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James Beattie

Dragons Abroad: Chinese Migration and Environmental Change in Australasia¹

The Australasian Mining Boom



Figure 1: Simplified map of the migration route of southern Chinese goldminers to Australasia. (This does not include return, internal, or further overseas migration.) Mapmaker: Tracy Porter. Copyright: James Beattie.

From the mid-nineteenth century, millions of Chinese left their homeland for the Americas, Asia, Australasia, and Eurasia. Gold first attracted Chinese to North America. From there, many typically followed a path from California to eastern Australia, and then to southern New Zealand, and from there to other goldfields (figure 1). Between times, they commonly returned to their homes in southern China, encouraging other family members to join them. At their height, there were as many as 42,000 Chinese in Victoria by 1859,

¹ This article draws from my previously published work, listed in the Further Reading section at the end. I thank the support of a grant provided by the vice-chancellor of the University of Waikato, Professor Neil Quigley, which contributed towards the costs of research for this article. I also thank a conference grant from the University of Waikato Faculty of Arts and Social Sciences for enabling me to present this paper at *Foreign Bodies, Intimate Ecologies: Transformations in Environmental History*, Macquarie University, 10–13 February 2016. Finally, I thank the support and encouragement of Emily O’Gorman, Ruth Morgan, Alessandro Antonello, Christof Mauch, Robert B. Marks, Eugene N. Anderson, Duncan M. Campbell, James Ng, Ryan Tucker Jones, and the help of Sarah-Mae Berry, University of Waikato, Jamie Mackay, Ministry for Culture and Heritage, New Zealand, and Brenda Black, Rachel Carson Center, Munich.

25,000 in Queensland in the 1870s, and 5,000 in early 1880s New Zealand, most in the South Island province of Otago. Chinese made up 25 per cent of the main goldfields population in Australasia, but were a much greater proportion on some goldfields.

After coming to Australasia, Chinese moved into other industries and professions, such as market gardening and agricultural labouring. Chinese travelled as free, bonded, or indentured labourers, and although at a geographical distance from China, they operated as members of a single family unit, sending home remittances from overseas.

As goldminers, Chinese engaged in highly labour-intensive but low-capitalised ventures that especially suited the first phase of alluvial mining in Australasia. In this phase, gold could be obtained cheaply and relatively easily using simple tools. Later, some Chinese participated in hydraulic sluicing and even quartz mining, which required much greater capital than alluvial mining.

Chinese goldmining, like that undertaken by European miners, contributed to large-scale and local environmental changes, from waterway pollution and soil erosion, to ecosystem loss and geological change. In terms of water engineering, Chinese miners constructed dams to divert a river's flow so as to dewater an area they wanted to mine, or to harness water's power to cut away banks and hillocks. Control of water was also vital in the next phase of mining. To provide a sufficient head of water for hydraulic sluicing, Chinese miners often built sophisticated water-races—which they called “water dragons”—to bring water from tens of kilometres away. These interventions had palpable environmental impacts (figure 2).

Chinese sluicing and tunnelling in the Otago Goldfield of Round Hill, New Zealand, “sludged up” Ourawera Creek, causing it to disappear entirely. Silt, debris, and pollution from mining flowed into nearby Lake George/Uruwera and Whakapatu Bay. A contemporary regretted that 91-hectare Lake George, “a pretty piece of water...which skirts one end of it[,] its surface is generally dotted with black swan and wild duck...should be destroyed [by this means], but I am afraid it is inevitable.”²

2 Randall Rohe, “Mining’s Impact on the Land,” in *Green Versus Gold: Sources in Californian Environmental History*, ed. Carolyn Merchant (Washington, DC: Island Press, 1998), 130.



Figure 2: Historian James Ng identifies the individuals as (left to right): Sue/Sew Hoy, G. H. McNeur, and Shum Bun. "Sluicing on the gold-field at Spec Gully in Nas-eby," shows miners and Rev. George H. McNeur, McNeur Collection: Photographs of Chinese goldminers who worked in Otago and Southland goldfields, Alexander Turnbull Library, Wellington, New Zealand, Ref: 1/2-019157-F.

The Argyle Water-Race Co. at Waikaia (then known as Switzers), on the Nokomai Gold Field in Central Otago, sourced water from a creek 21 kilometres away, using pipes and a viaduct to cross very difficult terrain. The objective of the water-race was to provide a head of water sufficient to enable hydraulic sluicing. With a new water supply now available, a newspaper described 16 Chinese miners

. . . now at work washing away a whole hill. Once the water has been brought to the ground and a tail race provided for its escape downwards, the work is easy. A long canvas hose comes over the face. The water discharged from the nozzle quickly eats away deep incisions below. The top ground falls down, and the whole lot is speedily washed down the race, the gold being caught in the various places provided for its reception, just as we were watching the operations at one of the faces of the Argyle claim a fall came thundering down, containing probably a hundred cart load of stuff, but this is nothing to what can be done, seeing that the faces are as much as 75 feet deep, and that the ground is simply drift without much cohesion.³

³ *Mataura Ensign*, 24 January 1888, 4.

As illustrated above, hydraulic sluicing considerably accelerated environmental change by enabling “a few miners to accomplish in weeks what formerly required a hundred men months to do.”⁴

Technology Adaptation and Environmental Change

In Australasia, Chinese miners adapted technology from their homeland, as well as from Europe and North America. For example, in Victoria, Australia, Chinese miners utilised much longer sluicing boxes than Europeans to enable them to obtain very small grains of gold. Sometimes, in Victoria, they also used bamboo to convey water. Another popular device many Chinese in Australasia utilised for dewatering an area or for bringing in water for irrigation was the so-called Chinese or Californian Pump. This could be driven by water or by pedalling (a Chinese pump differed only from a Californian in being made entirely from wood⁵).

Chinese entrepreneur Choie Sew Hoy (c. 1836–1901) introduced and adapted Euro-American and Chinese technology to New Zealand. With his second son, he developed an innovative dredge that was subsequently modified and used elsewhere around the world.

The Sew Hoy dredge’s protruding central ladder of buckets and shallow draught enabled it to work riverbeds, beaches, and flats. This design ushered in a dredging boom in 1890s New Zealand that brought considerable environmental changes to river courses and sparked legal battles between mining and agricultural interests. Like the hydraulic sluice, this technological innovation—effectively a mobile gold-processing plant—dramatically accelerated the efficiency and the surface area of land that could be worked, with corresponding environmental impacts.

A contemporary in 1906 criticised the “gnawing scoop of the dredge-bucket, and the vicious volleys of the hydraulic nozzle” for converting many “splendid patches of fruitful land. . .into utterly irreclaimable wildernesses.” The author likened a dredge’s operation on the Island Block—located between Lawrence and Roxburgh along the Clutha River, Otago—to “hungry dragons voraciously biting off huge chunks of this superb land.”

4 *Otago Witness*, 7 October 1882, 11.

5 R. Brough Smith, *The Gold Fields and Mineral Districts of Victoria* (London: Trübner and Co., 1869), 607.

Dredging removed 726,000 cubic yards of soil per year, effectively destroying the equivalent of “£36,000 worth of soil” annually “. . . in order to get £5,000 worth of gold.”⁶

Although relatively short-lived, the mining booms in Victoria and Otago have left a lasting legacy of environmental disturbance, altered landscapes, and hydrological change. Indeed, a recent survey by Australian archaeologists Susan Lawrence and Peter Davies shows that in Victoria, mining—both by Europeans and Chinese—transformed the very hydrology of that state.⁷

Post-mining Environmental Introductions and Impacts

Once the alluvial mining boom ended and they could no longer easily obtain gold, many Chinese moved into other industries, to other goldfields, or returned home. One of the most important of the industries adopted by Chinese immigrants in Australasia was market gardening.

On the goldfields, the fresh produce provided to miners by Chinese market gardeners probably contributed to staving off the worst effects of poor diets, such as scurvy. Later, Chinese market gardeners provided urban Australasia with much of its fresh produce in the nineteenth century (figure 3).



Figure 3: Chinese market gardens in Arrowtown, Otago, New Zealand. Chinese market gardeners came to dominate the industry in late-nineteenth-century New Zealand, as they also did in Australasia, and to a lesser extent California. Hocken Library/Uare Taoko o Hākena, University of Otago, Dunedin, New Zealand, P2002-053 (scan number S12-279a).

A European observer visiting a market garden in Gympie, Queensland, in 1868 recorded a Chinese market garden with

⁶ *Tuapeka Times*, 8 September 1906, 3.

⁷ See the contribution by Susan Lawrence and Peter Davies in this volume, 71-9.

... splendid beds of cabbage, broccoli [sic], turnips, Chinese turnips—a white cuneiform root, softer and juicier than the common white turnip, with a peculiar flavour, but not at all unpalatable—and almost every vegetable to be found in the colony, with cucumbers, English and American pumpkins, and several varieties of melons.⁸

Nor did Chinese grow only vegetables. Central Otago market gardener and orchardist Lye Bow relied upon two water-races to irrigate 1,200 apple trees in 1894. Nine years later, in addition to apple trees, he was growing 1,000 apricot trees, as well as 200 peach and 200 greengage plum trees.

Chinese also raised seeds and bulbs familiar to them from their homeland. Indeed, Chinese likely introduced Bok Choy, or Pak Choi, as well as bean sprouts and several other vegetables into Australasia. Chinese market gardeners were also probably the first to introduce several ornamentals from China into New Zealand, such as that recorded as “Chinese Narcissus” possibly *Narcissus tazetta var. chinensis* (Chinese Sacred Lily or daffodil).

Figure 4:
As indentured or free labour, many Chinese worked throughout the Pacific, including in the phosphate industry. Phosphates were vital to the development of Australasia’s dairy and sheep industry. “Railway wagons being loaded with phosphate deposits, Makatea Island, French Polynesia.” Creator unknown: Albums of photographs, chiefly relating to phosphate mining at Makatea Island, French Polynesia, Alexander Turnbull Library, Wellington, New Zealand, PA1-o-322-08.



In many other ways, too, Chinese workers contributed to the “opening up” of new resources in Australasia. Chinese plantation workers in northern Queensland contributed to regional settlement—they transformed environments through deforestation, while plantation monocultures simplified ecologies. Chinese merchants also pioneered particular in-

8 E. Thorne, *The Queen of the Colonies; or, Queensland as I Knew It* (London: Sampson Low, Marston, Searle, & Rivington, 1876), 117. I thank Dr. Jodi Frawley for bringing this book to my attention.

dustries, such as Queensland's banana trade. And Chinese navvies worked in many difficult places on a variety of back-breaking projects. They helped to build Australasia's railway network. They provided the labour force to mine phosphates on Banaba (Ocean) Island and Nauru, as well as other Pacific islands (figure 4). Banaba and Nauru provided phosphates vital to the Australasian, as well as British, agricultural industries, and were first incorporated into the Anglo-Australasian sphere by the Pacific Phosphate Company.⁹ Some Chinese also specialised in other industries, such as fishing in the colony of Victoria, tobacco

growing (for a time) in Central Otago, and, in the case of Chew Chong (c. 1830–1920), dairy farming in Taranaki Province, New Zealand (figures 5 and 6).



Figure 5: Many Chinese made their names as merchants. Chew Chong (c. 1830–1920) earned his money exporting dried fungus (*Auricularia polytricha*) from New Zealand to China. He then pioneered the dairy industry in Taranaki Province, New Zealand. William Andrews Collis, Chew Chong's General Store, New Plymouth (c. 1875), collection of Puke Ariki, New Plymouth, New Zealand, PHO2002-406.

Figure 6: An illustration of the impacts of converting forest to dairy farms. Unknown photographer, "Dairy Farm on Auroa Road, South Taranaki (1890)," Collection of Puke Ariki, New Plymouth, New Zealand, PHO2008-267.

Environmental Attitudes

Another intriguing dimension of Chinese environmental history in Australasia is Chinese environmental views and belief systems. Southern Chinese usually found Australasian environments very different from their subtropical home. Evidence suggests that some situated their settlements and dwellings, and framed environments and environmental change in Australasia, around principles of *fengshui* (風水, literally "wind and water").

⁹ After World War I, Nauru became a mandated territory, with Australia as trustee, and Britain and New Zealand as the other co-trustees. Gregory T. Cushman, *Guano and the Opening of the Pacific World: A Global Ecological History* (Cambridge: Cambridge University Press, 2013).

This was a complex yet highly practical system and set of practices designed for managing human-nature relations. Developed over thousands of years in China, *fengshui* recognised that *qi* (energy) flowed through all things, and that efficaciously situated buildings and graves could maximise its effects for individuals and groups.

Chinese recognised that some places in Australasia had good *fengshui*. Chinese commented that Riverton, Otago, presented a very favourable situation, since the town was nestled at a convergence of hills overlooking water. Others used the ideas of *fengshui* to justify moving. One Chinese labourer explained that he preferred to live in Cromwell, Otago, where “the great river [Clutha] is at my door with high hills beyond and around,” than to work in Dunedin with “only the backyard fence to look at.” He explained that he would rather be living in Cromwell “without the £30.”¹⁰

Death rituals and ancestor worship brought Australasian landscapes into China’s cosmological space, too; they connected the deceased’s spirit with others of the lineage just as they brought together the living Chinese communities in Australasia and Canton. For example, miners at Mareburn, Otago, believed that the spirit of a fellow miner had “gone home.” As another miner explained, his spirit travelled to China “quicker than the steamer—quick as thought.”¹¹ Miners also described the ghosts of friends or relatives from China appearing to them in New Zealand.

Conclusion

As miners and merchants, as gardeners, navvies, and farmers, Chinese migrants to nineteenth-century Australasia did much to change environments, while at the same time introducing new ways of viewing nature.

A focus on Chinese environmental activities in Australasia helps to correct an ethnocentric bias evident in Australasian environmental historiography, which has largely ignored this group and instead has examined the activities of Europeans and, to a lesser extent, indigenous peoples and environmental change. It also highlights the appropriateness of a translocal rather than a transnational approach in considering this topic,

10 Alexander Don, *Christian Outlook*, May 1908, 13.

11 Alexander Don, *Nineteenth Inland Otago Tour, 1905-1906* (Dunedin: Otago Daily Times, 1906), 45.

since nineteenth-century connections operated at multiple local levels, rather than at a national level or involving formal governmental interactions. Finally, this article underlines the need for environmental historians of China to think beyond the confines of the modern nation state of China in writing history.

Further Reading

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