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John Septimus Roe and the Art of Navigation, c.1815-1830

Felix Driver & Luciana Martins

Draft of an article published in *History Workshop Journal* 54 (2002) 144-161.

In a logbook of the troop ship Dick, kept by midshipman John Septimus Roe on a voyage from England to New South Wales in 1817, we find a striking sequence of images of the entrance to the harbour of Rio de Janeiro (figs. 1 & 2). One depicts the topography of the Sugar Loaf and adjacent coastal features, as seen from the ship in June 1817; another refers to a similar scene two years earlier when Roe was on board the frigate HMS Horatio anchored in the same bay en route for China. The Sugar Loaf would have been a familiar sight to thousands of British sailors during this period, as Rio de Janeiro was a significant location in the global geography of British maritime power. In the early nineteenth century, Rio was a common port of call for British ships bound for the Indian Ocean, Australia or the Far East. In 1808 the city had become the headquarters of the Royal Navy's South American station and also the capital of an empire, to which the entire Portuguese court had retreated from Napoleon's armies under the protection of British ships.¹ In the early 1820s, there were 2,200 officers and men serving on some nine warships in the Royal Navy's South American station.² Britain's maritime empire was based on an extensive network of such ports of call and naval stations, stretching from the Cape to Madras, from Halifax to Port Jackson. The plans, charts and sketches of maritime surveyors like Roe traced the development of this global system.

In this paper, we are concerned with the ways in which practices of drawing and surveying shaped the geographical imagination of British mariners: an imagination reflecting not simply the global reach of empire, but also the very specific sites constituted as ports of call. The art of navigation involved a variety of skills, notably sketching and mapping: to recognise and to reproduce coastlines was an essential aspect of the surveyors' task, providing a record of the ship's voyage and enabling others to follow in its tracks. The coastal view was an integral component of maritime charts and log-books, part of a common visual code rendering the maritime world intelligible to navigators. But not only for navigation: the surveyor's sketch could also express more personal aspirations, insofar as drawing – like writing – could provide a means of self-advancement. The log-books of John Septimus Roe provide ample evidence of the multiple functions of such image-making.

The history of naval survey and hydrography is often written from the centre, a more-or-less halting narrative of science, government and empire in which prominent naval officials hold the stage. In this paper, we begin with a different view – that of the surveyor in the field, or rather on board ship, working with his eyes and his hands to make a record of the voyage. The two views are of course not mutually exclusive, and it is important to consider the ways in which they formed part of a network through which images made on the spot were transformed into authoritative knowledge: but the perspectives these two views give do differ in important respects. We focus here on John Septimus Roe, who found himself in Rio de Janeiro (for the second time) in June 1817 en route to Australia, where he was to be engaged in a coastal surveying expedition for six

years. While Roe subsequently rose to some prominence as Surveyor-General of Western Australia, we are interested here in his more humble early career, as a young midshipman and master's mate on a number of vessels during and after the Napoleonic Wars. These voyages took him to various sites across the British empire, formal and informal: to the European theatre of war, to North and South America, the Gulf, India, Mauritius, Burma, South-East Asia and tropical Australia (fig. 3). Roe's images of Rio de Janeiro form part of a corpus which raises larger questions about the visual culture of navigation and the experience of observation in the early nineteenth century.

Learning the arts of navigation

Like many future naval officers, Roe was educated at Christ's Hospital in the Mathematical School, where pupils were trained in the arts of navigation: trigonometry, arithmetic, geometry, chronometry, astronomy and drawing.³ Particular emphasis was placed on marine sketching and drawing to enable seamen to make records of coastlines, harbours and fortifications as precisely and rapidly as possible. Roe was soon to put this training to use: in March 1814, for example, he was aboard HMS Rippon, sketching the fortifications of the harbour of Brest during a naval engagement. He subsequently made similar sketches at Rio.

The drawing masters at Christ's Hospital during the eighteenth century had included Alexander Cozens, the son of a shipbuilder: as a painter, Cozens specialised in marine

and coastal views.⁴ The effort to train would-be seamen in the recognition and representation of coastal profiles was apiece with Cozens' theory of landscape, which was based on the recognition of forms through the specification of their fundamental elements.⁵ The shape, dimensions and colour of coastal forms were key aspects in the construction of profiles from the sea: as the Navy's first official hydrographer Alexander Dalrymple put it, 'It is obvious no Plan can be well constructed without having a View of the Land, at least in the mind's eye; and therefore much better to have it recorded, and always present to refer to'.⁶ At the Hydrographic Office, established by the Admiralty in 1795, Dalrymple was responsible for the collation of an ever-expanding archive of naval charts and sailing directions: for a brief period in 1828, John Septimus Roe was to be employed there working up his Australian materials.

The letters which Roe sent home to his parents while he was a pupil at Christ's Hospital make it abundantly clear that his skills as a draughtsman were personally as well as professionally important: 'I can already draw a little', he reported proudly to his father a few weeks after his first lessons at the age of thirteen. Two years later he was awarded one of the school's drawing medals.⁷ Subsequent testimonials from ship's captains, doubly important in the context of naval cut-backs in the period after the end of the French wars, made pointed reference to his abilities as a draughtsman. Later, he was to be delighted with his charts of the Eastern Australian coast, urging members of his family to visit the Admiralty to see them; and he frequently made presents of his drawings to his superiors or their families.⁸ Roe's personal investment in his graphic skills presents us with a rather different aspect of the history of hydrography: rather than simply a story of

power and information, it becomes one of anxiety and esteem. Such evidence draws our attention away from the imperial archive as a whole, or rather away from the fantasy of that archive, and towards its particular material forms: these artefacts were objects of desire as well as instruments of control.

Into the field: making observations

In addition to the policing of seas and the transport of personnel and supplies, the Royal Navy's task on foreign stations was to provide more reliable information for British navigators in a context where ignorance could spell disaster, and precise knowledge might readily be translated into power. Charting a course naturally meant taking accurate observations on ship according to established procedures: standard conventions governed not only the use of instruments like sextants and chronometers, but also the keeping of log-books and the making of charts ultimately for despatch to the Admiralty.⁹ The log-book was clearly central to the art of navigation and the politics of naval discipline. Its page layout in a sense mirrored the strict spatial organisation of the ship: every little bit of information had its proper place, the entries so designed to make optimum use of the available space (fig. 4).

Log-books took many forms: indeed, rather than simply assuming a sharp distinction between, say, formal log-books kept by sea-captains and shipboard diaries kept by civilians, we should rather think of a continuum of literary forms, in which the model of

the log-book had an influence far beyond its formal function. For example, the better-off travellers on long sea-voyages (notably middle-class emigrants to Australia) routinely kept journals, and sometimes these took the form of letters to relatives or quasi-formal log-books, recording not just arrival and departure from a sequence of ports or landmarks, but also bearings and remarks about the weather.¹⁰ The same might be said about the visual images in such sources: drawings of coastal profiles, for example, may be found in private letters, diaries, sketchbooks and more formal journals, as well as in the log-books of naval officers and midshipmen. This is evident for example in a mid-nineteenth century view of Botafogo, Rio de Janeiro, from a diary kept by surgeon Thomas Graham on his way to China (fig. 5). The drawing of coastal views was also a common feature of the work of travelling artists; the harbour at Rio was depicted during the early nineteenth century by William Havell, Augustus Earle and Conrad Martens, for example.¹¹ It should be noted that this traffic in literary and visual conventions also flowed the other way: thus mariners might put their training in graphic representation to other uses. Diaries and sketch-books kept by naval officers on their travels across the globe form a rich visual archive for historians of exploration and encounter.

In the case of John Septimus Roe, it is clear that the art of drawing was learned en route as well as in the classroom. His letters home during his early service at sea stress the laboriousness of the task of sketching and drafting, but also the gradual improvement of his drawing technique. From 1817 to 1823, Roe served under the naval surveyor Phillip Parker King who was charged with completing Matthew Flinders' coastal survey of Australia. King himself also improved his drawing at sea, becoming an accomplished

draughtsman, and the Admiralty specifically instructed him to supervise Roe's drawing and colour-washing on the journey out to Australia.¹² On board ship, Roe was required to follow a strict schedule: making astronomical observations, sketching, reading and writing up the log-books of this and his earlier travels. His studies of the Rio harbour on this voyage to Australia, reproduced here in figures 1 and 2, were specifically designed to prepare him for the work to come.¹³ It does appear that King's skill in sketching coastal landscapes provided a model for his less experienced assistant, as we might reasonably infer from this sketch of the Sugar Loaf which survives in King's papers in the Mitchell Library, Sydney (fig. 6).

As well as being a pupil, Roe was a teacher: on several of his voyages, he was assigned the task of instructing other seamen in drawing and making charts.¹⁴ The log-books he kept of his early journeys are immaculately produced: several include an ornate frontispiece, designed as much to impress relatives and his superiors as anything else (fig. 7 shows one example). Alongside these elaborate productions presumably intended for personal or promotional use, Roe kept simpler notebooks recording strictly astronomical and navigational information, in draft or finished form. On arrival in New South Wales in August 1817, Roe wrote to his father: 'I have completed the sketches in both my logbooks, and nearly finished my journal of the last voyage, besides having kept a log replete with views, etc, of the land, during the Dick's voyage. I have improved considerably in my drawing since leaving England, and hope to make a great deal more, by the constant practice I shall have hereafter'.¹⁵ He was certainly to have plenty of practice in his work for Phillip Parker King, many of whose charts he copied and reduced

for despatch to the Admiralty. In one of King's own watercolour sketches, the two men are depicted surveying the entrance to the Endeavour River on the North-East coast of Australia, where Captain Cook had beached his ship in 1770: Roe's name was duly credited on the chart later despatched to the Hydrographic Office.¹⁶

A further issue prompted by this image of Roe as coastal surveyor is the relationship between his skills as a hydrographer and his career as a colonial map-maker, especially given his appointment in 1829 as Surveyor-General of Western Australia, a post he occupied until 1870. The two careers were not of course entirely distinct: for one thing, Phillip Parker King's coastal survey expedition was under the joint control of the Admiralty and the Colonial Office, an arrangement reflecting its multiple functions and incidentally burdening Roe with what he called the 'double trouble' of duplicating all his charts.¹⁷ Moreover, King's surveying voyages round the coastline of Australia involved numerous terrestrial encounters of one kind or another, notably with aboriginal and Malay peoples in Australia and Timor.¹⁸ Naval surveying voyages during the first half of the nineteenth century routinely involved wider inquiries in the fields of natural history, ethnography and economy. King's small Australian crew thus included a naturalist recommended by Joseph Banks (Allan Cunningham), whose enthusiasm for collecting spread to Roe himself, and an Aboriginal assistant, Bungaree, who had earlier accompanied Flinders in HMS Investigator. In one letter to his father of September 1821, Roe records in some detail a violent confrontation with aborigines on the North-West coast, during which his surveying party made off with a haul of aboriginal tools and weapons. The letter is interrupted by a sketch, capturing the fine detail of a stone spear

head (fig. 8). The same weapon was to appear in an ethnographic illustration to King's published narrative of the surveying expedition, published by John Murray in 1826.¹⁹ There it was represented somewhat abstractly, alongside other artefacts, isolated from the text and identified by a key. Here, however, the weapon pierces the text of a personal letter, interrupting its flow and giving a much more immediate sense of co-presence.

The challenge of picturing unfamiliar cultural forms might be compared to that of rendering natural forms recognisable. Yet the modern distinction between the natural and the cultural is not entirely helpful in this context: in the case of early-nineteenth century landscape art, for example, the two elements are difficult to disentangle. This reflects the contemporary epistemology of landscape, in which notions of art and science were yoked together in a specific way: as Charlotte Klonk has pointed out, a shared focus on the visual recording of directly observable phenomena 'produced a convergence between the object of scientific knowledge and the subject-matter of artistic depiction'.²⁰ The insufficiency of words to describe the practical skill of colouring coastal profiles, for example, was acknowledged in a popular eighteenth-century navigation manual: 'The foregoing observations being well attended to, will enable a beginner to work properly with colours, in plans. But it must be confessed, that half an hour employed in seeing these operations performed by an artist, will furnish more knowledge in these matters, than can be drawn from a multitude of verbal instructions only.'²¹

As well as learning the skills of drawing directly from their superiors, ordinary seamen occasionally had the opportunity of observing the practice of artists on board ship. Their

voyages around the globe in the service of the Royal Navy brought them into contact with a wide variety of different landscapes and cultures. In their rendering of the colour, physical shape and aesthetic form of landscapes, Roe's log-book images might well be compared to the work of contemporary topographic artists (fig. 9). A parallel example is provided by the pencil images of the coastal scenery at Rio de Janeiro sketched by another midshipman, Charles William Browne, at about the same time as those in Roe's log-book. Browne, like Roe, saw Rio more than once: in 1816, for example, he visited the harbour on board HMS Alceste, with the artist William Havell, accompanying Lord Amherst's embassy to China. The evidence suggests that Browne may have learned from Havell, and that he finished his sketches after visiting China and India, presenting an almost orientalist view of the Rio landscape.²²

Rio of course was no ordinary sight: for artists it provided an opportunity to experiment with colour and light, for naturalists it spoke of the tropical sublime, for surveyors its topographic profile provided a paradigm of coastal forms.²³ One issue here is the interactions between these different observers, on board ship and on dry land: to be particular, what Browne learned from Havell, Darwin from Fitzroy, or Roe from King or Cunningham, about working in the field. Fig. 10 is a sketch of a party of naval officers at work in Patagonia by Owen Stanley, who served as a midshipman in Phillip Parker King's later surveying expedition around the coasts of South America: the caption for the sketch - 'preparing to observe' - nicely catches the sense that observation was the product of a combination of skill, training, equipment and physical labour. Yet how to observe and what to observe were far from self-evident: as the astronomer William Herschel put

it, 'seeing is ...an art which must be learnt'.²⁴ Hence the proliferation of instructional literature for enlightened travellers, describing the techniques and tools of observation appropriate to different fields of knowledge, which marks the first half of the nineteenth century.²⁵ This literature owed a significant debt to the discourse on maritime and naval survey: the authors of the principal part of the Royal Geographical Society's famous manual, Hints to Travellers, were naval officers (Henry Raper and Robert Fitzroy) and their manual drew liberally on similar publications designed for maritime surveyors.

Trials of sight

At the start of this paper, we highlighted our concern with visual images as traces of an imaginative geography of travel. From a methodological perspective, however, we have come increasingly to appreciate the limits of a projection model of visual representation in which prior assumptions about cultural and natural difference are treated as powerful labels, constructed in the process of European expansion and pinned on other cultures and other regions. This approach simply assumes too much coherence, homogeneity and self-sufficiency in European systems of knowledge. In its place, we – like others working on the visual culture of travel, notably Leonard Bell and Nicholas Thomas – have become more interested in disorientation, in attempts to negotiate different ways of seeing,²⁶ in the tensions between the knowledge of the study and that of the field; in transactions between various groups. Our argument here is that visual images should not so much be conceived as projections or snapshots – petrified proofs of a way of seeing – than as tools

of knowledge, crafted at particular moments, in particular places and in particular ways. Such an approach has clear methodological implications: in particular, it directs our attention to the processes by which visual images are produced and their diverse material forms, including the sketch or the log-book as much as the finished view or chart.

So let us return to midshipman Roe and his log-books. In this case, we are fortunate to have available to us an extensive correspondence in addition to the books themselves: a small but rich archive in which the imperial eye appears not as transcendent, all-knowing, global, but instead as situated, partial, local. As far as Roe is concerned, the idea of the voyager, the observer-in-transit, seems to carry more weight than the monarch-of-all-I-survey: this maritime surveyor is constantly at work, taking sights, making observations, describing tracks, sketching coastlines. Always on the move, perpetually unsettled. This, at least, is the tale told in Roe's letters to his father and family.

One issue at stake here is the need for historians of the visual archive to restore the eye to the body: to acknowledge the physical labour – the laboriousness – of observation.²⁷ To judge from his letters home, Roe's eyes were his constant preoccupation. At the end of his voyage to China in December 1816, he wrote to his father complaining of over-work: 'my eyes I can assure you are so excessively weak with too close application, that I am frequently obliged to leave off work for several minutes before I can plainly discern anything at a short distance from me'.²⁸ The following May he was in Rio, where he made the log-book sketches reproduced in figures 1 and 2, and again he was lamenting the effect of constantly observing, calculating and drawing charts on his overworked

eyes.²⁹ In December 1817, writing from Port Jackson, he complained that ‘My sight has been so much impaired by constantly looking out, since my being employed in this service, that I now find it difficult to distinguish objects plainly without the aid of a glass’..³⁰ After two more years working in the tropical sun, he was suffering still more from the strain of ‘looking out for land from the mast head in an atmosphere completely parched with heat’.³¹ Along with his books and instruments, perhaps his most precious possession was the eye-water supplied by his mother and latterly by Harriet, the wife of Phillip Parker King. Such physical trials reminded him of the precariousness of his condition, troubling the clarity of both naval discipline and scientific precision. While coastal survey aimed to impose an imperial order on what was deemed to be an irregular and confused world, its practices also preserved (in the words of Paul Carter) ‘a recognition of the refractory nature of the phenomenal world, an awareness of the approximate and constructed nature of its designs’.³² What Roe termed the ‘heat and glare’ of tropical climes, as well as the countless hours spent confined in candle-lit cabins preparing books and charts, would strain even the most imperial eye.

The most dramatic physical injury Roe sustained during his work at sea was caused by his fall from the 80-foot mast of a surveying brig off the North-eastern Australian Coast in June 1821: ‘After striking the spritsail brace, which turned him over in the air and slowed his momentum’, one account relates, ‘he then hit a loose plank lying on the catheads above the fo’c’sle. This inflicted a deep gash above the eye. Then he smashed onto the deck, missing one of the guns by six inches, and lay there senseless, blood pouring from his wound and mouth’.³³ The accident was attributed to his failing to hear

an order while peering intently into the water with his small opera glass: the eyes cancelling out the ears, as it were. Three months later, in a letter to his father, Roe reflected – not entirely seriously, we might think – that the three-inch scar ‘may perhaps serve as an additional claim for promotion’.³⁴ But the notion that such injuries could be interpreted as signs of personal commitment to the state was no momentary thought. In his letter of resignation as Surveyor General of Western Australia nearly fifty years later in 1870, Roe referenced his own body as evidence of his services to exploration and mapping: ‘whilst actively employed in the Public service the sight in one eye has been completely destroyed, that of the other eye very much damaged, the head has twice been severely injured, as also the left hand, and incurable hernia has been contracted whilst forcing [sic] almost impenetrable country’.³⁵

Conclusions

In this paper, we have focused on a single surveyor and some of his log-books in order to explore some larger issues about observation and navigation. In the broadest sense, this paper is concerned with relationships between travelling, seeing and knowing, as articulated in the practice of drawing in the field and keeping a log. Field observation, we have tried to show, was embodied in a variety of ways: making observations required not only the use of instruments but also a disciplining of the senses. As Dorinda Outram has pointed out, contemporary models of exploration – the Humboldtian paradigm above all – invested the body itself with considerable authority, notwithstanding the efforts of

Enlightenment philosophers to bring into question the relationship between the sensual and the moral.³⁶ Roe of course was no Humboldt: during the period we have covered, he was always under the eyes of superior officers, and constantly in search of their approval. But this is perhaps the point: it was through the bodily labours of such men that the claims and contradictions of a new model of exploration were played out. Roe's watercolours were both experiments in a way of seeing and attempts to secure a place in the world. Viewed in this way rather than as finished products, they appear less triumphal and more fragile, drawing our attention to the vulnerability as much as the power of the cartographic eye.³⁷ For where was the surveyor without his eye-water?

Abstract

John Septimus Roe & the Art of Navigation, c.1815-1830

Felix Driver & Luciana Martins

In this paper, we consider the ways in which practices of drawing and surveying shaped the geographical imagination of British mariners in the tropics. The art of navigation involved a variety of skills, notably sketching and mapping. The history of naval survey and hydrography is often written from the centre, a more-or-less halting narrative of science, government and empire in which prominent naval officials hold the stage. Here, we start with a different view - that of the surveyor in the field, or rather on board ship, working with his eyes and his hands to make a record of the voyage. The two views are not mutually exclusive: but the perspectives they give differ in important respects. Our focus in this paper is on a single figure - John Septimus Roe, who later rose to prominence as Surveyor-General of Western Australia. We are interested here in Roe's more humble early career, as midshipman and master's mate on a number of vessels during and after the Napoleonic Wars, which took him to various sites across the British empire, formal and informal: to the European theatre of war, to North and South America, the Gulf, India, Mauritius, Burma, South-East Asia and tropical Australia. The images of Rio de Janeiro examined here form part of a corpus which raises much wider questions about the visual culture of navigation and the experience of observation in the early nineteenth century.

Notes on Contributors

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Luciana Martins is a postdoctoral research fellow at Royal Holloway, University of London. Her research considers the relationships between visual imagery, geographical knowledge and the experience of travel across the globe. She is the author of O Rio de Janeiro dos Viajantes: O Olhar Britânico, 1800-1850 (Jorge Zahar, 2001) and has published on the visual culture of tropicality, geographical thought and modernity. She is currently working on an AHRB research project on British Visions of the Tropics, 1750-1850.

Driver & Martins: Figures

Figure 1. J. S. Roe, Views of H. M. S. Horatio entering the Rio Harbour in 1815, from the log-book of the Dick (Courtesy Battye Library).

Figure 2. J. S. Roe, Views of the Rio Harbour from the troop ship Dick, June 1817, from the log-book of the Dick (Courtesy Battye Library).

Figure 3. J. S. Roe, The track of H. M. S. Horatio from the Straits of Singapore to the Nicobar Islands, April 1816 (Courtesy Battye Library).

Figure 4. J. S. Roe, Log-book of the Dick, Rio de Janeiro, May 1817 (Courtesy Battye Library).

Figure 5. Thomas Graham, Botafogo, Rio de Janeiro (Diary of Passage to China, via Brazil and the Cape, 1849-50 (Wellcome Library, London).

Figure 6. Phillip Parker King, Sketch of the Sugar Loaf, Rio de Janeiro (Mitchell Library, New South Wales).

Figure 7. Frontispiece to Roe's Log-book of the Dick, 1817 (Courtesy Battye Library).

Figure 8 (a). J. S. Roe, Sketch of Aboriginal stone arrow head, from a letter to his father, 28 September 1821 (Courtesy Battye Library).

Figure 8 (b) ‘Weapons of the natives of Hanover Bay’, from P. P. King, Narrative of a Survey of the Intertropical and Western Coasts of Australia (London, 1826), ii, p. 68

Figure 9. J. S. Roe, Log-book of the Dick, Rio de Janeiro, May 1817 (Courtesy Battye Library).

Figure 10. Owen Stanley, Preparing to observe, c.1830 (By permission of the National Library of Australia).

Endnotes

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- ¹ On the significance of Rio as a British naval station during the early nineteenth century, see Barry Gough, 'Sea power and South America: the 'Brazils' or South American station of the Royal Navy, 1808-1837', American Neptune, 50 (1990), pp. 26-34. On Rio as a global city at the time of the translocation of the Portuguese court, see Luciana Martins and Mauricio Abreu, 'Paradoxes of modernity: imperial Rio de Janeiro, 1808-1821', Geoforum, 32 (2001), pp. 533-50.
- ² Brian Vale, 'Appointment, promotion and 'interest' in the British South American squadron, 1821-3', Mariner's Mirror, 88 no. 1 (2002), p. 61.
- ³ J. J. Burton Jackson, Not An Idle Man: A Biography of John Septimus Roe, 1797-1878, Fremantle, 1982, pp. 3-5. Roe first attended Christ's Hospital in 1807, entering the Mathematical School in September 1809: John Septimus Roe to Rev. James Roe, 15 Sept. 1809, State Library of Western Australia, J. S. Batty Library, Perth [hereafter SLWA].
- ⁴ Alexander Cozens' teaching at Christ's Hospital is discussed by Kimblyerly Sloan in Alexander and John Robert Cozens: The Poetry of Landscape, New Haven & London, 1986, Chapter 3.
- ⁵ In a later (incomplete) study entitled The Various Species of...Landscape in Nature, Cozens attempted to develop a method of rendering the character of a landscape based on his treatment of the human face in The Principles of Beauty (1778), through the combination of various 'objects' (rocks, woods, water, buildings) and 'circumstances' (the times of the day, the seasons, the weather conditions).

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- ⁶ Alexander Dalrymple, Essay on Nautical Surveying, London, 1806, p. 4.
- ⁷ John S. Roe to J. Roe, 8 May 1811, 25 March 1813, SLWA.
- ⁸ John S. Roe to J. Roe., 15 July 1813, 14 August 1817, 29 January 1821, SLWA.
- ⁹ According to Basil Hall (writing originally in the 1830s), ‘Three copies [of the Ship’s Log-Book] are afterwards made; one of which is sent to the Admiralty, another to the Navy Board, and the third to the Admiral of the station. The original log-book is eventually deposited at the Admiralty, for the purpose of future reference’: Basil Hall, The Log-Book of a Midshipman, London, 1894, p. 177.
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- ¹¹ Luciana Martins, O Rio de Janeiro dos viajantes: O olhar britânico, 1800-1850, Rio de Janeiro, 2001, pp. 133-61.

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- ¹² Marsden Hordern, King of the Australian Coast: The Work of Phillip Parker King in the Mermaid and Bathurst, 1817-1822, Melbourne, 1997, pp. 24, 26.
- ¹³ John S. Roe to J. Roe, 21 April 1817, SLWA.
- ¹⁴ John S. Roe to J. Roe, 15 May 1813, 18 August 1814, 21 February 1817, SLWA.
- ¹⁵ John S. Roe to J. Roe, 14 August 1817, SLWA.
- ¹⁶ Hordern, King of the Australian Coast, p. 179.
- ¹⁷ John S. Roe to J. Roe, 21 January 1820, SLWA.
- ¹⁸ As recorded in Roe's correspondence, and in Phillip Parker King, Narrative of a Survey of the Intertropical and Western Coasts of Australia Performed between the years 1818 and 1822, 2 vols, London, 1826.
- ¹⁹ King, Narrative of a Survey, vol. ii, p. 68.
- ²⁰ Charlotte Klonk, Science and the Perception of Nature, New Haven and London, 1996, p. 151.
- ²¹ J. Robertson, The Elements of Navigation, 1796, p. 75.
- ²² For an account of Browne's works, see Luciana Martins, 'Navigating in tropical waters: British maritime views of Rio de Janeiro', Imago Mundi, vol. 50, 1998, pp. 141-55.
- ²³ Martins, O Rio de Janeiro dos viajantes.
- ²⁴ Greg Denning, Readings/Writings, Melbourne, 1998, p. 8.
- ²⁵ Felix Driver, 'Hints to travellers: observation in the field', in Driver, Geography Militant: Cultures of Exploration and Empire, Oxford, 2001, pp. 49-67.
- ²⁶ Leonard Bell, 'To see or not to see: conflicting eyes in the travel art of Augustus Earle', in Julie Codell and Dianne Sachko Macleod (eds), Orientalism Transposed: the Impact

of the Colonies on British Culture, Aldershot, 1998, pp. 117-139; Nicholas Thomas and Diane Losche (eds), Double Vision: Art Histories and Colonial Histories in the Pacific, Cambridge, 1999.

²⁷ See especially Dorinda Outram, 'On being Perseus: new knowledge, dislocation and Enlightenment exploration', in David Livingstone and Charles Withers (eds), Geography and Enlightenment, Chicago, 1999, pp. 281-294; Gillian Beer, 'Four bodies on the Beagle: touch, sight and writing in a Darwin letter', in Beer, Open Fields: Science in Cultural Encounter, Oxford, 1996, pp. 13-30; and more generally, Christopher Lawrence and Steven Shapin (eds), Science Incarnate: Historical Embodiments of Natural Knowledge, Cambridge, 1998, pp. 240-87.

²⁸ John S. Roe to J. Roe, 7 December 1816, SLWA.

²⁹ John S. Roe to J. Roe, 21 April 1817 [note added 26 May], 5 June 1817, SLWA.

³⁰ John S. Roe to J. Roe, 7 December 1818, SLWA.

³¹ John S. Roe to J. Roe, 21 January 1820, SLWA.

³² Paul Carter, 'Dark with excess of bright: mapping the coastlines of knowledge', in Denis Cosgrove (ed) Mappings, London, 1999, p. 130. Carter's title is taken from Phillip Parker King's Narrative.

³³ Hordern, King of the Australian Coast, p. 290; King, Narrative of a Survey, vol. ii, pp. 29-31.

³⁴ John S. Roe to J. Roe, 28 September 1821, SLWA.

³⁵ Burton Jackson, Not An Idle Man, p. 166.

³⁶ Outram, 'On being Perseus', p. 290.

³⁷ Simon Ryan, The Cartographic Eye: How Explorers Saw Australia, Cambridge, 1996.
