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Mining and Urbanisation in Australia:
Back to the Future[1]

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Abstract

Mining occupies a special place in the history of Australia's urbanisation. Australia's highly urban and centralised population distribution has meant that, with few exceptions, the state coastal capitals have remained the most populous and consistent growth centres for over a century. In this history, mining, and to a lesser degree agriculture, are listed as offsetting forces to the pattern of urban hegemony, as providers of the initial impetus for the development of towns and cities in many rural and regional areas. Recently, the mining and resources sector have attracted closer scrutiny, in particular for the problems they raise within these same remote and regional areas, in particular the associated Fly-In-Fly-Out work practices.

With reference to impressions of mining from popular films, this paper discusses the history of the building and planning associated with mining, and the broader issues of the relationship between industry and urbanisation in Australia. How have industries such as mining affected Australia's pattern of urbanisation? Are they an economic lifeline to the otherwise neglected remote and regional areas? Does mining offset the otherwise clear pattern of urbanisation? Or, has it only accelerated the processes of economic contraction that were already well established in rural and remote areas of Australia? In discussing these issues, this paper attempts to look beyond the immediate achievements in architecture and planning, towards the greater impact of the mining industry on the wider trend of urbanisation in Australia.

Introduction

Mining operations in remote and regional areas of Australia have attracted a great deal of media and political of attention recently. Partly, this is the result of the ongoing inquiry into Fly-In Fly-Out (FIFO) and Drive-In Drive-Out (DIDO) work practices in the industry.[2] The inquiry was launched from the new Ministry for Regional Australia, itself a direct result of

the 2010 Federal election, memorably decided by a small group of independent MPs from regional seats. The inquiry is chaired by one such MP, Tony Windsor member for New England, who, at the time of writing, is conducting public hearings on FIFO around the country. Although keeping its doors open to the mining industry, the inquiry's mandate is clearly found in the increasing discontentment from groups both inside and outside the sector, particularly the social and economic implications for the affected communities in remote and regional areas.

The 2010 Federal election reopened an old complaint of Australian history, that of the split between city and country and the perceived imbalance between urban and rural Australia. Today it seems mining – even more so than agriculture – is at the frontline of this debate, as Judith Brett's excellent analysis 'Fair Share: Country and City in Australia' (2011) reported.[3] When the FIFO inquiry comes to an end, it will surely tell of the negative effects on the workforces involved, the problems this presents for the industry, and what these practices are doing to new and existing communities in and around mining. Mining has thrown a lifeline to remote and regional communities, many of whom have been caught in the long-term decline of agriculture as a provider of jobs and income. In case we had forgotten this, the mining companies have maintained a standing presence in commercial television to remind us of its important role, which have tended to overshadow the problems caused by mining in some regional towns; economic, social, and communal in nature. In many booming areas, the evidence of mining prosperity is escalating property prices and the erosion of community as the costs of mobilising an enormous flexible workforce eventually return home with interest.

As the media shadows Tony Windsor on his tours of mining towns, journalists report the stories of 'wild west' conditions, invoking the rowdy history of mining frontiers: prostitution, drugs and alcohol, violence, inflated prices for food and accommodation and the excesses unleashed by large amounts of disposable income.[4] Partly this image reminds one of HBO's hit series, *Deadwood* (2004-06) and the smoky rough charms of the gold rush towns. But the combination of hostile desert conditions, the tentative future of these places and the detached nature of modern mining operations is perhaps more reminiscent of the post-apocalyptic scenery of *Mad Max II: The Road Warrior* (1981), than nineteenth century gold rush towns.[5] *Mad Max II* depicts a tribe of new-age miners holed-up in an isolated compound surrounded by a harsh landscape and a society – or what is left of society – who are keen (to say the least) to get a share of the miners' wealth. But the miners' dream is not of prosaic resource wealth, but of a better, more civilized life in the 'promised land', far away – on the coast of Australia.

Minus the S&M leathermen outfits and the outback punks, *Mad Max II* provides an allegory of our contemporary situation. The film was shot near Silverton in outback N.S.W., which is now a virtual Ghost town of 60 inhabitants. For a few short years at the end of the nineteenth century, Silverton was a thriving mining town of some 3000 people, built overnight on the discovery of silver. Ironically, Silverton not only supplied the backdrop to many of Australia's famous outback films (*A Town like Alice*, 1981 and *The Adventures of Priscilla, Queen of the Desert*, 1993) but it was also the birth place of one of Australia's biggest mining conglomerates, founded on a nearby mining discovery – Broken Hill Propriety, or, BHP Billiton as it is now known.[6]

Mad Max II's miners thought paradise was located on Queensland's Sunshine Coast. Today it is more likely to be the Gold Coast, Brisbane, Cairns, Mackay or the suburbs of Perth, which the newly mobile FIFO and DIDO mining workforces have chosen as their domicile. At the heart of the issue is the pattern of Australia's urbanisation: the highly urbanised and centralised distribution of the country's population in coastal cities, and the highly remote and regional location of much of the nation's industry, including agriculture, tourism and, significantly, mining. This seeming paradox is recurrent in discussions of Australia's urbanisation and in the measures set to address the widening gap between country and city Australia. This paper discusses the history of the relationship between the mining industry's planning practices and the relationship between industry and urbanisation in Australia more generally. This shows that while the effects of mining are serious and problematic, they are not unprecedented or unusual, and they help to dispel some of the myths surrounding mining, planning and urbanisation in Australia, historically and in the present.

Mining and Planning

Throughout the twentieth century the trend for Australia's urban development and population distribution has been clear: metropolitan areas have continued to grow, while the populations of non-metropolitan and rural areas have steadily contracted. Figure 1, Bernard Salt's, *The Big Shift* (2001), documents this demographic change and aligns it with three stages of dominant Australian culture: the country, the city and, finally, the beach.[7] In his recent book *Urban Nation: Australia's Planning Heritage* (2010), Rob Freestone's account of planning history underscores this dynamic, with the major exception to this historical trend (apart from Canberra) found in the 'development of new mineral-based towns.'[8] Freestone is also careful not to overstate the role of mining and

resources in regional development, pointing to agriculture, irrigation towns, hydroelectricity projects and military towns as contributors to this counter-force. Freestone acknowledges that mining and resource operations 'profoundly impacted on the spread of settlement and the formation of towns in regional Australia',[9] but he agrees with John Toon's earlier assessment that the 'gold rushes and subsequent mining towns did not lead to any major innovations in town planning.'[10] Geoffrey Blainey's *The Rush that Never Ended: A History of Australian Mining*, first published in 1963 (now in its 5th revision), invokes an image of mining as the chief mode of urbanisation in the nineteenth century, writing: 'All Australia's inland cities of the nineteenth century were mining cities, and gold made Melbourne for half a century the largest coastal city in the land.'[11] The validity of these assessments depends on which examples are selected, from which period and what 'major innovations' in town planning might entail. To assessing these issues, a brief survey of the planning of mining towns provides useful context.
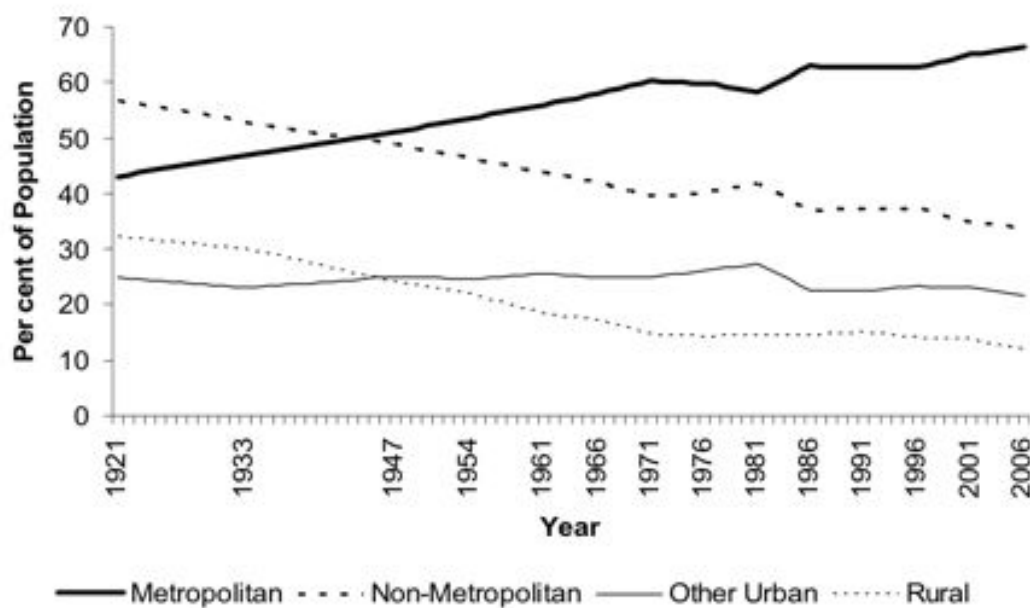

Figure 1. Australia's changing distribution of the population between urban and rural sectors, 1921-2006. (From, Graeme Hugo, ed., 'Demographic Change and Livability Panel Report,' (Canberra, 2010): 49.)

The discovery of gold and the ensuing rushes of the mid-nineteenth century saw small *ad hoc* towns springing up first across New South Wales and then Victoria. In the following 50 years, mining had not only spread across the whole expanse of the continent, but also diversified to include the search for other minerals and metals.[12] The pattern of mining in the twentieth century differed in scale and technique, becoming increasingly focussed on

fossil fuels and secondary processing and refinement techniques. As was the case of Silverton in the remote Barrier Ranges, mining sites were often pioneered by pastoralists.[13] After discoveries were made and these broadcast through the information channels, both formal and informal, many mining camps and towns emerged overnight and often disappeared just as quickly. Like Silverton, many have subsequently shrunk to a bare minimum, or have become ghost towns. Some towns like Charters Towers, Broken Hill and Gulgong have remained, though greatly reduced in size and splendour.[14] Others have continued to grow, due largely to their proximity to significant cities, such as Ballarat and Bendigo. Only a handful of these towns have continued to prosper through mining. They are located on or relatively near to active mining operations, including Mt. Isa, Roxby Downs, Moranbah, Kalgoorlie and the Western Australian towns in the Pilbarra.

Many early mining towns owe their location or placement of their principle streets and layout to a combination of local topography and mining claims.[15] In the context of mining towns, architecture often functions as an indicator of age and wealth; the fine ostentatious building of the gold towns of Bendigo and Ballarat are examples of this phenomenon. The turn of the century into the early twentieth century, saw the development and expansion of many of the major mining company towns, such as Kalgoorlie, Broken Hill and later Mt. Isa. As Toon pointed out, some nineteenth century towns may have acquired 'splendid' Victorian architecture of the day, but their planning, and that of the majority of mining towns which followed into the mid-twentieth century, remained firmly that of the grid.[16] The planned mining towns from the 1950s onwards, were vastly different to their predecessors, many of which were not designed to outlive the mines they served. These include: Batchelor (1952), at the Northern Territory's Rum Jungle uranium mine; Mary Kathleen (1955-87) at Queensland's only uranium mine; Weipa (1967-), developed to exploit bauxite in far north Queensland; and Shay Gap (1972-87), just one of a series of new townships developed in the Pilbarra from the 1970s onwards.

Philip Goad's excellent account of the design principles and development of Mary Kathleen and Weipa show that in contrast to initial attempts in Batchelor, both towns were successful attempts at in providing modernist, climatically adapted and community-minded settlements, as Goad wrote, 'They were the presentation of a totally designed environment.'[17] Goad and later Freestone also point to the reliance on the Garden City and Garden Suburb models, removed from their verdant origins in England, Germany and New Jersey, and transplanted into the Australian bush or desert.[18]

Today, its seems that intensive design and investment in the development of townships and mining accommodation that characterised Mary Kathleen or Weipa are scarce. Most mining settlements have taken on the temporary work camp scenario: relocatable 'Dongas', with services, catering and recreation largely dependent on the largesse of the operating companies, and the difficulties of attracting and retaining a stable workforce. Increasingly, these work camps are intended to house the FIFO and DIDO workforces, who live elsewhere, and use these settlements like hotels. The rising dominance of this model has engendered a secondary industry of camp operators. These companies are charged with developing, constructing and operating such camps, which are leased back to the mining companies for specified contract period.[19] Like hotels, these camps, whether operated by the mines or others, vary greatly; some camps offer a full complement of traditional resort-like services such as swimming pools, gyms and golf driving ranges, others offer much less.

With the exception of Goad's research on model mining towns in the post-war period, one could agree with Freestone and Toon in saying that the planning outcomes of Australian mining were not especially novel or innovative, particularly if compared with other nineteenth century industrial settlements in Britain, Germany or the USA.[20] But this view does not encompass the whole story. Arguably, the effects of mining cast a longer shadow than the mines themselves, the patterns of their street layouts, their services, or the progressiveness of their architecture. The mining industry is a major contributor to the complete national economy; arguably, it is to the dominant mode of urbanisation in Australia that one must look to find its resultant effect – the coastal cities. Freestone alludes to this phenomenon in speaking of Perth's 1960s 'office skyline' which had been fuelled by the demand for iron ore and 'a massive injection of international capital.'[21] Blainey is more explicit, writing:

> The isolation of new mining fields carved lines of transport. Cobb and Co.'s mail coaches started on the goldfields and the early grid of inland railways was shaped much by mining fields, while from an Australian leadfield the world's first flying doctor made his first flight. Gold finders created or spurred nearly every tropical port from Rockhampton to Port Hedland, and south of the tropic every big port was enriched by the flow of metals.
>
> […]
>
> Though Melbourne today is at the heart of the poorest metal region its skyscape is still etched by metals. Its tallest buildings belong to companies that won their first Australian fortunes from mines. The spire of its highest

cathedral honours a copper king, its international centre of medical research honours a gold magnate and its most celebrated hotel, Young and Jackson's, was built with New Zealand gold.[22]

Postal services, transportation lines, bridges, railways, ports, health care, skyscrapers, churches and hotels are the results of mining. If viewed within this wider context, mining and resource industries have clearly played a pioneering role in Australia's planning and urbanisation, but not always in the way their advocates and detractors have proposed. Missing from Blainey's long list of achievements are the places where the massive urban expansion of Australia's post-war era actually occurred – suburbia.

As Salt's famous study of demographic change has indicated, the growth in suburbia was not uniformly distributed across the country, but overwhelmingly located on or in coastal areas. Today, Perth, Brisbane, the Gold Coast and other notable coastal destinations, continue to expand, mostly outward, but also upward. If there is a new building type, which is the hallmark of mining activity around the country, it is the airport. The Gold Coast's 2011 bid for a greater share of the FIFO mining economy was launched in great part by the Gold Coast Airport CEO, Paul Donovan, who stated, 'There is no better place to live than the Gold Coast, so the opportunity for people to live here and work somewhere else makes sense.'[23] This concentration of mining generated wealth in the existing coastal urban centres is illustrated most clearly in the Queensland Resource Council's (QRC) quarterly report, which cited sharp rises from the 2009-10 to 2010-11 financial years in what they term 'Queensland resources companies, total spend (wages, goods and services and community contributions)'. Spending was up almost 20% in Brisbane to an enormous $12.5 Billion, and a hefty 43% on the Gold Coast to $203 Million. [24] As the peak lobby group for the sector, the QRC proposes, 'that this spending, coupled with the associated multiplier benefits, means the Queensland resources sector is currently accounting for one in every five dollars of Gross State Product and one in every eight jobs.'[25]

Industry and Theories of Australian Urbanisation
Major studies of world's future population distribution agree that by 2050 around 75% of the world's population will live in cities.[26] If this is true, it seems that the vast majority of Australians may have been living in the future for quite some time. According to the United Nations Population Fund, the urban share of the total population of 'more developed countries' is already at 75%; Australia's urban population is currently an astonishing 89% and rising.[27] From this future vantage point some problems are

becoming apparent, particularly in a context where many remote and regional areas continue to assert their economic importance.[28] These problems stem from a central feature of Australia's urbanisation: Australia is unique among developed western nations not only as one of the most urbanised *and* centralised countries, but one who owes a large part of its foreign export and GPD to rural and remote areas, industries such as agriculture, tourism and mining industries.[29]

There are many theories that attempt to explain how Australia's urbanisation has occurred and what the future might hold. I.H. Burnley's essay on post-war urbanisation in Australia points to the fact that traditional rural industries such as agriculture have contracted, due to mechanisation and declining prices for rural products such as wool or dairy, and that formerly rural populations have drifted to the cities.[30] He also attributes Australia's unusually high urbanisation and centralisation to two distinct post-war developments: the increase in post-war immigration to urban areas; and secondly, to changes in industry, in particular, the emergence of manufacturing and service industries, the bulk of which were also located in major cities.[31] A.J. Rose's *Patterns of Cities* (1967) puts forward a complex model based on a synthesis of the advantages gained by the first settlements (primacy theory) and the decreasing size of other urban centres (rank-size distribution).[32] Rose's interpretations of such theories asserted the importance of Australia's particular settlement pattern in terms of its chronological and political bases.

D.T. Rowland's 'Theories of Urbanization in Australia' gives an overview of the literature on the subject.[33] Within Rowland's discussion, historical theories, such as the pattern of colonisation and its effect on subsequent development, and the climatic and geographic conditions that affected the farming and settlement of Australia's arid and semi-arid interior, provide a practical and theoretical basis for the continuing consolidation of the urban centres. Rowland cites Blainey's ideas proposed in *The Tyranny of Distance*, first published in 1966, (three years after his history of Australian mining), as a major reinforcement to the pattern of urbanisation. Blainey's work explains how the isolation of the outback and the concentration of wealth and resources in the port cities were part of the same dynamic. In reference to this industrial geography Rowland wrote:

> Like the wool industry, gold mining stimulated population growth, largely
> because the Victorian and New South Wales gold deposits were within reach
> of ports and near areas that could meet demands for timber and food
> supplies. These circumstances made gold mining more profitable than it
> would have been if distance or environmental conditions had posed greater

difficulties. Although gold mining created concentrations of population in inland areas, the port cities gained added momentum from the trade and wealth generated by gold.[34]

Rowland's earlier study 'Patterns of Urbanization in Victoria' (1974) focussed on the reasons behind the size of Melbourne relative to other towns and cities in Victoria, citing the theory of the 'Malthusian Inversion' first developed by Eric Woolmington as an explanation for the continuing contraction of rural population and growth of urban centres.[35] In his 1977 essay, Rowland extends this theory to all Australia urban centres. The 'Malthusian Inversion' (perhaps a worthy film title in its own right), is of value in so far as it is one of the only explanations to deal explicitly with economic modelling of rural/urban dichotomies. The 'Malthusian Inversion' posits that in a situation of overproduction of agricultural products, the excess labour in rural areas drifts towards the cities and is sustained there by the surplus created by agricultural production.[36] Applying this logic to contemporary mining operations and their requirements for an ever more minimal and flexible workforce, this theory can help to explain the spin-off effects on metropolitan areas.[37] Unlike the original condition of agriculture, theoretically intended to supply a local market, modern mining is almost entirely devoted to international trade. Mining, even more so than agriculture, is a prime example of an economy of surplus, and Rowland's conclusions on its effects are of interest to our present situation:

> Mining towns are an exception to the general coastal concentration of settlement, for in recent times even the most inhospitable lands have not deterred companies from exploiting mineral deposits. Yet mining towns in remote areas can have little generative influence on the surrounding countryside, so they remain isolated settlements with restricted prospects for sustained population growth.[38]

Rowland concurred with John Kenneth Galbraith in pointing out that that within such economies, increased production is not always beneficial.[39] After a recent surge in asserting its agenda, the mining industry is being subjected to increasing scrutiny about the effects of its boom on the rest of Australia's economy – today Rowland and Galbraith are joined by a range of commentators lamenting mining's outcomes within a national context. With specific reference to mining, the Federal Treasury has identified the effects of a 'two-speed' or 'patchwork' economy.[40] Members of the Australia Institute have criticised the extent of mining's alleged 'spin-off' or 'multiplier' effects for remote and regional economies, traditionally one of the sector's major claims.[41] Paul Cleary's *Too*

Much Luck (2011) challenges the view put forward by the mining lobby that it is good for the country's interests.[42]

Conclusion

For all its benefits to those within the industry, for many outside the mining and resources sector the evidence of the boom is rapid urbanisation, the erosion of family and community, and complaints about housing affordability both in regional and urban areas. The effects of the boom and its radically mobile and flexible workforces mean that the price of a hamburger in Chinchilla and the cost of an apartment in Perth are now directly linked in ways that were previously much more abstract. But far from representing a divergence, these effects continue to underscore the patterns of urbanisation in Australia and the role mining has played since colonial times. As Rowland predicted in 1977:

> Theorists of urbanization in Australia have given little attention to the future course of urban development, but they have emphasized the inertia of the settlement pattern and the accumulation of advantages by the capital cities. Australia's history thus provides few omens of any significant challenge to metropolitan dominance.[43]

The recent report chaired by Graeme Hugo on 'Demographic Change and Liveability' (2010) proves that Rowland's predictions some 35 years ago were largely correct; it goes on to paint bleak future for mining in remote and regional areas:

> It is now been well understood (CSIRO Minerals Down Under) that the resources available in Australia that are relatively 'easy' to extract have reached their peak, and in future, it will become an increasingly more complex task (in terms of geography, climate and infrastructure) to extract resources from remote and inaccessible landscapes. The idea that communities will simply spring up around such remote mines has now been abandoned. The resource companies do not want to build such townships – preferring to make their FiFo (or, in some cases drive in/drive out) approaches more sophisticated. Airports are more likely to be built than communities. As a result the sector is not expected to 'grow' the population in remote Australia, but it is expected to put a great deal of pressure on such infrastructure as may be in such environments, but the population that serves the sector will continue to live on the eastern seaboard.[44]

As Hugo suggests, if there is a frontier of mining today it is probably more likely to be found in airline lounges, or at the beach. The easy mining is over, towns like Mary Kathleen and Weipa now seem fanciful, and the industry is already developing new techniques to deal with these conditions. An example of this new technological approach is currently being led by mining giant Rio Tinto:[45]

> With our Mine of the Future™ programme we are demonstrating improvements to mining processes that include unprecedented levels in automation, and remote operations that will revolutionise the way mining has been conducted for more than 100 years.[46]

Rio Tinto's 'Mine of the Future™', offers to make many mining employees into city-dwellers, proposing,

> some of the roles currently based at the mine site will […] be based in a city thousands of kilometres away. Employees will work like air traffic controllers. They will supervise the automated production drills, loaders and haul trucks from a remote operations centre in Perth.[47]

If *Mad Max II* and the plight of Silverton provide a partial allegory for the present situation of remote and regional mining operations in Australia,[48] James Cameron's *Avatar* (2009) and its intergalactic mine site on 'Pandora' might be analogous to the future of mining (although it remains to be seen which is imitating which). Much like Paul Verhoeven's earlier *Total Recall* (1990), in *Avatar* the mining workforce are forced to hibernate as they are shipped across space for a stint in a hostile environment run by a greedy mining corporation amid a context of social and indigenous unrest. Remote-controlled machinery and robots are used in the search for the valuable commodity 'unobtainium' and the company will stop at nothing to get the job done.

If Rio Tinto's Mine of the Future™ becomes a reality, we can expect that the 'spin-off' and 'multiplier' effects of mining in remote and regional areas will eventually reduce to zero. Australia's coastal cities will continue to grow, and with them the problems associated with their expansion and densification.

Endnotes

[1] Many thanks to Dr Chris Landorf for her help in locating some of the text used in this paper, and my colleagues at the University of Queensland for their useful insights: Prof. Peter Skinner, Prof. John Macarthur and Prof. Luis Feduchi.

[2] Committee on Regional Australia. Inquiry into Fly-in, Fly-out / Drive-in Drive-out Mining Operations. (Chaired by Tony Windsor MP), 24-8-2011.

[3] Judith Brett, "Fair Share: Country and City in Australia", *Quarterly Essay*, 42 (2011): 1-67.

[4] Simon Green, "Welcome to the Wild West", *Central Queensland News*, 23-3-2012; http://www.abc.net.au/news/2012-02-24/fifo-inquiry-hears-calls-for-tax-shake-up/3850212 (Accessed 31-3-2012); http://www.news.com.au/sex-drugs-and-dongas-a-fifo-life/story-e6frg2r3-1226082589413 (Accessed 31 March 2012); AAP, 'Fifo Workers Cause 'Havoc' for Pilbara,' *The West Australian*, 28-3-2012. ''It's a Minefield'' (CM 6-11-11), and John McCarthy, 'Mining Wealth is Delivering a Darker Lode in Boom Towns' *The Courier-Mail*, 3-4, March 2012, 46-7.

[5] There are numerous popular films that depict outback Australia and its connection with mining, among them: Ted Kotcheff's, "Wake in Fright'" 1971; Werner Herzog's 'Where the Green Ants Dream' 1984; and most recently, Kriv Stenders 'Red Dog' 2011.

[6] Geoffrey Blainey, *The Rush That Never Ended: A History of Australian Mining*, 5th (ed.) (Melbourne: Melbourne University Press, 2003), 138-41.

[7] Bernard Salt, *The Big Shift: Welcome to the Third Australian Culture: The Bernard Salt Report*, 2nd (ed.) (Melbourne: Hardie Grant Books, 2003).

[8] Robert Freestone, *Urban Nation: Australia's Planning Heritage*,(Melbourne: CSIRO Publishing, 2010), 130.

[9] Freestone, *Urban Nation*, 119.

[10] John Toon, "Preface", In Philip Cox and Wesley Stacey, (eds.), *Historic Towns of Australia*, (Melbourne: Landsdowne Press, 1973), 11-16,14-5.

[11] Blainey, *The Rush*, 2.

[12] For a sample of mining history literature see: Blainey, *The Rush*; and Derrick Stone, (ed.) *Gold Diggers and Diggings: A Photographic Study of Gold in Australia, 1854-1920* (Melbourne: Lansdowne, 1974).

[13] Geoffrey Blainey, *The Tyranny of Distance: How Distance Shaped Australia's History* (Melbourne: Sun Books, 1982), 137.

[14] Gulgong (NSW) presently has a population of just under 2000. In December 1872 it had a reported population of 20,000. Derrick Stone, (ed.) *Gold Diggers and Diggings: A Photographic Study of Gold in Australia, 1854-1920* (Melbourne: Lansdowne, 1974): 28. Charters Towers is around half its former size (currently 8,000 people). http://queenslandplaces.com.au/charters-towers (Accessed March 30, 2012).

[15] See the historic mining plan of Stawell (Vic). Stone, *Gold Diggers*, 107.

[16] Toon, *Historic Towns*, 15.

[17] Philip Goad, "Mary Kathleen and Weipa - Two Model Mining Towns for Post-War Australia", *Transition*, 49/50 (1996), 42.

[18] Goad, "Mary Kathleen and Weipa", 50. See also Freestone, *Urban Nation*, 130.

[19] For an example of such a private company, see 'The Mac' group based in Queensland. http://www.themac.com.au/.

[20] 'Generally, however, private enterprise mining and industrial settlements [in Australia] lacked any defining or truly creative social or spatial vision. It was different abroad. Planned industrial housing was a feature associated with the rise of the planning movement, as captured by showpieces like Port Sunlight and Bournville in England, Pullman and Lowell in the United States, and industrial garden communities like Margaretenhohe [sic] in Germany. These were ventures in welfare capitalism […] thinking slow to emerge in Australia […]' Freestone, *Urban Nation*, 119.

[21] Freestone, Urban Nation, 130.

[22] Blainey, *The Rush*, 1-2.

[23] These plans have subsequently stalled. See http://www.miningaustralia.com.au/news/gold-coast-fifo-hub-plan-stall (Accessed 23-5-12).

[24] Second and third places for total spending associated with mining were Mackay ($4.4 Billion) and Fitzroy ($4.2 Billion). Queensland Resources Council, *State of the Sector*,' vol. 3, 4 (Brisbane: Queensland Resources Council, 2011), 3.

[25] Queensland Resources Council, 'State of the Sector.'

[26] For a prominent example of this literature see, Richard Burdett, Deyan Sudjic, and London School of Economics and Political Science, *The Endless City: The Urban Age Project by the*

London School of Economics and Deutsche Bank's Alfred Herrhausen Society (London: Phaidon, 2007).

[27] United Nations Population Fund, *The State of World Population 2011*, (New York: United Nations Population Fund, 2011), 83, 116.

[28] See the Regional Australia Fact Sheet: http://www.run.edu.au/cb_pages/regional_australia.php accessed 31-3-2012.

[29] I.H. Burnley, "The Urbanization of the Australian Population 1947-1971", In I.H. Burnley, (ed.), *Urbanization in Australia: The Post-War Experience* (Cambridge: Cambridge University Press, 1974), 3.

[30] Burnley, "'The Urbanization of the Australian Population 1947-1971", 3-4.

[31] Burnley, "The Urbanization of the Australian Population 1947-1971", 9-12.

[32] A.J. Rose, *Patterns of Cities* (Melbourne: Thomas Nelson, 1968).

[33] D.T. Rowland, "Theories of Urbanization in Australia", *Geographical Review* 67, 2 (1977), 167-76.

[34] Rowland, "Theories of Urbanization in Australia", 168.

[35] D.T. Rowland, "Patterns of Urbanization in Victoria", In I.H. Burnley, (ed.), *Urbanization in Australia: The Post-War Experience* (Cambridge: Cambridge University Press, 1974), 63-79.

[36] Rowland, "Patterns of Urbanization in Victoria", 65.

[37] Rowland explains: 'Whereas Malthus believed there is a tendency for population to outgrow its food supply, Woolmington considered that there can arise a situation in which production capacity exceeds consumption. He argued that in developed countries overproduction is increasingly common because technology has lifted agricultural productivity, both per unit area and per unit labor, thereby causing redundancy of some rural labor and inefficient farms. This is the opposite of the Malthusian pattern, in which farming becomes more labor intensive but yields diminishing per capita returns from expanding agricultural lands. In a situation of Malthusian inversion, where agricultural employment is fairly static or declining, the excess rural population generally moves to urban centers which are sustained by the surplus agricultural production.' Rowland, "Theories of Urbanization", 171.

[38] Rowland, "Theories of Urbanization", 167.

[39] See, John Kenneth Galbraith, *The Affluent Society* (London: Hamilton, 1958); and *The New Industrial State*. 2nd (ed.) (Boston: Houghton-Mifflin, 1971).

[40] Phil Garton, "The Resources Boom and the Two-Speed Economy",In *Economic Roundup* (Federal Treasury, 2008).

[41] See interview with Richard Denniss, http://www.abc.net.au/radionational/programs/counterpoint/economic-models3a-uses-and-abuses/3821196 (Accessed 31-3-2012); and David Richardson and Richard Denniss, "Mining the Truth: The Rhetoric and Reality of the Commodities Boom,", *Institute Paper*, no. 7, (September 2011).

[42] Paul Cleary, *Too Much Luck: The Mining Boom and Australia's Future* (Melbourne: Black Inc., 2011).

[43] Rowland, "Theories of Urbanization", 176.

[44] Graeme Hugo, "Demographic Change and Liveability Panel Report. An Appendix to a Sustainable Population for Australia Issues Paper", (Ministry for Sustainability, Water, Population and Communities. Canberra, 2010), 120-21.

[45] Rio Tinto, like BHP Billiton owes part of its wealth to Broken Hill, as the former Zinc Corporation was eventually merged to form part of Rio Tinto. Blainey, *The Rush*, 276-77.

[46] Many thanks to Michael Hogg for passing on this news item. See also the feature article from Rio Tinto, "Mine of the Future", The Rio Tinto Group, http://www.riotinto.com/ourapproach/17203_mine_of_the_future.asp, Accessed 31-3-12.

[47] Rio Tinto, "Mine of the Future", Accessed 31-3-12.

[48] Mel Gibson returns as the reluctant hero in *Mad Max III: Beyond Thunderdome* (1985). Partly set in the Australian desert near Coober Pedy, the gasworks of 'Bartertown' are no longer reliant on fossil fuels, but renewable methane derived from pig shit. *Beyond Thunderdome* portrays a reversion to pre-historic or tribal conditions, but the lost children still dream of 'tomorrow-morrow land', which are the burnt-out office buildings of Sydney.