, is now well known by its Bundjalung name, Wollumbin, the cloud catcher, and New South Wales Parks and Wildlife discourages trekking to its summit. Despite recent moves to recognise and celebrate the Gondwana Rainforests as significant cultural and ceremonial landscapes (McIntyre-Tamwoy *et al.* 2010), the original criteria for World Heritage listing remain unchanged from 1986. As grounds for conservation and therefore for wider value, geology, biology, ecology and scenic beauty remain at the heart of what Gondwana (rarely ‘Gondwanaland’) means in this contemporary Australian case.

‘Gondwana’ seems to have an important purchase beyond India and Australia too. It evidently has a useful environmentalist and conservationist connotation for the owners of the Gondwana Lodge in the Karoo, South Africa, and in the Gondwana Game Reserve in the Western Cape. We note also that the South African political leader and philosopher Jan Smuts referred to Gondwana to stress the centrality of Africa in an original southern hemisphere (Dubow 2014b: 208). Elsewhere in ‘Gondwanaland’, Greenpeace named a vessel *Gondwana*, used in its 1980s Antarctic campaign. These are all appropriate enough. Antarctica itself was the heart of the ancient megacontinent. And what is known as the Karoo Supergroup is a large

stratigraphic region in southern Africa, formed originally from a rift valley across southern Gondwanaland, stretching from southern Africa to South America and eastern Antarctica.

Together, this signals an unknowing transnational modern deployment of ‘Gondwanaland’ across cultural, touristic, creative and resource industries and identities that is quite different to the kinds of transnationalism that have come under examination from historians of empire, colonialism and migration (Bayly *et al.* 2006). Linkage, movement and circulation certainly explain some of the purchase of the idea, but connection and exchange cannot account for the independence and sheer diversity of the groups that now assemble under the notion of this ancient mega-continent. There are Gondwanaland stakeholders of different kinds right across the southern hemisphere, occupying entirely different positions of power, from subaltern to high capitalist, from young to old, from colonised to stridently nationalist and neo-colonial. They are also – again ironically for a megacontinent – often entirely localised, unaware of similar, simultaneous mobilisations elsewhere on the former Gondwanaland. This is not to suggest that Gondwanaland the idea has equal purchase in all parts of its former self. It is not apparent yet what Gondwanaland means culturally in Chile or Peru – although there is a Chilean reggae band, Gondwana – including to Indigenous people across South America. But the Indian and Australian cases alone indicate intriguing but strangely separated ‘national’ histories of Gondwanaland.

Why is the idea of a megcontinent in deep time so familiar in contemporary popular consciousness? What political work does the imagined landscape of Gondwana perform in different contexts? The cultural claiming of Gondwanaland speaks of modern searching for depth over surface: deep history, deep time, deep earth. Some people claim and hold depth of time and depth of place with more authenticity and authority than others, of course, and in this sense perhaps have more of a ‘claim’ to Gondwanaland. Depth of time and depth of place is a familiar and powerful Indigenous ontology and epistemology across many contexts, part of a newly recognised global Indigenous history (Guha 1999; Head 2000; Pearce & Louis 2008; McGrath & Jebb 2015). For the Gond, time-on-land *is* belonging and thus ownership: right to that land is underscored precisely through the depth of time that Gondwanaland offers. The Gond claim ‘Gondwanaland’ because it was named for them, even if this is sometimes turned into a proposition that they were named for it. The Gond have even been called, in passing, the ‘First Nations’ of Gondwanaland.¹ And yet something of Gondwanaland’s power to signal ancient and deep is shared across other

¹‘Gondwanaland and Antipodal Histories’, AHRC project meeting 21 November 2020: Alison Bashford, Linda Andersson Burnett, Pratik Chakrabarti, Saul Dubow, Jarrod Hore, Bodhisattva Kar, Mayuri Patankar.

southern lands too, both within other Indigenous mindscapes and landscapes (Madan 2017; Clarke 2004; Mandala 2017), *and* within settler neo-colonialism-turned-nationalism.

The real and imagined landscape of Gondwanaland continues to inform all kinds of ‘southern’ political and cultural lives. In perceiving, and then researching that phenomenon, we obviously need to grapple with different knowledges: on the one hand with a geoscience that knows that the megacontinent Gondwanaland predated *Homo sapiens* by at least 200 million years; and on the other with multiple Indigenous epistemologies and ontologies based on always-presence and living landscapes that telescope and collapse and invert deep time and now (e.g. Donaldson 1996). In this temporality there is no necessary distinction between 180 million years ago when Gondwanaland broke up, 300,000 years ago when *Homo sapiens* emerged, the present and even the future. On the third hand, land, belonging and ownership is problematically the core business of settler colonialism, and so in other instances, that Gondwanaland signals deep time, deep earth and deep history is crude neo-colonialism. The twists and turns of modern Gondwanaland reveal a highly differentiated southern hemisphere, a diverse colonial history from classic British settler colonialism of southern Africa, Australia and New Zealand (in one version the original modern ‘antipodes’), to aboriginality in South Asia invaded by Mughals and then Britons, the latter with their expedient geological surveys, to Iberian colonialism in South America.

Standing apart is unpeopled Antarctica, that was nonetheless suddenly claimed, explored, lightly extracted and then ‘saved’ by mid-century scientific internationalism: the ‘greening of Antarctica’ (Antonello 2019).

In more and less problematic ways, the different political geologies of Gondwanaland traverse a spectrum of truth and myth. Gondwanaland landscapes and mindscapes have a cultural as well as a natural heritage that extends to literature; the phenomenon of Gondwana fiction, science-fiction and non-fiction from 1880 to the present. This begins at the entirely mythic end of our imaginations. ‘Gondwana’ is a fantastic place occupied by fantastic creatures: in Jules Verne’s, *La maison à vapeur* (1880), for example, with its ‘fierce tribes of the Gondwana’; in Craig Robertson’s Otway-set science fantasy, *Song of Gondwana* (1989); and more recently in the children’s author J.B. Rowley’s series, *Trapped in Gondwana* (2013). Predictably enough, Gondwana science fiction involves time travel, lost continents and journeys to the centre of the earth. In some ways, it is a ‘prehistoric fiction’ of the kind that Nicholas Ruddick (2009) has analysed. In *Trapped in Gondwana*, a crack in the present opens up, the central character falls through landing in the strange place-time ‘Gondwana’. It is primeval in this version, without people, but appropriately with ferns, as well as fearsome animals, mythic creatures and spirits of the underworld. Little wonder that Gondwanaland has inspired poets. For American Nathaniel Tarn

(2017), ‘Gondwana’ is ancient Antarctica, prompted by his journey in 2008.

Here, now, as ever, going out again
from *Finis Terre*, final of earth, or
“end of world” they call it here,
consumption left behind.

And Gond poetry today occasionally locates itself within transnational Indigenous poetry (Patankar, 2020). However – and here thinking through Gondwanaland forces another twist – this transnational link is with North American First Nations’ poets, not with southern hemisphere indigenous poets of former Gondwanaland.

Finally, there is a Gondwana history, geography and travel literature to analyse that spans the 20th century; Indrajit Singh, *The Gondwana and the Gonds* (1944), and Lahar Singh, *Gondwana: A Journey to the Centre of India* (2009), for example. Importantly, Eyre Chatterton, the Bishop of Nagpur published *The Story of Gondwana* in 1916, a book that made a remarkable and unlikely comeback in the 1980s, inspiring Gond revivalist pilgrimages, as we have seen (Patankar 2018; 2020). Gondwana has inspired literature across many genres. Belgian Yves Sente’s comic *The Gondwana Shrine*, translated also as *El santuario de Gondwana* (2008) is an African-Antarctic Blake and Mortimer adventure. Stuart Cooke’s ‘Echoes of Gondwana’ (2016), is an essay-musing on Chile-Australian connections, via the *Araucaria* pine or Monkey Puzzle tree, the Chilean national tree and native of the Araucanía region. It is the ‘only living ancestor’ of the *Glossopteris* fern, found in Australia as the Norfolk Island pine, Moreton Bay pine, bunya pine, and, slightly removed, the Wollemi pine. The Wollemi Pine or *Wollemia nobilis* was only discovered in living form in 1994, previously known only through its fossil records dating to 200 million years ago. It has now been cultivated, is easily purchasable in commercial nurseries (not infrequently as a living-but-easily-disposable Christmas tree) and is curated in the Gondwana Garden of the Royal Botanical Gardens Victoria, where we can ‘step back 200 million years’.

Gondwanaland in the Anthropocene

200 million years certainly counts as deep time. Gondwanaland offers a substantive case through which the many recent theoretical and methodological calls for ‘deep history’ can be substantively filled out. There have been multiple stimulants for historians’ current fascination with deep time, most of which predated the nomination of the Anthropocene, but the latter has most significance for scholarship on Gondwanaland. Both ‘Gondwanaland’ and ‘the Anthropocene’ hold ancient and recent, geological and human temporalities tightly together. There is a particular

geography, temporality and spatiality of knowledge here (Mayhew & Withers 2020) that offers a very real, very material instance of the Anthropocene's 'multiple regimes of historicity' (Kelly 2019: 4).

'Anthropocene' the term arrived in the mid 2000s, and arguably has had more impact in the humanities than in its geoscience discipline of origin. It nominates an earth systems phenomenon sometimes understood to be seventy years old (*c.* 1950 CE onwards), sometimes 220 years old (*c.* 1800 CE onwards). Itself a 'strata', the Anthropocene recalls and links to longstanding scholarship on the history of geosciences, which as a matter of course explored and explained geo-history, the chronology of non-human and human time that emerged through 18th- and 19th-century stratigraphy and palaeontology. Time literally expanded as the history of the Earth receded apace from the scriptural 6000 years. 'Bursting the limits of time', Martin Rudwick (2005) called this phenomenon and his masterful book.

Many historians' interests have missed this scale, however. Their interest in 'deep' time is scaled as *human* time (Costanza *et al.* 2007; Smail & Shryock 2011) based on the questioning of a conventional distinction between prehistory and history. This has certainly been challenging and rewarding enough. But far more challenging is the altogether vaster scale of non-human, pre-human time of planet Earth that is the everyday business of geologists, of evolutionary biologists of life-origins and of physical scientists of earth-origins. In environmental humanities and critical geography scholarship too, historians have been hard pressed to consider 'earth-without-humans' (e.g. Clark 2011; Cohen 2015). Unsurprisingly, it is environmental historians who are most likely to take on the phenomenon of earth-without-humans. 'Gondwanaland', broadly conceived, is one geo-historical site and time that presents itself for just this analysis.

For historians, 'the Anthropocene' sometimes stands for, or loosely suggests 'deep time' simply because it is a geological epoch. But the more salient point is that the Anthropocene is *recent*, whether dated from 1800 or from 1950. The Anthropocene is *modern* history (Bashford 2013; Jonsson 2012). In other words, the Anthropocene is, by another name, the everyday business of economic and environmental historians of industrialisation, and of local then global energy transitions that have transformed the modern world. In many ways, modern historians cede their own territory when they consider the Anthropocene as deep history not modern history. And yet when it comes to Gondwanaland, this confusion and slippage between deep and modern is both apt and useful. This is where Gondwanaland serves us well, and impeccably so; in short because of coal. Gondwanaland directly and materially connects the history of fossils to the history of fossil fuels. It thus connects the Palaeozoic and Mesozoic Eras, the Carboniferous and the Permian periods directly to the Anthropocene. Gondwanaland folds together the truly ancient Earth world – pre-human to the order

of hundreds of millions of years – to the modern world, the fossil-fuelled world post c. 1800, otherwise known as the Anthropocene.

Gondwanaland was and is about coal, and everything coal means to modernity, to wealth production and distribution, to energy transitions, and particularly to the modern geological south. Whole economies have been underwritten by the coal and petroleum formed in the time of Gondwanaland and its breakup. Indeed in certain southern contexts, geoscientists sometimes call coal, petroleum and gas the ‘gifts of Gondwana’ (e.g. Bradshaw *et al.* 2012). Yet while those ‘gifts’ traverse the southern continents, their extraction and transformation into wealth has been highly differentiated. ‘Economic geology’ of yester-year always was, and is, political geology (Bobbette & Donovan 2019).

Still nominated sometimes as ‘Gondwana coal’, southern hemisphere deposits make up about 25 per cent of all known reserves. British Petroleum (2019) has Australia, India, Brazil, and New Zealand holding 24.4 per cent of known deposits of anthracite/bituminous coal. It is ancient, formed more than 250 million years ago in the Carboniferous, the geological period itself named in 1822 for (northern hemisphere) coal (Conybeare & Phillips 1822; Beerling 2007). Tertiary coal is far younger, formed up to 60 million years ago. Upper Carboniferous coals of eastern Australia (Bowen, Sydney, Cooper, Galilee and satellite basins) and southern Africa (Karoo Basin) resemble one another in their general composition. In India what are still named Gondwana coalfields form around 98 per cent of India’s total coal reserves. In one geoscience journal, their importance was put this way: ‘As an indigenous energy source they are thus highly significant in terms of a strong industrial base for the third-world countries. They are also important in terms of the internationally traded coals and as such occupy a unique position in the world’s economy’ (Sanders & Brookes 1986).

250 million years ago in the Carboniferous, and today in the Anthropocene, Gondwana coal is one measure of distinction between the northern and southern hemispheres of planet Earth. There is a material difference between southern and northern hemisphere coals, deriving from the completely different environments in which they were formed. Petroleum geologists explain:

Southern Hemisphere coals share common characteristics that differ significantly from their Northern Hemisphere counterparts. Most Gondwana coal-forming environments were arctic or subarctic, and associated with glacial diamictite, proglacial braidplains, mixed-load fluvial systems, and lacustrine delta-plain facies. Available precipitation tended to be bound up as ice, and as a consequence peat marshes were dominated by stunted *Glossopteris* flora. Northern Hemisphere swamps developed under humid tropical conditions and were characterized by trees and dense undergrowth of *Lepidophyta* forests. As a result of differences in flora and hydrology,

Gondwana peats were more oxidized before burial and the coals have higher proportions of inertinite macerals than the inertinite-rich Northern Hemisphere coals (Hobday *et al.* 1993a; see also Hobday 1987).

The climates and environments of a ‘deep time south’ are not what we expect. This was an ancient earth made up of a tropical global north and an arctic global south. Time-travelling forward hundreds of millions of years, when late 19th-century geologists were uncovering, discovering and naming Gondwanaland, environments had completely reversed: they worked and thought in a tropical global south and a temperate north, climates which for generations of environmental determinists shaped the characters, drives and potential of peoples, nations and economies (Bashford 2000; Chakrabarti 2012).

That Gondwanaland coal beds were discovered and mined across the 19th-century global south challenges a (north) Atlantic-oriented history of fossil-fuelled industrialisation. For example, we might well consider Gondwana and its coal within a history of global capitalism and globalisation (e.g. Pomeranz 2000; Osterhammel 2014; Malm 2016), usefully qualifying the northern hemisphere focus that such ‘global’ perspectives often hold. They typically consider north-west European coal in the history of industrialisation, especially surface coal deposits in Britain. An antipodean focus on Gondwanaland helps us consider the place of southern sources of fossil energy in 19th- and 20th-century growth trends. These were highly differentiated within the geographic global south: Australia became rich from coal. India did not. And, as we have seen, geologists themselves thought of the whole economic world as Gondwanaland and Non-Gondwanaland, the former offering its mineral wealth to the latter (Fermor 1944). Such distinctions offer the possibility of a new economic history of a geographic global south, perhaps a new history of coal and global capitalism.

Conclusion

We are moving towards a modern history of Gondwanaland that invites and requires not just humanities-science conversation, but also strong collaborative analysis amongst humanities and social science disciplines, from political economy to geography to literature and history. Understanding Gondwanaland new and old is also an idiosyncratic ‘area studies’ venture, of a different order to the old international relations versions, requiring expertise from what are (only now) five different continents. Bringing scholars together from right across the former ancient continent, our project aims to explain and fill the strange gap between national understandings

of Gondwanaland in the past and present.² We hope to investigate a new political economy of a fossil-fuelled world that recognises the significance of Gondwana coal beds, challenging prevailing northern-oriented theses on global energy. And by straddling the entire southern hemisphere, Gondwanaland offers a broad foundation for critical contemplation of the earth's past, with and without humans. For historians, Gondwanaland challenges now-orthodox transnational methodologies, including transnational Indigenous histories. If historians debate the usefulness of 'transnational' in pre-nation-state eras, modern Gondwanaland confounds the prospect even more, casting backwards to very deep geological time, not just pre-national, but pre-human. At the same time, it explores the paradox that Gondwanaland has become part of modern cultural nationalism.

Our Gondwana/Land Project will contribute an empirically and conceptually rich case study to the current fascination with deep time, with relations between human and geological history. In the Anthropocene era, humanities scholarship is acutely cognizant of geological timescales, though often the penchant for 'deep history' is backed up by a shallow understanding of the history of geology. Most importantly, perhaps, the ancient history of the southern megacontinent as studied by geoscientists is transformed by recognition that it has a modern political and cultural history too.

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