

Abstract

This article examines how the prominent mapmaker, engraver and publisher John Arrowsmith (1790—1873) functioned as a geographical authority in the mid nineteenth-century British Empire. Through previously unexamined archival material I analyse Arrowsmith's close relationship with the Colonial Office and consider his semi-official position as a mapmaker to the British Empire. I analyse Arrowsmith's cartographic credibility and the power of maps through a case study focusing on Australind, a private colonization venture targeted at Western Australia in 1840. I analyse the 'social life' of a map Arrowsmith supplied for the Western Australian Company largely based on explorer George Grey's information by examining its contested epistemological status in the Australian colonies. Using literature on trust, authority and the social histories of maps, this article highlights the mutability and spatial contingency of the power of maps and their makers in imperial and colonial knowledge-making. By studying the map's shifting position in the processes of truth-making in the metropolis and the Australian colonies I contribute to growing literature on the processual nature of maps. Importantly, I demonstrate how maps like Arrowsmith's not only contributed to the popular imagination of empire at home but were documents of indirect agency as the British invaded and explored different parts of the world.

Keywords: settler colonialism; Western Australia; trust; credibility; cartography

Authorizing geographical knowledge: John Arrowsmith, mapmaking and the mid nineteenth-century British Empire

In December 1840 an advertisement for a map depicting the western coast of Australia appeared in *The Times* in London. The short announcement, printed between adverts for piano quadrilles and an ecclesiastical chart, claimed to be the only map extant depicting the position of the new British settlement of Australind and Port Grey, a recently discovered, promising harbour on the other side of the globe. The advert stated that for six shillings (or nine if one wanted the map in a case) anyone interested, perhaps a potential emigrant or an investor, could acquire a copy.¹ The map, with an inset chart (see Figure 1), was the work of renowned mapmaker John Arrowsmith, who had only the previous year acquired the sole ownership of the Arrowsmith family firm. It was one of hundreds of representations of British colonial spaces that the Arrowsmith business published from its premises at 10 Soho Square, London

In many ways, however, the map was extraordinary. It had been compiled and printed with haste to document explorer George Grey's recent discoveries. The map and the inset chart depicted Grey's passage through an area he called 'Victoria' in Western Australia, on Yamaji land, during a desperate march to Perth with the help of his guide, a Noongar man whom Grey called Kaiber. Its publication was rushed because the map's purpose was to visualize the Western Australian Company's (WAC) latest settlement plans, which had been drastically altered after Grey's return to Britain in late September 1840. The WAC had originally acquired a land grant 150 kilometres south of Perth to execute a systematic colonization plan according to the principles of Edward Gibbon Wakefield, who was one of

¹ *The Times*, 2 December 1840.

the company's directors. The Western Australian colonial government's threat to resume control over the land in question and Grey's report of its poor quality had forced the WAC to reconsider, and they had chosen to switch the site to Port Grey, now shown in Arrowsmith's map. Doing so, however, meant altering the plan that land purchasers had already invested their money in. Almost all land released for sale from the original site at Port Leschenault (approximately 51,000 acres) had been sold by the beginning of October. Announcing that the investors would not get the land they had bought generated mistrust in the company more generally. For the WAC the map functioned to reassure the metropolitan investors about the credibility of the altered plans. At the moment of its publication on the 21st November the company was dealing with a landslide of cancelled purchases that they were trying to mitigate.²

The plans to settle Port Grey, which had caused the rapid execution of the map, did not materialize. Instead, the WAC's commissioner, Marshall Waller Clifton, learned after arriving in Western Australia that the original site turned out to be available after all. The settlement was formed there, only to be abandoned by the WAC a few years later. Since nothing came of Port Grey at the time, this is where studies on the WAC and Grey commonly end.³ However, for Arrowsmith's map, which Clifton took with him to Australia, this episode was just the first chapter in what can be called its 'social life'.⁴ When put to use in Western Australia, the information the map communicated was instantly challenged. Its agency in attracting settlers and reassuring investors to participate in a new chapter in the colony's

² P. Barnes, J.M.R. Cameron, H.A Willis, I. Berryman and A. Gill (Eds), *The Australind Journals of Marshall Waller Clifton 1840—1861*, Carlisle, 2010, xiv.

³ J. Rutherford, *Sir George Grey, K.C.B., 1812—1898: A Study in Colonial Government*, London, 1961, 18; A. Woollacott, *Settler Society in the Australian Colonies: Self-Government and Imperial Culture*, Oxford, 2015; J.M.R. Cameron and P. Barnes, (Eds), *The Australind Letters of Marshall Waller Clifton*, Carlisle, 2017.

⁴ A. Appadurai (Ed), *The Social Life of Things: Commodities in Cultural Perspective*, Cambridge, 1986; M. Brückner, *The Social Life of Maps in America, 1750—1860*, Chapel Hill, 2017.

settlement history troubled the relationships between colony and metropole and settler and exploratory knowledge.

COLONIAL MAPPINGS IN ACTION

In what follows I argue that the history of the WAC's failed settlement scheme should not be approached merely as a narrative of an experiment gone wrong. Instead, it offers an opportunity for a geographical analysis of the epistemological and ontological work that maps did during a period of transition in the British Empire, when capital was flowing from the plantation colonies to the settler colonies following the abolition of slavery. Even though Arrowsmith's position in the metropolitan map business has been long acknowledged, social histories of his work are rare.⁵ As a prolific imperial mapmaker between the 1830s and the 1850s, the company deserves further scrutiny to better understand the roles its maps played as social artefacts with global impacts. Arrowsmith maps not only contributed to the popular imagination of empire at home but were documents of indirect agency as the British invaded and explored different parts of the world.

Visual culture, as Janda Gooding summarizes, 'played a key role in the construction of identity and authority structures required to manage newly won territory'. Mapmakers, surveyors and explorers were essential in producing 'spatial representations of the very stuff being contested – land'.⁶ Maps and mapmaking were an intrinsic part of the imperial project,

⁵ C. Verner, The Arrowsmith firm and the cartography of Canada, *The Canadian Cartographer* 8 (1971) 1—7; F. Herbert, The "London Atlas of Universal Geography" from John Arrowsmith to Edward Stanford: origin, development and dissolution of a British world atlas from the 1830s to the 1930s, *Imago Mundi* 41 (1989) 98–123; E. Liebenberg, The Arrowsmith and S.D.U.K. maps of South Africa of 1834 — source material and cartographic significance, *Proceedings of the International Conference of the International Cartographic Association (La Coruña, Spain, July 2005)*, 2005; E. Liebenberg, Shifting boundaries in Southern Africa: John Arrowsmith's map of the Cape of Good Hope of 1834, *Symposium on 'Shifting boundaries: cartography in the 19th and 20th centuries'*, 2008; J. Skurnik, *Making Geographies: The Circulation of British Geographical Knowledge of Australia, 1829—1863*, *Annales Universitatis Turkuensis* B444, Turku, chapter 3.

⁶ J. Gooding, The politics of panorama: Robert Dale and King George Sound, in: N. Etherington (Ed), *Mapping Colonial Conquest: Australia and South Africa*, Crawley, 2007, 66. For studies examining mapping and surveying in imperial/colonial contexts, see M.H. Edney, *Mapping an Empire: The Geographical Construction of British India, 1765—1843*, Chicago, 1997; D.G. Burnett, *Masters of All They Surveyed: Exploration,*

and Matthew Edney goes as far as to argue that the ‘Empire’ is a ‘cartographic construction; modern cartography is the construction of modern imperialism’.⁷ Uncertainty regarding the resources of the areas fringing new colonies generated imperatives for more precise cartographic products that helped the British conceptualise the expansion of overseas settlements. Imperial maps also assisted those in the colonies to envisage the other components of the empire to which they belonged. As such, they were inscriptive technologies. As Edney puts it, maps like these were ‘material worldviews’, which ‘allowed their readers to view, or to imagine they viewed, the world’.⁸ However, these maps did not constitute a singular view of the empire, nor of the world. Instead, for different readers the map could enclose diverse meanings and appear as more or less credible.

An enquiry into how the empire was known via maps must be concerned with questions of trust and the social and cultural practices that position maps as objects between the world and our knowledge of it. Trust, as Charles Withers has recently argued, should be understood as ‘intrinsically geographical’.⁹ John Arrowsmith was a male stay-at-home-geographer, who never visited the overseas colonies he depicted or personally conversed with the indigenous inhabitants upon whom explorers like Grey relied.¹⁰ Arrowsmith’s work was underpinned by the ‘politics of knowledge transfer’ that existed in the nineteenth-century British Empire, between the colonies and the metropolis.¹¹ In the hands of its metropolitan

Geography, and a British El Dorado, Chicago, 2000; I.J. Barrow, *Making History, Drawing Territory: British Mapping in India, c. 1756—1905*, New Delhi, 2003.

⁷ M.H. Edney, The irony of imperial mapping, in: J.R. Akerman (Ed), *The Imperial Map: Cartography and the Mastery of Empire*, Chicago, 2009, 45.

⁸ M.H. Edney, Bringing India to hand. Mapping an empire, denying space, in: F. Nussbaum (Ed), *The Global Eighteenth Century*, Baltimore, 2003, 71.

⁹ C.W.J. Withers, Trust – in geography, *Progress in Human Geography* 42 (2018) 490.

¹⁰ The literature on ‘armchair geography’ is vast, in general see L. Dritsas, Expeditionary science: conflicts of method in mid-nineteenth-century geographical discovery, in: D.N. Livingstone and C.W.J. Withers (Eds), *Geographies of Nineteenth-Century Science*, Chicago, 2011, 255—278; D. Lambert, *Mastering the Niger: James MacQueen’s African Geography and the Struggle over Atlantic Slavery*, Chicago, 2013. Arrowsmith is rarely discussed in this context, but see R.C. Bridges, Nineteenth-century East African travel accounts with an appendix on ‘armchair geographers’ and cartography, *Paideuma. Mitteilungen Zur Kulturkunde* 33 (1987) 193.

¹¹ F. Driver, Exploration as knowledge transfer: exhibiting hidden histories, in: H. Jöns, P. Meusburger and M. Heffernan (Eds), *Mobilities of Knowledge*, Cham, 2017, 85.

user a map of Port Grey represented a spatial technology that was not quite ‘a view from nowhere’ but a view by trusted witnesses on the spot mediated by a skilled map compiler. As such it engendered trust at a distance.¹²

To dismantle the spatially nuanced credibility of the maps, it is useful to approach them as examples of what Bruno Latour calls ‘circulating references’. Arrowsmith’s compilations mediated what different observers brought back from the field and what was chosen to be represented. ‘Circulating reference’ as a concept describes the chains of transformations that the reference goes through in becoming words/signs (form) that describe the object (matter). These mediating, transformative processes – which underpin the encoding of information into maps, texts and images – are often obscured in the process.¹³ I suggest that one way to uncover the encoding processes, and to reveal the social and cultural significance of the map products as mediators, is to investigate them in ‘action’. In this I follow Rob Kitchin and Martin Dodge’s conceptualization of maps as processual, as ‘mappings’ that emerge through their practices of use.¹⁴ Consequently, this article seeks to advance Edney’s arguments concerning the ‘discursive role of geographical maps in bringing distant places to hand’ and Latour’s conceptualization of the role of ‘circulating references’ by considering what happens once these maps travel back to the places that they were designed to depict, and are put to use.¹⁵ Indeed, many of Arrowsmith’s maps were designed to travel – to be dissected on cloth, folded, pushed into a case and placed in a pocket. They were what Martin Brückner calls ‘little maps’ whose use ‘vacillated between raw, immediate outdoor application ... and the mediated and cathected indoor use of cartographic

¹² S. Shapin, Placing the view from nowhere: historical and sociological problems in the location of science, *Transactions of the Institute of British Geographers* 23 (1998) 8.

¹³ B. Latour, *Pandora’s Hope: Essays on the Reality of Science Studies*, Cambridge, MA, 1999, chapter 2.

¹⁴ R. Kitchin and M. Dodge, Rethinking maps, *Progress in Human Geography* 31 (2007) 331–344.

¹⁵ Edney, Bringing India to hand, 65–68; Latour, *Pandora’s Hope*, 76. Compare B. Latour, *Science in Action: How to follow Scientist and Engineers Through Society*, Cambridge, MA, 1987, 223.

representation'. As 'ambulatory objects' their social lives reveal the different meanings maps gained during their making, distribution and use in different contexts.¹⁶

To consider what constituted or disputed trust in Arrowsmith and his maps as they traveled, this article situates the WAC map within the operations of the Arrowsmith firm and the expanding empire through an investigation of the mapmaker's working relationship with the Colonial Office. It then moves to discuss how the WAC map travelled to Western Australia, to be interpreted and reinterpreted during the 1840s and 1850s. By focusing on the 'lives' of the WAC map and its reinscriptions, I analyze the variety of interests that the map served: a colonization scheme, the authority of a young and eager colonial governor, and Arrowsmith's own construction of metropolitan cartographic knowledge.

The historical events associated with the WAC map and Port Grey are simultaneously typical and atypical. They provide the grounds for an illustrative case study of the relationship between cartography, colonialism and the power of maps in shaping people's geographic imaginations of the world. They are typical due to the common role of commercial mapmakers in producing portable maps for colonization processes. However, this case is atypical due to the lengthy written documentation regarding the debates over the epistemic authority of the map that emerged as different people encountered and reflected on the role of its maker and the explorer who provided the information. In this sense, Port Grey illustrates the 'normal exceptional' famously described by Carlo Ginzburg.¹⁷ Its analysis enables exposure of the 'routine and pervasive means for transferring knowledge from person to person and from place to place'.¹⁸

¹⁶ Brückner, *The Social Life of Maps*, 244—245. For similar approaches see A. Prior, British mapping of Africa: publishing histories of imperial cartography, c.1880 — c.1915, unpublished PhD thesis, University of Edinburgh, 2012; C.J. Koot, *A Biography of a Map in Motion: Augustine Herrman's Chesapeake*, New York, 2017.

¹⁷ C. Ginzburg, *The Cheese and the Worms: The Cosmos of a Sixteenth-Century Miller*, Baltimore, 1980.

¹⁸ Shapin, *Placing the view from nowhere*, 7.

MAKING A METROPOLITAN AUTHORITY

The map products that bear the imprint of John Arrowsmith's name testify to the variety of roles he played in the nineteenth-century map business. Depending on the map in question, Arrowsmith could either be its compiler, engraver, printer or publisher. Often, he had more than one role, as was typical for a nineteenth-century mapmaker. Aaron Arrowsmith senior, John's uncle, had founded the firm in 1786 and John Arrowsmith continued to produce maps until the late 1860s. Aaron trained his sons Aaron junior and Samuel alongside John, who joined the firm in 1810. After Aaron senior's demise in 1823, his sons continued to operate the firm and John set up a business of his own. Until 1834 John Arrowsmith dedicated most of his time to the *London Atlas of Universal Geography*, which he published that year, and which became his iconic work. He would continue to update the atlas during the next three decades with the information he received via government departments, scientific societies, explorers, surveyors and travellers.¹⁹ In 1839, upon the death of his cousin Samuel, John Arrowsmith acquired ownership of the whole firm, including the premises at 10 Soho Square.²⁰

Under John's leadership the company became the most important producer of detailed maps of the British settler colonies in Britain between the 1830s and the 1850s. This dominance was founded upon collaborations with colonization companies, government departments (especially the Colonial Office), scientific societies like the Royal Geographical Society (RGS), the Hudson's Bay Company and several publishing houses such as John

¹⁹ For a detailed study of the updating processes see Prescott's ongoing work on the Australia plates: D. Prescott, Arrowsmith's Australian maps, <https://www.asmp.esrc.unimelb.edu.au/>, last accessed 1 January 2020. For the atlas see Herbert, The 'London Atlas of Universal Geography'.

²⁰ L. Worms and A. Baynton-Williams, *British Map Engravers: A Dictionary of Engravers, Lithographers and Their Principal Employers to 1850*, London, 2011, 28.

Murray, Thomas and William Boone and Longman.²¹ Mapmaking for this diverse clientele was based on prudent economic strategies, with many of the maps printed for travel accounts also ending up between the covers of Arrowsmith's atlas. This was the case with the WAC map too.²² Arrowsmith's maps of the colonies were those that explorers and government officials purchased or received direct from the mapmaker to take out to the field.²³ His shop in Soho was the place where Charles Darwin ordered his geographical atlases and David Livingstone popped in to follow progress on the compilation and engraving of his expedition maps in the 1850s.²⁴ These dense scientific and governmental networks enabled Arrowsmith to acquire social capital which in turn cemented his position as a geographic authority. The extensive use of Arrowsmith's work in different publications and his constant efforts to update the maps via diverse communications meant that he was considered a trustworthy actor.

Arrowsmith's niche in documenting the expanding settler colonies was facilitated by his government connections. At the time of the publication of the WAC map, John Arrowsmith was in the middle of his career. He had a foothold in central government departments like the Colonial Office where, in 1841, James Stephen, permanent under-secretary, characterized Arrowsmith as that 'useful and cheap ally of ours'.²⁵ Stephen's wording would echo throughout the coming two decades as Arrowsmith provided maps for

²¹ The exact numbers of these contributions are unknown. For the RGS Arrowsmith produced a total of 181 signed plates. See C. Verner, *Maps by John Arrowsmith in the publications of the Royal Geographical Society, The Map Collectors' Circle* 76 (1971) 6.

²² I. Keighren, C.W.J. Withers and B. Bell, *Travels into Print: Exploration, Writing, and Publishing with John Murray, 1773—1859*, Chicago, 160—161; Prescott, *Arrowsmith's Australian maps*.

²³ Australian explorer Thomas Mitchell mentions being instructed to rely on Arrowsmith's map during his expedition. See *Sydney Times*, 5 November 1836. Charles LaTrobe purchased maps from Arrowsmith for his West Indian tour, see Education of the Negroes 27831/40, T1/3702, The National Archives, London [hereafter TNA].

²⁴ Charles Darwin to John Shillinglaw [1839 – May 1842], letter no. 477, Darwin Correspondence Project, <http://www.darwinproject.ac.uk/DCP-LETT-477>, last accessed 1 August 2019; David Livingstone to John Washington, 11 November 1857, Livingstone Online, <https://www.livingstoneonline.org/>, last accessed 1 August 2019. Arrowsmith is known to have given David Livingstone a map to fill up during his expedition, see I. Schapera (Ed), *Livingstone's Missionary Correspondence, 1841—1856*, Berkeley, 1961, 172.

²⁵ James Stephen's annotation, 12 October 1841, CO201/309, TNA, 316.

the parliamentary papers, compiled commissioned maps for administrative use and produced general maps of the colonies for the public market. Civil servants' minutes document how new data arriving from the colonies was regularly forwarded to Arrowsmith to use. He was consulted when maps arriving from the colonies were considered for printing, and he was also informed about any decisions regarding geographical nomenclature.²⁶ Even though other mapmakers could access the geographical data stored at the Colonial Office they were not in Arrowsmith's privileged position, whereby civil servants took the mapmaker's interests into consideration when dealing with the information arriving from the colonies. To a certain extent, then, the rationality of trusting Arrowsmith was what Russell Hardin calls 'encapsulated interest', based on the civil servants' assumption that the mapmaker was also motivated to consider government interests in his work.²⁷ However, collaborating with a mapmaker who was involved with multiple, simultaneous publishing projects had its risks. The civil servants were competing with other clients for Arrowsmith's attention and, like them, had to submit to possible delays or his eventual inability to complete the task.²⁸

For Arrowsmith, these governmental and scientific relationships provided a steady income.²⁹ Information regarding the financial arrangements between the Colonial Office and commercial cartographers is scattered. A general record between the 1790s and the 1860s can be found in the 'contingent fund accounts' held at the National Archives, UK.³⁰ They reveal

²⁶ W. Hawes's annotation, 2 December 1850, CO18/54, TNA, 324; A.J. Blackwood's minute, 12 November 1852, CO305/3, TNA, 140v—141r; W. Dealtry's annotations, 28 September 1852, CO18/66, TNA, 303; Draft letter to Arrowsmith, 12 March 1861, CO13/103, TNA, 74.

²⁷ R. Hardin, *Trust and Trustworthiness*, New York, 2002. Hardin stresses that encapsulated trust requires not only same interests but also interest to continue the trusting relationship.

²⁸ The clients' frustration in the mapmaker's slow pace surfaces in private as well as governmental collaborations. See R.C. Bridges, W.D. Cooley, the RGS and African geography in the nineteenth century: part I: Cooley's contribution to the geography of Eastern Africa, *The Geographical Journal* 142 (1976) 39; E. Liebenberg, Providing a tolerably correct map of South Africa: the cartography of Henry Hall, *International Symposium on 'Old Worlds-New Worlds': The History of Colonial Cartography 1750—1950*, Utrecht University, Utrecht, 21 to 23 August 2006.

²⁹ Compare Herbert, *The 'London Atlas of Universal Geography'*, 105.

³⁰ Volumes 1—5 in CO701, TNA.

that Arrowsmith was part of a chain of mapmakers who supplied maps and cartographic services to the department. These included William Faden from 1795 until the 1820s, followed by the company run by James Wyld senior and his son, who acquired Faden's stock after his death.³¹ During this time Aaron Arrowsmith senior supplied maps only sporadically.³² From 1833 onwards the Wylds had to share the orders with John Arrowsmith. The accounts record that the first payments to Arrowsmith – for maps delivered during 1832 and 1833 – were made in August and December 1833.³³ During the 1840s and 1850s John Arrowsmith came to dominate, receiving the highest proportion of payments.³⁴ From 1857 to 1868, when the accounts close, no further payments to Arrowsmith or Wyld are visible and only a few payments are listed to other map makers for specific maps.³⁵

It seems that pressing geopolitical developments drove the Colonial Office's map purchases. In 1808–1809 for instance, Aaron senior was paid £630 for two hundred copies of maps of the Pyrenees, presumably for use in the Peninsular War, while Aaron junior supplied a map of Greece during its independence struggle in 1828.³⁶ However, more generally, the account books rarely disclose details of the cartographic materials and services purchased. In

³¹ Payments to Faden in CO701/1, TNA, 49, 74, 83, 89, 155 and CO701/2, TNA, 43, 53, 82, 92, 101. Payments to the Wylds in CO701/2, TNA, 118, 128, 139, 148, 157, 168. See L. Worms, *The maturing of British commercial cartography: William Faden (1749–1836)*, *The Cartographic Journal* 41 (2004) 5–11; E. Baigent, *Wyld, James, the younger (1812–1887)*, *Oxford Dictionary of National Biography*, 2004.

³² Payments to A. Arrowsmith senior in CO701/2, TNA, 52, 82.

³³ CO701/2, TNA, 204.

³⁴ Payments to Arrowsmith in CO701/2, TNA, 204; CO701/3, TNA, 6, 27, 50, 71, 118, 159, 202; payments on 12 April 1845, 20 July 1846, 30 June 1848, 5 April 1850, 8 October 1851, 6 January 1853, 31 March 1855, 6 April 1857, CO701/4, TNA. Compare with payments to Wyld Jnr., CO701/2, TNA, 204; CO701/3, TNA, 6, 94, 118, 160, 179; payments on 4 July 1845, 31 March 1852, 30 January 1856, 6 November 1856, CO701/4, TNA.

³⁵ This might reflect a change in the style of accounting as the recording of the book purchases also changes.

The payments for maps include a map from J. Trutch (likely Joseph Trutch, surveyor and later Chief Commissioner of Land and Works in Victoria, British Columbia) and to mapmaker Edward Weller for maps of North American railways. See payments on 19 March 1859, CO701/4, TNA and 22 April 1865, CO701/5, TNA.

³⁶ Payments to A. Arrowsmith senior, 7 November 1808 and 24 June 1809, CO701/1, TNA, 128, 133; to A. Arrowsmith junior, 20 August 1828, CO701/2, TNA, 147.

October 1851, for example, the Colonial Office paid John Arrowsmith £54 14s for a ‘terrestrial globe and maps’ leaving no details of what the maps depicted.³⁷

Some payments were probably for maps acquired for the Colonial Office map library as ad hoc purchases. In addition, some were likely to have been for the maps the Arrowsmith firm contributed to the parliamentary papers. In total the Arrowsmiths produced some 462 maps between 1806 and 1862. Most of these were lithographic maps, produced via the less expensive stone printing process.³⁸ The parliamentary papers also contain many general maps compiled and drawn by John Arrowsmith that were printed with his atlas and sold individually. Around the turn of the 1840s these included maps of Jamaica (1839), the Windward Islands (1839), the Leeward Islands (1839), South Australia (1841), New Zealand (1841) and the Falkland Islands (1841). The relations between maps printed in the sessional papers and those appearing elsewhere are complex. For example, an ‘official’ map could be a later version of a map Arrowsmith had already published, the only difference being in the altered bibliographic data.³⁹ In other cases, some of the maps that originally appeared with the parliamentary papers subsequently appeared in the atlas. One example are the maps that accompany the parliamentary papers relating to the transition from slavery to emancipation in the West Indies, printed in 1839. Four general maps compiled by Arrowsmith accompany the

³⁷ Payment to Arrowsmith, 8 October 1851, CO701/4, TNA. The same applied to the Wylds too: only on two occasions are specific maps named, being a map of Port of Natal, purchased for 5s in 1852 and maps of Europe purchased for £3 3s in 1856. See payments to Wyld on 31 March 1852 and 6 November 1856 in CO701/4, TNA. At times payments are simply made for “a small map” and “5 copies of atlas” without any further details. CO701/2, TNA, 139, 156.

³⁸ *Catalogue of the Maps, Plans and Charts in the Library of the Colonial Office*, 1910, TNA; A. McGechaen and C. Verner, Maps in the parliamentary papers by the Arrowsmiths. A finding list. part 1, 1—263, *Map Collectors’ Circle* 9 (1973) 3; W. Ristow, Lithography and maps, 1796—1850, in: D. Woodward (Ed), *Five Centuries of Map Printing*, Chicago, 1975, 77—112.

³⁹ In 1841 papers relating to South Australia included a copy of the 1840 issue of map *The Maritime portion of South Australia* originally published in 1838. See *Second report from the Select Committee on South Australia; together with the minutes of evidence, appendix, and index* 1841, 394, House of Commons papers. See also Prescott, Arrowsmith’s Australian maps.

papers.⁴⁰ Arrowsmith later utilized the plates for his atlas. For example, one copy from 1844 contains the same map of Jamaica as the papers, save for altered bibliographic details.⁴¹ Consequently, significant material connections existed between the maps supplied for the parliamentary papers and those he sold to the public, with the latter being authorized by the former.

From the Colonial Office's perspective, collaboration with Arrowsmith was one strategy to manage the explosion of information regarding colonial territories. It parallels that adopted regarding geographical writings and other texts. In the case of the Australian colonies, nearly all exploration reports were routinely transmitted to the RGS.⁴² Similarly, private actors such as Robert Montgomery Martin, 'variously naval surgeon, newspaper editor, early advocate of vaccination, treasurer of Hong Kong, and indefatigable colonial promoter', published much of the statistical information accumulated in the yearly statistical returns known as Blue Books, which started to be collected in the early 1820s. He was granted a desk and access to the volumes, but the agreement did not include any help in financing the publication. Once completed, however, the Colonial Office swiftly spent nearly £80 to acquire thirty-seven copies of the *Statistics of the Colonies of the British Empire* to be sent to every colonial government.⁴³

Arrowsmith's position as a semi-official mapmaker meant that the government did not continually need to invest money in compiling, engraving, printing and publishing maps. Edney has shown that the East India Company acted in a similar manner: it allowed

⁴⁰ *Papers relative to the West Indies Part I*, 107, 1839, House of Commons Papers; *Papers relative to the West Indies Part II*, 107IV, 1839, House of Commons Papers; *Papers relative to the West Indies Part III*, 107V, 1839, House of Commons Papers.

⁴¹ J. Arrowsmith, *Map of Jamaica*, 1842, no. 4613.062, David Rumsey Historical Map Collection, <https://www.davidrumsey.com/>, last accessed 1 January 2020.

⁴² Skurnik, *Making Geographies*, 120—156.

⁴³ Z. Laidlaw, *Colonial Connections, 1815—45: Patronage, the Information Revolution and Colonial Government*, Manchester, 2005, 185—189; Payment to Montgomery Martin, 27 September 1839, CO701/3, TNA.

commercial mapmakers like John's uncle Aaron access to its cartographic archives early in nineteenth century and preferred him and later the Walker company as their favoured commercial cartographers.⁴⁴ In ventures like these the financial risk was transferred to the mapmaker in exchange for the most recent data from the colonial records. In return, the mapmaker produced cartographic artefacts that helped conceptualize the evolving British colonies in a similar manner to Montgomery Martin's oeuvre. In sum, Arrowsmith's career emerges as part of an empire-spanning assemblage that influenced how and what geographical information became mobile and authoritative. In order to consider the effects that the maps had in the colonization processes, and the associated pitfalls, I now turn to examine what happened to Arrowsmith's map of the western coast of Australia.

PRODUCING THE REFERENCE IN LONDON

Nothing can surpass the distinct manner in which this map is executed, and the skill with which the lettering is managed in the thickly-named portions of the country is a very striking feature in the work. To the settlers who are now embarking for Australind the publication is invaluable.⁴⁵

The map that emerged from Arrowsmith's printing presses in December 1840 was advertised in *The Times* as 'the only map extant that marks the position of Australind and Port Grey, and describes the very fertile country in the immediate vicinity'. It was reviewed as unsurpassed in, for example, *The New Zealand Journal*, the mouthpiece of the New Zealand Company.⁴⁶ The map entered a market already occupied by maps designating the

⁴⁴ Edney, *Mapping an Empire*, 224—233.

⁴⁵ *The New Zealand Journal*, 5 December 1840, 295.

⁴⁶ *The Times*, 2 December 1840; *The New Zealand Journal*, 5 December 1840, 295.

settlement site at Port Leschenault, some of which had been published only a few months before in accordance with the WAC's original plan.⁴⁷ Maps were important for marketing the overseas colonies, and commonly accompanied the print material advertising these destinations for emigrants.⁴⁸ For Arrowsmith this was not the first nor would it be the last map that he produced to visualize an imperial settlement scheme or advertise the resources of a new or growing colony.⁴⁹ Usually, Arrowsmith's maps accompanying settler literature concerning the British settlements at Australia or New Zealand were marketed as 'the most correct'.⁵⁰ Between the 1830s and 1860s the print products describing the colonies also regularly endorsed Arrowsmith's maps as 'the most authentic and recent'.⁵¹ Rhetoric regarding the accuracy of maps was a standard feature of map advertising. In Britain Arrowsmith's signature stood for the most recent and accurate information and authors and institutions alike valued it. As Brückner summarizes in the context of the mid nineteenth-century United States, certain 'maps and their makers were household names standing for vetted information [and] established map brands'.⁵²

The publication of the map on 21 November 1840 was a key moment in the conceptualization of the area as a site for settlement. Together with an extract from Grey's journal that the WAC printed, Arrowsmith's map effectively crafted a new settlement

⁴⁷ T.J. Buckton, *Western Australia, Comprising a Description of the Vicinity of Australind, and Port Leschenault*, London, 1840.

⁴⁸ R.D. Grant, *Representations of British Emigration, Colonisation and Settlement: Imagining Empire, 1800—1860*, New York, 2005, 8—9.

⁴⁹ An Arrowsmith map accompanied a publication for the shareholders of the Van Diemen's Land Company, see J. Bischoff, *Sketch of the History of Van Diemen's Land*, London, 1832.

⁵⁰ N. Ogle, *The Colony of Western Australia: A Manual for Emigrants to That Settlement or Its Dependencies*, London, 1839, title page.

⁵¹ *The Hand-Book for New Zealand: Consisting of the Most Recent Information*, London, 1848, 487. For similar endorsements see T. Phillips, *Advantages of Emigration to Algoa Bay and Albany, South Africa*, London, 1834, 11; F.C. Irwin, *The State and Position of Western Australia, Commonly Called the Swan River Settlement*, London, 1835, 18; *First Report of the Western Australian Association*, London, 1836, 5; E.J. Wakefield, *Adventure in New Zealand, from 1839 to 1844; with Some Account of the Beginning of the British Colonization of the Islands*, London, 1845, 216; W. Fox, *The Six Colonies of New Zealand*, London, 1851, v—vi.

⁵² Brückner, *The Social Life of Maps*, 117.

destination and added the distant port to the mind maps of the British colonists.⁵³ The map is described as based on ‘the surveys of Captn. Grey and other official documents’, a reference to captain Phillip Parker King’s surveys between 1818 and 1822. A separate note next to Port Grey explains that its outline is based on Grey’s sketch, and that the reef on its northern side and the soundings derive from reports by King and George F. Moore respectively. This positioned Grey’s explorations in a very favourable light when in fact they had been something close to a disaster. Grey’s idea for his second expedition was to proceed from Shark’s Bay towards the interior starting in February 1839. However, after losing all its boats and most of its provisions the party was forced to make its way back on foot. Travelling directly south along the coast, a portion of the party with Grey reached Perth in April 1839.⁵⁴ The map reads almost as Grey’s account does (minus the difficulties): it is filled with positive descriptions of the country – such as ‘Woody Fertile Country’ and ‘Rich Flats’ – which derived from Grey’s report. Hachures mark the contours of the country and suppositions concerning watercourses are marked with dashed lines. (Figure 2).

The availability of information regarding Port Grey intensified when, in early 1841, a reduced map, also by Arrowsmith, accompanied a book by Henry Samuel Chapman, an advocate of Wakefieldian colonization schemes and the editor of the *New Zealand Journal*. The same map also accompanied an article advertising the colony, that was published in *The Westminster Review* (see Figure 3). *The Westminster Review* dubbed ‘the magnificent’ Port Grey the ‘grand feature’ of Western Australia, and Arrowsmith’s map was used as evidence ‘that it is a most promising country for colonization’. Both the article and the book relied on

⁵³ Clifton mentions the circulation of Grey’s extract which is likely George Grey to John Russell, 26 October 1840, CO18/26, TNA, 296; Barnes, Cameron, Willis, Berryman and Gill, *The Australind Journals*, 688—696.

⁵⁴ J.M.R. Cameron, Agents and agencies in geography and empire: The case of George Grey, in: M. Bell, R.A. Butlin and M. Heffernan (Eds), *Geography and Imperialism 1820—1840*, Manchester, 1995, 13—35. On 10th April 1839 Grey split the party and proceeded with Kaiber and four other men ahead of the rest to Perth. The rest of the party, save one, were later rescued from the field.

an extract of the report that Grey had provided to the WAC describing the environment between Arrowsmith River (which he had named in honour of the mapmaker) and Gantheaume Bay.⁵⁵

Arrowsmith's map successfully authorized Grey's geographical knowledge. Left unnamed was Grey's guide Kaiber as well as the other indigenous sources upon whom Grey relied for his knowledge of the Australian environment, and indeed his very survival within it. Not much documentation exists of Kaiber in the colonial archive, but he was likely a member of the Noongar people and originated from south of Perth. Grey characterized him as 'one of the most intelligent natives of these parts', and had recruited him at Swan River after he had learned, during his first expedition in the Kimberley together with Lieutenant Franklin Lushington between December 1837 and April 1838, that proceeding without an indigenous guide was dangerous.⁵⁶ Dane Kennedy notes that, for Grey, Kaiber appears to have been a much more preferable companion than the other members of the expedition party, as Grey made reconnaissance trips with Kaiber and passed the nights with him by their separate fire.⁵⁷ In his published account Grey occasionally acknowledges Kaiber's role as what Shino Konishi, Maria Nugent and Tiffany Shellam call an 'indigenous intermediary' in the

⁵⁵ Quotations from *The Westminster Review* 1841, 161, 168, for quotations from Grey, see 169. Compare H.S. Chapman, *The New Settlement of Australind: With a Map of the District, and a Description of the Colony, and of the Principles on Which It Is Settled. Compiled for the Use of Colonists*, London, 1841, FC F3171, National Library of Australia, Canberra [hereafter NLA]. See Woollacot, *Settler Society in the Australian Colonies*, 53—54, 110—111.

⁵⁶ Grey's first explorations in the Kimberley had been cut short as the party ran into trouble with Aboriginal people whose country they sought to traverse without permission. Grey was severely wounded from a spearing and ended up shooting an Aboriginal man. Grey attempted to continue the expedition but was eventually forced to retreat and the party was rescued from the shore. Recuperating at Mauritius, Grey decided to try again and made his way to Swan River. During his time in Perth Grey explored the colony, partly with Kaiber's assistance, compiled a vocabulary of 'the dialects spoken in these parts' and made himself known via Aboriginal intermediaries amongst the inhabitants of the regions north of Perth in preparation for his second expedition. G. Grey, *Journals of Two Expeditions of Discovery in North-West and Western Australia During the Years 1837, 38 and 39*, London, 1841, volume 1, 292, 313, 331 and volume 2, 91; Rutherford, *Sir George Grey*, 8—14; S. Hallam and L. Tilbrook, *Aborigines of the Southwest Region, 1829—1840: The Bicentennial Dictionary of Western Australians Volume VIII*, Nedlands, 1987, 174—175; T. Shellam, Miago and the 'Great Northern Men': indigenous histories from in-between, in: R. Standfield (Ed), *Indigenous Mobilities: Across and Beyond the Antipodes*, Acton, 2018, 192—193.

⁵⁷ D. Kennedy, *The Last Blank Spaces. Exploring Africa and Australia*, Cambridge, 2013, 189; Grey, *Journals of Two Expeditions*, volume 2, 25, 36, 46, 58, 70, 72—73, 82, 85.

expeditionary process. Grey's collaboration with Kaiber is an example of one of many such relationships that constituted European exploration of Australia and other parts of the world.⁵⁸ In his account, Grey writes of Kaiber explaining the landscape, obtaining water, finding a suitable path, and conducting diplomacy with the Aboriginal groups encountered.⁵⁹ However, on the map, the intimate knowledge-work that Grey performed with Aboriginal informants is obscured and anonymized.⁶⁰ Printed acknowledgement of the information obtained from indigenous peoples varied in explorers' writings: most often their presence surfaces as assistants rather than knowing individuals. As Innes Keighren, Charles Withers and Bill Bell have noted, these were stylistic and rhetorical choices that served the explorers' claims to credibility and authority. The epistemological dependence on indigenous knowledge potentially undermined explorers' claims to credibility 'because it came from and was rooted in a culture deemed inferior'.⁶¹

The same has been observed concerning 'cartographic encounters' and explorers' and mapmakers' techniques in including indigenous knowledge on European maps. Engagement with indigenous conceptualizations of space and mapping conventions was common, and in the course of explorations and colonialism many 'native maps' became part of the colonial archives. However, contemporary assessments of their utility for European knowledge-systems varied.⁶² Arrowsmith's maps rarely assign environmental information directly to

⁵⁸ S. Konishi, M. Nugent and T. Shellam (Eds), *Indigenous Intermediaries: New Perspectives on Exploration Archives*, Acton, 2015. See Kennedy, *The Last Blank Spaces*, 159—194.

⁵⁹ The Aboriginal groups of the north were generally known as the Waylo by the southwest groups that Kaiber was part of. Kaiber must have encountered these people personally for the first time during this trip but had deep knowledge of them. Shellam, Miago and the 'Great Northern Men', 189.

⁶⁰ Grey, *Journals of Two Expeditions*, volume 1, 362—366, and volume 2, 32, 38, 41—42, 55—56, 58—59, 61, 64, 69, 71, 80, 84, 90. Towards the end of the expedition Grey also collaborated with an indigenous person he names as 'Imbat', see Grey, *Journals of Two Expeditions*, volume 2, 91—93.

⁶¹ Keighren, Withers and Bell, *Travels into Print*, 16, 82—92. See K. Palmer, *Noongar People, Noongar Land: The Resilience of Aboriginal Culture in the South West of Western Australia*, Canberra, 2016, 10.

⁶² D. Turnbull, *Maps are Territories. Science is an Atlas*, Chicago, 1989, 19—27; B. Belyea, Amerindian maps: the explorer as translator, *Journal of Historical Geography* 18 (1992) 267—277; G.M. Lewis, First nations mapmaking in the Great Lakes region in intercultural contexts: a historical review, *Michigan Historical Review* 30 (2004) 1—34; J.R. Short, *Cartographic Encounters: Indigenous Peoples and the Exploration of the New World*, London, 2009; T. Shellam, Nyungar domains: reading Gyalliput's geography and mobility in the

indigenous sources. When they do, a conventional dotted line points out the conjectural nature of information, thus functioning in a similar manner as references to guides in the texts.⁶³ In Grey's case, no aboriginal map informing his activities has surfaced, and the whereabouts of his original sketch maps are unknown. It is challenging, therefore, to uncover the extent to which Kaiber's knowledge entered into transoceanic circulation via Grey's pen. Furthermore, no documentation exists of what Kaiber did with the knowledge he gained from the expedition and how it circulated within the Noongar community.⁶⁴ What is known is that the printed map produced in London filled the coast with knowledge assigned to Grey. All the new place-names were Grey's, and the observations were recorded from Grey's perspective.⁶⁵ Consequently, Kaiber's invisibility on the map reflects a rather typical practice in the depiction of a space ripe for settlement.

Even though the map at a glance informed its readers of the desirability of the area, it came too late for the WAC's project. The company's directors had changed the site to Port Grey in October after they had learned that the governor of Western Australia had resumed the land grant at Port Leschenault (known as Lautour's grant), the site from which the WAC had been selling allotments to metropolitan buyers. Furthermore, Grey had advised that, in fact, this land was worthless, and much better land would be available around Port Grey. Trusting Grey and changing the site to Port Grey to remedy the situation, however, proved fatal. Despite the reassurance provided by Grey's account and Arrowsmith's map that the new site would be better than the original, the majority of the investors and emigrants lost

colonial archive, in: B. Silverstein (Ed), *Conflict, Adaptation, Transformation: Richard Broome and the Practice of Aboriginal history*, Canberra, 2018, 80—95; H. Blum, *The News at the End of the Earth: The Print Culture of Polar Exploration*, Durham, 2019, chapter 5.

⁶³ An example is Arrowsmith's map accompanying David Livingstone's *Missionary Travels*. See F. Driver, *Missionary Travels: Livingstone, Africa and the book*, *Scottish Geographical Journal* 129 (2013) 164—178.

⁶⁴ For an excellent analysis of Aboriginal knowledge economies, see T. Shellam, *Shaking Hands on the Fringe: Negotiating the Aboriginal World at King George's Sound*, Crawley, 2009, chapter 7. For Noongar culture and society see Palmer, *Noongar People*.

⁶⁵ The coast had been surveyed in the 1820s by Philip Parker King, who had named the most distinctive features such as bays and ranges.

confidence in the project. By the time the map was published more than sixty percent had already cancelled their purchases and the WAC had lost over £34,000. Many of the emigrants also chose to cancel their planned journey to the colony to settle the site. Subsequently, on 6 December 1840 the *Parkfield* sailed with commissioner Marshall Waller Clifton and the map, but with a much lower number of emigrants than originally planned.⁶⁶

ENCOUNTERING THE REFERENCE IN WESTERN AUSTRALIA

The map's troubled life continued when it reached Western Australia and its correspondence with the world was put to the test. One description of the local reaction is available in naval officer John Lort Stokes's travel account, published in 1846. Stokes arrived in Perth in December 1841 while undertaking surveys of the north-western coast of Australia. Stokes writes how he was shown Arrowsmith's map at the surveyor general's office and had no reason to doubt its veracity as it was authorized by Arrowsmith and Grey. Stokes knew Grey as the expedition had originally sailed from Britain with him on the *Beagle*. However, in the colony, Stokes wrote, 'it was confidently maintained that Port Grey, although placed, by accident or otherwise, twelve miles to the southward, was no other than the bay we had previously visited, called by us Champion Bay'. Consequently, many in the colony seemed to think that the port depicted in Arrowsmith's map had been 'fabricated by the land-jobbers at home'.⁶⁷

The local press had discussed the faults in the WAC's plan as soon as news about the decision to change the site of settlement to Port Grey had arrived in March 1841. For example, *The Inquirer* noted that they had not been able to locate Port Grey on the charts available at the Survey Department. *The Perth Gazette* stressed how the prospectus of the company relied on uncertain information of an area that no one had visited, as Grey's

⁶⁶ Barnes, Cameron, Willis, Berryman and Gill, *The Australind Journals*, xiv.

⁶⁷ J.L. Stokes, *Discoveries in Australia With an Account of the Hitherto Unknown Coasts Surveyed during the Voyage of the HMS Beagle, between the Years 1837 and 1843*, volume 2, London, 1846, 378—379.

observations were made several miles inland and Moore had only viewed the coast from the deck of a vessel. The confidence behind these claims rested on the information provided by the *Beagle* during its previous visit to the colony. Under the command of Captain John Wickham, the vessel had surveyed and named Champion Bay in April 1840, and this information had refined understandings of the shape of the coastline in the colony.⁶⁸ Consequently, the local newspapers argued that the map depicted a feature designed in London, a piece of metropolitan knowledge produced in ignorance of the latest work of the *Beagle*.

When the *Parkfield* reached the Western Australian shores, Clifton learned that governor Hutt characterized Port Grey as ‘an unknown and almost entirely unexplored country to the northward’, and recommended abandoning the plan. Hutt thus offered an entirely different reading of the map to that in London. Simultaneously, Hutt informed Clifton that the original site at Leschenault was available for settlement after all. Therefore, Clifton decided to follow Hutt’s suggestion.⁶⁹ However, anxious to know if he had made the right decision, Clifton teamed up with Stokes to undertake a trip along the coast. During that trip they resolved that the sheltering northern point that Arrowsmith’s map depicted did not exist, and Port Grey was in fact Champion Bay, placed twelve miles south of its true position. Stokes further reported that the area was not as fertile as Grey had described.⁷⁰

Stokes’s observations became public quickly in the colonial newspapers and generated heated criticism of Grey and the WAC. In Western Australia, *The Inquirer* accused Grey of willful misrepresentation, while *The Perth Gazette* deduced that the directors of the

⁶⁸ *The Inquirer*, 17 March 1840; *The Perth Gazette and Western Australian Journal*, 20 March 1840; Stokes, *Discoveries in Australia*, volume 2, chapter V. Skepticism regarding Port Grey also circulated in the other Australian colonies, see *Colonial Times*, 30 March 1841.

⁶⁹ Cameron and Barnes, *The Australind Letters*, 60—72; Woollacott, *Settler Society in the Australian Colonies*, 54.

⁷⁰ Stokes, *Discoveries in Australia*, volume 2, 382—395.

company ‘were the showmen who daubed and coloured up the information obtained from Grey’.⁷¹ Clifton, as a representative of the company, blamed Grey, and attempted to publish a long letter in defense of the WAC in *The Inquirer* to explain his views.⁷² This paralleled the opinions expressed in the other Australian colonies, where Grey, who had by May 1841 taken up the governorship of South Australia, was cast in a suspicious and somewhat ridiculous light. This undermined his authority not only as an explorer but also as a colonial civil servant, so much so that in 1848 the *Geelong Advertiser* noted that ‘It has been the fashion to treat the results of Captain Grey's discoveries, with a degree of superciliousness which we think they hardly merit’.⁷³ No doubt to Grey’s annoyance, the colonial papers continued to remark on the disappearance of Port Grey during the next few years. For example, an acrostic by an anonymous author printed in *The South Australian Register* in 1843 captured the comical sentiments attached to the missing port:

P ray! tell me, can we really boast
O f Port Grey on the Western Coast—
R eport says it is all a sham,
T he offspring of a wily man.
G ood Heavens! what will they say at home
R eceiving news—Port Grey is gone!
E 'en parts explor'd, with skill profound,

⁷¹ *The Inquirer*, 22 December 1841; *The Perth Gazette and Western Australian Journal*, 25 December 1841. Compare *The Inquirer*, 29 December 1841. Accounts of the Beagle’s trip were published in the other Australian colonies during February–March 1842 and they appeared in Britain during June–July. See *Launceston Advertiser*, 3 February 1842; *The Courier*, 11 March 1842; *The Sydney Herald*, 18 March 1842; *Geelong Advertiser*, 21 March 1842; *The Colonial Observer*, 23 March 1842; For Britain, see *The Gardener’s Chronicle*, 2 July 1842; *The Nautical Magazine and Naval Chronicle for 1842*, 469–473.

⁷² Barnes, Cameron, Willis, Berryman and Gill, *The Australind Journals*, 688–696.

⁷³ *Geelong Advertiser*, 2 December 1848.

Y et nowhere by the Beagle found.⁷⁴

The discussion over the veracity of Grey's claims as articulated by the map can be understood in terms of 'the credit economy' of travel writing as conceptualized by Keighren, Withers and Bell: 'At base, truth in texts of travel was a question of correspondence: of demonstrating a correlative relationship between the world as experienced and the world as written about'.⁷⁵ The demonstrated discrepancy between Arrowsmith's map, the survey department charts and the world – the 'nonexistence' of Port Grey – prompted enquiries into the chain of transformations that produced the map, and the trustworthiness of Grey and Arrowsmith was questioned. As *The Inquirer* stressed, it was important to examine who had 'foisted this fable of Port Grey on the public'. Central questions were whether Grey had willfully misled Arrowsmith with his data, and what was Arrowsmith's role in 'throwing out reefs when it was found convenient for shelter from prevailing winds, and making soundings of seven fathoms where, on an accurate survey, only 4 or 4 ½ have been found, in Champion Bay'. *The Inquirer* blamed Grey, whereas *The Perth Gazette* concluded that Arrowsmith's data must have derived partly from reliance on old charts as 'the high character of this geographer must exempt him from any reproach of connivance to adapt his map to the views of a company'.⁷⁶ One commentator in Van Diemen's Land classified the chart as simply 'invented', and part of a vile hoax that Grey had designed.⁷⁷

However, this was not a mere discussion of the qualities of the map, such as would have surrounded any map in the hands of its consumers.⁷⁸ The public discussions concerning

⁷⁴ *The South Australian Register*, 15 March 1843.

⁷⁵ Keighren, Withers and Bell, *Travels into Print*, 218.

⁷⁶ *The Inquirer*, 22 December 1841; *The Perth Gazette and Western Australian Journal*, 25 December 1841.

⁷⁷ *Colonial Times*, 1 March 1842. Italic in original.

⁷⁸ Brückner, *The Social Life of Maps*, 4.

the map of Port Grey centered on the tensions of mapmaking, aptly summarized by David Turnbull: ‘For a map to be useful, it must of course offer information about the real world, but if this “real world information” is to be credible, it must be transmitted in a code that by Western standards appears neutral, objective and impersonal, unadorned by stylistic device and unmediated by the arbitrary interests of individuals or social groups’.⁷⁹ The disappearance of the harbour and the fertile lands questioned the objectivity of the map and its makers. It was not considered a mere error that resulted from miscalculations. It seems that Grey was more susceptible to accusations of fraud than Arrowsmith. Arrowsmith’s motives in making the map were portrayed as more disinterested, as seeking to give the public the latest information.

The surviving documentation cannot resolve the question of the intellectual inputs of Grey and Arrowsmith to the map. It is not known how they came in contact in 1840, although they probably knew each other beforehand. They might have encountered each other when Grey was negotiating the plans for the expedition and they were both members of the provisional committee of the Colonial Society established in 1837.⁸⁰ Arrowsmith’s judgement of Grey’s data must have also been influenced by the fact that the veracity of Grey’s information was not questioned in Britain. There were Governor Hutt’s favourable reports of the significance of Grey’s discoveries, and he also enjoyed the trust of Colonial Office officials, like James Stephen and senior clerk Gordon Gairdner.⁸¹

It is, however, clear that what the map showed was different from what Grey wrote and what he verbally advocated. His initial reports to the Western Australian press immediately after his expedition returned did not describe the harbour but simply announced

⁷⁹ Turnbull, *Maps are Territories*, 8—9.

⁸⁰ *The Tasmanian*, 8 December 1837. Also see *The Rules and Regulations of the Colonial Society, with an Alphabetical List of the Members*, London, 1837, 15, 17; Cameron, *Agents and agencies*, 13—35.

⁸¹ John Hutt to John Glenelg, 2 December 1839, no 77, and James Stephen’s minute, 2 May 1840, CO18/23, TNA; G. Grey, *Journals of Two Expeditions*, volume 2, 60.

the fine country immediately north of Moresby's flat-topped range.⁸² This was a feature that was later depicted in the immediate vicinity of Port Grey on Arrowsmith's chart. After his return Grey had stayed in the colony for several months, but no evidence exists that he advocated the harbour then. Instead he prepared his treatise on the languages of the indigenous peoples that was serialised in the press and later published as a pamphlet, and which helped launch his gubernatorial career. He also served as a temporary resident magistrate at Albany until February 1840.⁸³ Neither does the harbour exist in Grey's extracted account to the Colonial Office, written after returning to England, and simply describing the journey between Gantheaume Bay and Arrowsmith River in April 1839. Grey writes of 'sandy dunes which bordered a bay' and of a shallow river which 'discharged itself into a bay'. However, he might have depicted it on the manuscript sketch which is referred to in the inset chart, but which has subsequently been lost.⁸⁴

Grey may have seen the bay as a potential harbour as a result of reading George F. Moore's report of observations made from the government schooner *Champion* in January 1840. Moore's published journal recounts that the party encountered a bay 'which is not laid down in the charts' that had 'an excellent anchorage, completely sheltered from all southerly winds ... protected by a reef running north and south from the extreme point of the bay. This reef or bank was found to have from three to five fathoms upon it, and within it there was seven fathoms'. Moore also represented the country in a favourable manner and concluded that 'this may turn out to be the finest district for sheep pasture that this colony can possess'.⁸⁵ As Grey was still resident in the colony at the time of this expedition, he could

⁸² *The Perth Gazette and Western Australian Journal*, 27 April 1839.

⁸³ Articles appeared in *The Perth Gazette and Western Australian Journal* between August and October 1839. Also see G. Grey, *Vocabulary of the Dialects Spoken by the Aboriginal Races of S. W. Australia*, Perth, 1839. A second edition was published in 1840 in London. For Grey's career see A. Lester, 'Settler colonialism, George Grey and the politics of ethnography', *Environment and planning D: Society and space* 34 (2016) 492—507.

⁸⁴ Grey to Russell, 26 October 1840, CO18/26, TNA, 296, 309v, 310r; J. Arrowsmith, *Australia, from Swan River to Shark Bay*, MAP RM 1185, NLA.

⁸⁵ *The Perth Gazette and Western Australian Journal*, 8 February 1840.

have learned how these observations matched the chart that he had drawn. He appears to have given a copy of the chart for reference to Moore who constantly referred to it in his report. He could have also taken Moore's report with him to Britain.⁸⁶

In fact, Grey referred to Moore's testimony indirectly in discussions with the directors of the WAC. The company's commissioners noted in November 1840 that Grey had reported that 'there was a port which he had only seen at a distance, but which had been described to him as a safe anchorage, and accessible and sheltered at all seasons of the year'.⁸⁷ According to Clifton, it was 'what they heard from Captⁿ Grey's lips', the 'verbal statements ... which went far beyond his written description of the District' that eventually convinced the remaining nervous investors and persuaded them not to withdraw their money from the project. Similarly, Clifton held Grey responsible for the map and interpreted Arrowsmith's role as that of the innocent publisher, who had believed the information to be correct.⁸⁸ What emerges is a triad of verbal statements, written accounts and the printed map that all represented the coast, and together produced a compelling case for the harbour. It is likely that both Grey and Arrowsmith were active in producing the harbour: Arrowsmith probably compared Grey's data with the available Admiralty charts and King's report, and subsequently placed the harbour on the map.

THE REFERENCE TRANSFORMED

The map's troubles in Western Australia and the developments that followed are indicative of what Latour calls the 'unending round of scientific credibility', the process where a changed understanding of the reference's credibility could lead to its transformation.⁸⁹ In Western

⁸⁶ *The Perth Gazette and Western Australian Journal*, 1 February 1840.

⁸⁷ Woollacott, *Settler Society in the Australian Colonies*, 53. Compare *Era*, 15 November 1840; *Colonial Gazette*, 18 November 1840.

⁸⁸ Barnes, Cameron, Willis, Berryman and Gill, *The Australind Journals*, 691.

⁸⁹ Latour, *Pandora's Hope*, 78.

Australia this transpired as the map was declared invalid. In London this started to unfold when news arrived via India in August 1841 that Clifton had abandoned Port Grey and the settlement had been founded at the original site. Thus, Port Grey as it was first depicted did not last long on Arrowsmith's maps.⁹⁰ This unsettled the WAC's position again and the remaining investors struggled to keep faith in the project.⁹¹ Around the same time Arrowsmith gained access, either personally or via the Admiralty, to the information produced by the *Beagle* in 1840 and brought back to England by Wickham.⁹² With this data, Arrowsmith revised his maps by renaming Grey's harbour as 'Port Grey or Champion Bay', moving it north and removing the soundings and the description of the harbour. He also added two more inset charts and information on Grey's explorations during Spring 1838.⁹³ This is the state (version) that appeared with Grey's published account in October 1841 (Figure 4).⁹⁴ This revised map was also acquired for the Colonial Office map library.⁹⁵ Arrowsmith also eliminated the harbour from his general map of Australia and produced maps of Western Australia with details of the progress of the WAC's Australind settlement at Port Leschenault accompanying a guide to prospective emigrants published in 1842.⁹⁶

Further changes in the settler colonial and metropolitan understandings of the geography of the western coast emerged in the wake of explorations in the area in 1846. The

⁹⁰ *The Morning Post*, 3 August 1841; *The Times*, 7 August 1841; *The Lancaster Gazette*, 7 August 1841.

⁹¹ Woollacott, *Settler Society in the Australian Colonies*, 54—55.

⁹² C.G. Drury Clarke, Captain John Clements Wickham, R.N. His antecedents and descendants, *Journal of the Royal Historical Society of Queensland* 12 (1984) 6; M. Hercok, John Lort Stokes, 1811–1885, in P.H. Armstrong and G.J. Martin (Eds), *Geographers Biobibliographical Studies, Volume 18*, Mansell, 1998, 84.

⁹³ J. Arrowsmith, *Map and Chart of the West Coast of Australia from Swan River to Shark Bay*, 1841, Z/M2 851/1841/1, State Library of New South Wales, Sydney [hereafter SLNSW].

⁹⁴ J. Arrowsmith, *Map and Chart of the West Coast of Australia from Swan River to Shark Bay*, 1841, MAP NK 2456/165, NLA. Information deriving from Moore's and Wickham's expeditions was also included as notes and short texts in Grey's account. in notes and appended article, see Grey, *Journals of Two Expeditions*, volume 2, 35, 123, 394—396.

⁹⁵ *Catalogue of the Maps, Plans and Charts in the Library of the Colonial Office*, 1910, TNA.

⁹⁶ Compare J. Arrowsmith, *Australia*, 1840, MAP NK 2456/107A, NLA and J. Arrowsmith, *Australia*, 1841, UniM ERC MAPS MX 804 a 1841, The University of Melbourne Library, with J. Arrowsmith, *Australia*, 1842, MAP RM 924, NLA. A. Gill, *Western Australia: Containing a Statement of the Condition and Prospects of That Colony, and Some Account of the Western Australian Company's Settlement of Australind*, London, 1842. Also see J. Arrowsmith, *The Colony of Western Australia*, 1843, MAP T 129, NLA.

overland expedition by Augustus C. Gregory and his brothers, followed by Lieutenant Benjamin F. Helpman's expedition by boat, led to the further reassessment of Grey's claims. The Gregorys reported the existence of valuable resources including coal, and Helpman declared that he had located a 'snug little harbor' near Champion Bay which he concluded to be Port Grey.⁹⁷ When the results became public towards the end of 1846, the Western Australian newspapers reexamined Grey's claims and concluded that Grey's 'glowing description' was 'now believed to be correct'.⁹⁸ In South Australia the new information was considered to prove 'the complete accuracy of Governor Grey, in his description of Port Grey and the adjoining country'.⁹⁹ The value of Arrowsmith's map was reconsidered too. *The Inquirer* reported in 1849 how, when taken to the field, its depiction of Port Grey was almost accurate:

We have been informed, that 'when viewing Port Grey from position A, as shown on the chart, it has every appearance of being protected by reefs.

The bay is stretched at too great a depth — an error likely to occur from the position in which it was viewed'.¹⁰⁰

Consequently, the map was reinstated to its position as what Latour terms a 'superimposable, combinable inscription': to a certain extent its correspondence with the world was reestablished when read against the new interpretations of the landscape.¹⁰¹

⁹⁷ *The Journal of the Royal Geographical Society of London* 18 (1848) 42; M. Uren, Helpman, Benjamin Franklin (1814—1874), *Australian Dictionary of Biography*, <http://adb.anu.edu.au/biography/helpman-benjamin-franklin-2176/text2795>, last accessed 3 August 2019; J.M.R. Cameron, *Ambition's Fire: The Agricultural Colonization of Pre-Convict Western Australia*, 1981, 149.

⁹⁸ *The Perth Gazette and Western Australian Journal*, 15 May 1847.

⁹⁹ *The South Australian*, 16 March 1847. Compare *The South Australian Register*, 27 March 1847.

¹⁰⁰ *The Inquirer*, 3 October 1849.

¹⁰¹ Latour, *Pandora's Hope*, 29.

In Britain, the discoveries of something akin to Port Grey, and of coal, gained publicity principally via the *Journal of the Royal Geographical Society of London* where the reports were published.¹⁰² Notably, they were accompanied by a critical memorandum by Arrowsmith. He argued that Helpman and the Gregorys referred to the region's hydrogeography incorrectly and that the names of the river courses used by Grey should be used instead. The president of the RGS, William Hamilton, authorized this interpretation in his address to the fellows in 1848 by stating how 'subsequent investigations' had revealed an error in the nomenclature applied in the reports. He concluded that '[a]ll these points will be made clear in the new map of the western coast of Australia, about to be published by Mr. J. Arrowsmith'.¹⁰³ In sum, Hamilton represented Arrowsmith's forthcoming map as the normative map that should be followed.

Accordingly, Arrowsmith's subsequent maps represented a redrawn coast for Western Australia with a neat line-up of rivers as Grey had identified them and placing the Gregorys' route along the Arrowsmith River instead of the Irwin (as identified by the explorers themselves). Port Grey is placed where Helpman located it. This was the representation that Arrowsmith continued to print until his retirement in the early 1860s.¹⁰⁴ It differed from the geography as understood in the colony and Arrowsmith knew it. In 1852, for example, he received a tracing documenting the governor's trip to Port Grey from the Colonial Office 'to assist him in the correction of any map he may have in hand'.¹⁰⁵ The inspection of the tracing, however, did not alter Arrowsmith's way of naming the rivers and thus constructing the geography of the region. This small detail speaks, yet again, of the transformative nature of

¹⁰² *The Journal of Royal Geographical Society of London* 18 (1848) 26—45.

¹⁰³ *The Journal of the Royal Geographical Society of London* 18 (1848) xxxvii, 74—76.

¹⁰⁴ J. Arrowsmith, *Australia*, 1848, MAP T 84/1, NLA; J. Arrowsmith, *Australia*, 1850, MAP T 85/1, NLA; J. Arrowsmith, *Australia*, 1853, MAP RM 787, NLA; J. Arrowsmith, *Australia*, 1856, MAP RM 3277, NLA; J. Arrowsmith, *Australia*, 1858, MAP T 1441/1, NLA; J. Arrowsmith, *Australia*, 1862, M ZMC 804/1862/1, SLNSW.

¹⁰⁵ Minute by unidentified, CO18/66, TNA, 303v; Plan of the Champion Bay District in Charles Fitzgerald to Earl Grey, 17 June 1852 no 67, CO18/66, TNA.

these circulating references. Only this time, what arrived from the field was contested in Britain, with consequences for the map's role 'in-between' its users and the overseas colony they were 'knowing'.

CONCLUSION

As a metropolitan mapmaker, John Arrowsmith's maps are emblematic of the chains of transformation that references concerning the lands that the British invaded – produced by explorers, surveyors, settlers and officials, often with the help of indigenous peoples – went through. The mapmaker's role as a compiler and publisher was one that transformed a sketch made in the field into a commercial product that could be held as geographic truth. Like textual narratives of travel and exploration, these maps resulted from 'acts of assemblage, of craft, or truth-making'.¹⁰⁶ This article has analyzed the social and material processes that one such map helped generate. The making of the WAC map in London demonstrates how particular mappings became print, whilst others were elided or not even considered.

Following Arrowsmith's map also demonstrates that the arrival of the map back in the field helped determine whether what had been engraved was 'a scientific truth, a gratuitous hypothesis, or a fiction'.¹⁰⁷ Here the personal attributes of its makers mattered: Grey, at least at this early stage of his career, was much more susceptible to accusations of fraud than Arrowsmith, whose interests in mapmaking were considered to serve the public. Later, the map's significance was again remade when read in the context of new knowledge. The social history of the map as a spatial technology thus captures the practices of making scientifically credible knowledge in a network where the 'references' circulated and were transformed. It also highlights the processual nature of maps 'in a constant state of reinscription'.

¹⁰⁶ Keighren, Withers and Bell, *Travels into Print*, 210.

¹⁰⁷ Latour, *Pandora's Hope*, 76. Compare Shapin, *Placing the view from nowhere*, 8.

Consequently, people's encounters with the various ambulatory maps depicting the colonies should be conceptualized as encounters which bring maps into existence as part of the wider processes of mapping and in relation to the understandings of space that their users already possess.¹⁰⁸

Analysis of the WAC map and its successive states demonstrates the need for geographical sensitivity in analyzing how people approached maps and considered them 'panoptic'.¹⁰⁹ Uncovering the power of maps requires going beyond Latour's 'immutable mobiles' and investigating their many 'becomings'. Not all Arrowsmith's maps were as controversial as the WAC map, but they were all demonstrative of similar processes of geographic contingency and mutability. Arrowsmith's long-held position as the semi-official mapmaker of the Colonial Office meant that many of his maps were intimately connected to British settler colonialism. They participated in determining Britons' knowledge of the spaces being colonised by their kin, and of spurring and directing the flows of emigration and capital that propelled colonizing projects and indigenous dispossession. Arrowsmith's career was significant in assisting the British Empire's reorientation from a primary axis across the Atlantic linking Britain to the Caribbean slave-holding colonies. It aided in mapping the new centre of gravity in the southern hemisphere, as emancipation was succeeded by an uncertain settler colonialism on previously uncharted lands.

¹⁰⁸ Kitchin and Dodge, *Rethinking maps*, 335, 339.

¹⁰⁹ Compare Edney, *Bringing India to hand*, 71—72.