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Reading and writing the scientific voyage: FitzRoy, Darwin and John Clunies Ross

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Abstract. An unpublished satirical work, written *c.*1848–1854, provides fresh insight into the most famous scientific voyage of the nineteenth century. John Clunies Ross, settler of Cocos-Keeling – which HMS *Beagle* visited in April 1836 – felt that Robert FitzRoy and Charles Darwin had 'depreciated' the atoll on which he and his family had settled a decade earlier. Producing a mock 'supplement' to a new edition of FitzRoy's *Narrative*, Ross criticized their science and their casual appropriation of local knowledge. Ross's virtually unknown work is intriguing not only for its glimpse of the *Beagle* voyage, but also as a self-portrait of an imperial scientific reader. An experienced merchant seaman and trader–entrepreneur with decades of experience in the region, Ross had a very different perspective from that of FitzRoy or Darwin. Yet he shared many of their assumptions about the importance of natural knowledge, embracing it as part of his own imperial projects. Showing the global reach of print culture, he used editing and revision as satirical weapons, insisting on his right to participate as both reader and author in scientific debate.

In the mid-nineteenth century, John Clunies Ross, merchant captain and resident of a remote island in the Indian Ocean, wrote a book-length satire purporting to be a preface and supplement to a new edition of a voyage narrative.[1] His target was *The Narrative of the Surveying Voyages of H.M.S. Adventure and Beagle between 1826 and 1836, Describing Their Examination of the Southern Shore of South America, and the Beagle's Circumnavigation of the Globe*, published in London by Henry Colburn in 1839.[2] In Ross's view, Captain Robert Fitzroy and his young scientific companion Charles Darwin – with their flawed observations in both natural history and hydrography – had defamed the islands on which he and his family had settled.

To avoid taking the 'cream off [a] new work' which would then 'spoil on Mr. Colburn's hands, and become a mere churnful of sour whey in his literary dairy', Ross

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1 John Clunies Ross, 'Voyages of the Adventure and Beagle. Supplement to the 2nd, 3rd and Appendix volumes of the first edition … a satire', Papers of Capt. John Clunies Ross, British Library Additional MS 37631, 1824–1854, ff. 146–233. References hereafter will follow the author's own pagination of the manuscript, pp. 1–169, rather than folio numbers.

2 Robert FitzRoy (ed.), *Narrative of the Surveying Voyages of H.M.S. Adventure and Beagle between 1826 and 1836, Describing their Examination of the Southern Shore of South America, and the Beagle's Circumnavigation of the Globe*, 3 vols. and appendix, London: Henry Colburn, 1839.

Figure 1. Chart showing the track of HMS *Beagle* in the Indian Ocean, with the visit to Cocos-Keeling. Detail, 'General chart', from R. FitzRoy (ed.), *Narrative of the Surveying Voyages of H.M.S. Adventure and Beagle between 1826 and 1836, Describing Their Examination of the Southern Shore of South America, and the Beagle's Circumnavigation of the Globe*, 3 vols. and appendix, London: Henry Colburn, 1839, vol. 2, loose. With permission of history of science collections, Oklahoma University Libraries.

wrote, his supplement would offer a mere sketch of forthcoming revisions.[3] Writing in the persona of FitzRoy, and referring to himself in the third person, Ross explained that

> I was compelled to omit a very handsome collection of exceedingly valuable materials which I am now preparing for being added to those of the first Edition in the composition of a second, or a new work rather, which shall consist of not less than three volumes similar in size and print to those of the first … To be published – so soon as a general call has been made for it, by the reading public. For the object of stimulating that call – this supplement has been kindly written on my behalf by Mr R C Ross of the Cocos, he having been fully informed of the purely benevolent motives by which I was actuated whilst I was on my visit to those Isles and drawing up my report on them and him, which was published to the world by me in my first Edition.
>
> … [H]e has kindly volunteered, and I have gladly accepted the offer to – jointly with me – re-write the whole in my name – for my new Edition. – The report as it stands in that [*sic*] he has also seen fit to insert on the parallel columns – so, that the whole of the bearings and distances, of the one, from the other – may be at once easily seen and clearly comprehended.[4]

Then, in over 160 closely written pages, Ross spelled out his critique of the *Narrative* and his resistance to the authority represented by FitzRoy and Darwin.

3 Ross, op. cit. (1), pp. 1–3. For Colburn as a publisher see Veronica Melnyk, '"Half fashion and half passion": the life of publisher Henry Colburn', PhD thesis, University of Birmingham, 2002; and John Sutherland, 'Henry Colburn, publisher', *Publishing History* (1986) 19, pp. 59–84. On contemporary criticism of the publishing industry see Adrian Johns, 'The identity engine: printing and publishing at the beginning of the knowledge economy', in Lissa Roberts, Simon Schaffer and Peter Dear (eds.), *The Mindful Hand: Inquiry and Invention from the Late Renaissance to Early Industrialisation*, Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen, 2007, pp. 403–427.

4 The quotation here combines two related introductory sections in the manuscript, the preface and the opening to the discussion of Cocos-Keeling. Ross, op. cit. (1), pp. 1–2, 26–27.

Ross's manuscript, hitherto unknown to historians, gives us a surprising glimpse not only of that voyage, on which so much has been written, but also of scientific books and their readers in the nineteenth century. Through the words of a reader situated some ten thousand miles from London, we gain fresh insights into why, and to whom, the *Beagle*'s scientific work mattered beyond the exclusive circles of scientific men and Admiralty officials. The satire allows us to see how facts, theories and reputations travelled, tracing out the imperial dimensions of what have been called geographies of reading. We owe a compelling recent example of this approach in the history of science to James A. Secord, whose *Visions of Science: Books and Readers at the Dawn of the Victorian Age* examines texts written in the early 1830s by leading scientific men and intellectuals.[5] But unlike most of the authors Secord considers, Captain Ross was, in his words, 'a nobody sort of person sometimes Master of a Merchant Ship', situated a very long way from London or Edinburgh.[6] His reactions to texts that reached him in the Indian Ocean offer an important way to reconsider the presence and power of science in a globalizing world. What are the advantages, or limitations, of framing our work in the history of science with metaphors of circulation, networks and translation?[7] The example of Ross, juggling the roles of author, collaborator and knowledgeable local, suggests that we can in some cases take these metaphors quite literally. He used the practices of publication as weapons in order to insist on his right to participate in scientific debate.

This satire of the *Narrative* recalibrates our understanding of the *Beagle* voyage in two important ways. First, it concentrates its invective on FitzRoy, hydrographer of the Royal Navy – not Darwin, the young naturalist-gentleman. It is a reminder that recalling the *Beagle* voyage only through Darwin's voice has tended to obscure significant elements of the voyage. This is hardly a novel point, but one that bears repeating, especially for identifying hydrography and the scientific navy as remarkable and distinctive features of this period.[8]

5 James A. Secord, *Visions of Science: Books and Readers at the Dawn of the Victorian Age*, Oxford: Oxford University Press, 2014. Cf. Secord, *Victorian Sensation: The Extraordinary Publication, Reception and Secret Authorship of* Vestiges of the Natural History of Creation, Chicago: The University of Chicago Press, 2001; and Jon Topham, 'Beyond the "common context": the production and reading of the Bridgewater Treatises', *Isis* (1998) 89, pp. 233–262. For later scientific reading publics see Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences*, Chicago: The University of Chicago Press, 2007.

6 Ross, op. cit. (1), pp. 1, 28.

7 Fa Ti Fan, 'Science in the cultural borderlands: methodological reflections on the study of science, European imperialism, and cultural encounter', *East Asian Science, Technology and Society* (2007) 1, pp. 213–231; David Livingstone, 'Science, text and space: thoughts on the geography of reading', *Transactions of the Institute of British Geographers* (2005) 30, pp. 391–401; Lissa Roberts, 'Situating science in global history: local exchanges and networks of circulations', *Itinerario* (2009) 33, pp. 9–30; James A. Secord, 'Knowledge in transit', *Isis* (2004) 95, pp. 654–672; James Delbourgo, Kapil Raj, Lissa Roberts and Simon Schaffer (eds.), *The Brokered World: Go-Between and Global Intelligence, 1770–1820*, Sagamore Beach, MA: Science History, 2009, pp. ix–xxxviii.

8 George Basalla, 'The voyage of the *Beagle* without Darwin', *Mariner's Mirror* (1963) 49, pp. 42–48; Katharine Anderson, 'Natural history and the scientific voyage', in Helen Curry, Nicholas Jardine, James A. Secord and Emma Spary (eds.), *Worlds of Natural History*, Cambridge: Cambridge University Press, forthcoming 2018.

But the second, and to my mind chief, interest of the manuscript is its self-portrait of the scientific reader. As an experienced merchant seaman and trader–entrepreneur with decades of experience in the region, Ross had a very different perspective from that of FitzRoy or Darwin. At the same time, he shared many of their assumptions about the importance of natural knowledge, embracing it closely as part of his own imperial project. Ross shows how debates in geography, geology and natural history sprawled across oceans and continents. His satire assumed a reader's familiarity with the ways in which maps, newspapers and books circulated, were reproduced and were reviewed. He mirrored the original text with revisions, extensions and corrections. As we saw above, he played with slippery notions of authors and editors, writing 'for and in the name of' FitzRoy, but often with sly interjections or allusions to himself. In form and content, then, Ross's denunciation of the *Narrative* reveals essential features of the print culture of the early Victorian world. The text was a satire of global science, but at the same time it positioned itself as a participant: part of a relentless flow of books and periodicals that were redefining the reach and appeal of scientific culture.

The voyage-in-print

Ross's unpublished manuscript is in many ways simply a curiosity. I cannot date it precisely, although it can be pinned down to a six-year period between 1848, the date of latest publication cited in its pages (another Admiralty narrative), and 1854, the year of Ross's death.[9] It is written in a clear hand, with occasional corrections and insertions from a second, rougher hand, which suggests it was a clean copy intended to circulate, perhaps even to find a publisher. I do not know for certain where it was written, although to assume it was written in Ross's home on the remote coral atoll seems reasonable – there is no record of him travelling beyond the region in these years. In 1908, the manuscript somehow found its way to the collections of the British Library, where it was carefully catalogued, paginated and tucked away.[10]

At first glance, the critical context to consider is that of the voyage narrative, an established genre that took on new life in the 1820s and 1830s. As the steam press and a widening readership transformed the publishing industry, travel books of all sorts were standard bestsellers, bringing the adventures and exoticism of empire home to the fireside.[11] Within this general market for books of travel, the Admiralty narratives had a particular place. Their lineage stretched back to Hakluyt's compilations of

9 Captain Edward Belcher, *Narrative of the Voyage of H.M.S. Samarang during the Years 1843–46*, London: Reeve, Benham & Reeve, 1848. Belcher visited Cocos-Keeling in July 1846.

10 The British Library manuscripts catalogue lists Frank Adams, esq., as the presenter of manuscript. It was acquired in 1908, and library records have no further information on its provenance (Claire Wotherspoon, Manuscript Reference Team, British Library, personal communication, 22 November 2017). It is suggestive that in these years the islands were acquiring new importance as a communications link: a cable company established a station on the islands in 1901, and a further cable connection to Java was established in 1906. One possibility is that, through the administration associated with these endeavours, some family papers were transferred to London.

11 Innes M. Keighren, Charles Withers and Bill Bell, *Travels into Print: Exploration, Writing and Publishing with John Murray 1773–1859*, Chicago: The University of Chicago Press, 2015; Robin Myers and Michael

Elizabethan explorers, through the descriptions of Cook's voyages of Pacific discovery of the previous century.[12] But, as Adriana Craciun has recently shown, the voyage narrative was reinvigorated in the 1820s, becoming a representative kind of text that spoke to new appetites for print and illustration, for useful knowledge and adventure.[13] A long review of John Franklin's *Narrative of the Journey to the Shores of the Polar Sea* (1823) supplies a good summary of the genre and its appeal:

> This is indeed a powerfully interesting production: the personal narrative most affecting, the scientific details equally valuable and amusing, the manner in which the volume is printed and embellished … [with] tables of science, typography, charts, plates finely executed of scenery and costume, render it, to use the bookselling phrase, one of the best got up volumes that has appeared even in these improving times.[14]

Voyage narratives like these reflected the expanding role and influence of the Hydrographic Office.[15] With British trade and imperial influence growing in the post-Napoleonic world, naval officers expertly trained in hydrographic measurement carried the flag to all corners of the oceans. Naval regulations governed their literary responsibilities, as they did all other aspects of their work. All the records of a naval voyage (logs, remark books, accounts and journals) had to be formally submitted by a ship's officers to the captain before disembarking (a condition enforced by the fact

Harris (eds.), *Journeys through the Market: Travel, Travellers and the Book Trade*, New Castle, DE: Oak Knoll Press, 1999.

12 Robert Foulke, *The Sea Voyage Narrative: Genres in Context*, New York: Twayne, 2002; Mary Fuller, *Voyages in Print: English Narratives of Travel to America*, Cambridge: Cambridge University Press, 1995; Steve Mentz, 'Towards a blue cultural studies', *Literature Compass* (2009) 6, pp. 997–1013; Daniel Carey, 'Compiling nature's history: travellers and travel narratives in the early Royal Society', *Annals of Science* (1997) 54, pp. 269–292; Margaret Sankey, 'Writing and re-writing the Baudin scientific expedition', in Jean Fornasiero and Colette Mrowa-Hopkins (eds.), *Explorations and Encounters in French*, Adelaide: University of Adelaide Press, 2010, pp. 103–134, Lynn Nyhart, 'Voyaging and the scientific expedition report, 1800–1940', in Rima D. Apple, Gregory J. Downey and Stephen L. Vaughn (eds.), *Science in Print: Essays on the History of Science and the Culture of Print*, Madison: University of Wisconsin Press, 2012, pp. 65–86; D. Miles Ogborn, 'Writing travels: power, knowledge and ritual on the East India Company's early voyages', *Transactions of the Institute of British Geographers* (2002) 27, pp. 155–171.

13 Adriana Craciun, *Writing Arctic Disaster: Authorship and Exploration*, Cambridge: Cambridge University Press, 2016.

14 'Review of new books', *London Literary Gazette* (12 April 1823) 325, pp. 225–226.

15 Standard histories are George Ritchie, *The Admiralty Chart: British Naval Hydrography in the Nineteenth Century*, New York: American Elsevier, 1967; and Alfred Friendly, *Beaufort of the Admiralty: The Life of Sir Francis Beaufort 1774–1857*, London: Hutchison, 1977. Hydrography's place in early Victorian science was analysed in David Philip Miller, 'The revival of the physical sciences in Britain', *Osiris* (1986) 2, pp. 107–134; recent studies of hydrography and the Admiralty Hydrographic Office include Megan Barford, 'The surveyor's St. Lawrence: route science and survey work', in Katharine Anderson and Helen M. Rozwadowski (eds.), *Soundings and Crossings: Doing Science at Sea 1800–1970*, Sagamore Beach: Science History, pp. 49–78; Randolph Cock, 'Scientific servicemen in the Royal Navy and the professionalisation of science 1816–1855', in David Knight and Matthew M. Eddy (eds.), *Science and Beliefs: From Natural Philosophy to Natural Science*, Farnham: Ashgate, 2005, pp. 95–112; and Adrian Webb, 'The expansion of British naval hydrographic administration, 1808–29', unpublished PhD thesis, University of Exeter, 2010. Of particular interest in terms of hydrographical publications and their audience is Megan Barford, 'Fugitive hydrography: the *Nautical Magazine* and the Hydrographic Office of the Admiralty 1832–1850', *International Journal of Maritime History* (2015) 27, pp. 208–226.

that an officer could not receive his shore half-pay without the captain's acknowledgement of their receipt). The captain then submitted the logs, charts and remark books, whether his own or his officers', to the Admiralty. Nevertheless, the captain could then, with permission, engage with publishers to publish an account for the general reader, drawing upon all the logs and journals by arrangement with the Admiralty.[16] Government grants, such as those to assist the expensive publication of scientific researches (a thousand pounds in the case of the *Beagle*), did not fund the general narratives.[17]

Yet the whole business of these 'voyages' was never quite so regulated as this description implies, and variously subversive versions are not hard to find. For example, one reviewer described Jacques Arago's popular *Voyage round the World* (1822), which recounted the French Pacific expedition of *Uranie* and *Physicienne* in 1817–1820, as the 'fly-boat of the expedition'. He praised the volume because it came years in advance of a detailed narrative whose plates and length would place it 'beyond the reach of general readers'.[18] John MacDouall, a clerk on the *Beagle* on her first voyage to South America in 1826 and 1827, published a *Narrative of a Journey to Patagonia and Terra del Fuego* in 1833, with a defiant quotation – 'Zounds, I'll print it!' – on the title page and a coy reference to his pecuniary motives ('*sterling* deserts') in the preface.[19] A more complex instance shows us the influential hydrographer Francis Beaufort working behind the scenes. In 1832–1834, Lieutenant William Allen, a protégé of Beaufort's, had participated in an expedition up the Niger, backed by a steamship company owned by MacGregor Laird. Beaufort had negotiated with Laird an agreement about publications, both scientific and popular, before the expedition started – but in 1834 he nevertheless encouraged Allen to prepare his journals for separate publication. The secretary for the steamship company then complained that all the London publishing firms were aware of this competing literary project, and would not undertake Laird's *Journal* on good terms, since they expected Allen's to appear immediately afterwards. In the end, Allen left the field to Laird, although he later published a *Narrative* with the same publisher (Richard Bentley) on a second Niger expedition.[20]

These examples sketch the publishing world that the official *Narrative* of HMS *Beagle* entered. The *Narrative* followed the established pattern. FitzRoy discussed a division of

16 See, e.g., *The Seaman's New Vade-Mecum Containing a Practical Essay on Naval Book-Keeping With the Method of Keeping the Captain's Accounts and Complete Instructions on the Duties of a Captain's Clerk, Purser &C in the Royal Navy*, 5th edn, London: Steel & Co, 1811; and *Regulations Established by the King in Council, and Instructions Issued by the Lords Commissioners of the Admiralty, Relating to His Majesty's Service at Sea*, London: John Murray, 1826.

17 For an instance of his explicit refusal to fund general narratives see Randolph Cock, 'Sir Francis Beaufort and the coordination of British scientific activity 1829–1855', PhD thesis, University of Cambridge, 2003, pp. 244–246.

18 'Arago's *Voyage Round the World*', *Galignani's Magazine*, June 1823, pp. 52–59, 53.

19 John MacDouall, *Narrative of a Journey to Patagonia and Terra del Fuego in 1826 and 1827*, London: Renshaw and Rush, 1833, p. iv. The epitaph alluded to Alexander Pope's *Epistle to Dr. Arbuthnot* and its complaints about the writer's life: ''Sdeath, I'll print it and shame the fools!'

20 MacGregor Laird and R.A.K. Oldfield, *Narrative of an Expedition in the Interior of Africa in the Steam-Vessels Quorra and Alburkah, in 1832, 1833, 1834*, London: Richard Bentley, 1837.

subjects with Darwin as the voyage neared its end, collected his officers' logs and remark books, and arranged for future publication with the London publisher Henry Colburn. It proved to be a complicated work, including the account of a previous voyage, a South American survey of 1826–1830. Captain Phillip Parker King had prepared the general narrative of that earlier expedition, but because King had since retired to his estates in Australia in 1832, it was edited for publication by FitzRoy, who had joined King as commander of HMS *Beagle*, then the sister ship to Captain King's HMS *Adventure*, in mid-voyage in late 1828. When it appeared in 1839, the *Narrative* consisted of King's account, edited and with appendices prepared by FitzRoy; FitzRoy's description of his second voyage in HMS *Beagle* alone; FitzRoy's own very large set of appendices collected in a separate volume; and finally Darwin's *Journal of Researches into Geology and Natural History*. Darwin had completed converting his diaries for publication by June 1837, and he chafed at the delay caused while FitzRoy gave priority to finishing the charts and the accompanying sailing directions for the Admiralty.[21] When the *Narrative* finally appeared in August 1839, the whole set cost £3 18s, a handsome sum.[22]

The *Narrative* was favourably reviewed and the major periodicals of the day printed long extracts from the work. FitzRoy's accomplishments in exploring the geography of the southern part of the continent won many scientific accolades. Darwin, however, did not think highly of either captain's account. He called King's volume a 'heavy pudding' with 'natural History of a very trashy Nature';[23] in FitzRoy's volume, the chapter advocating the study of biblical evidence in geology dismayed him. Extracting himself from Colburn and his naval co-authors, Darwin republished his volume in 1845 in a much less expensive second edition (7s 6d) as part of the publisher John Murray's Home and Colonial Library. Billed as 'cheap literature for all classes', this was a series that carried many other travel narratives.[24] Around the same time, there also seems to have been a plan for a second edition of the King–FitzRoy volumes. Darwin's bibliographer R.B. Freeman noted a Colburn advertisement inserted in a book published in 1849, although the edition did not materialize.[25]

Clunies Ross of Cocos-Keeling

These second editions – one real, one prospective – are the cue for the re-entry of Ross and his satirical manuscript to the story. Who was FitzRoy's supposed ghostwriter?

21 Charles Darwin to William Whewell, 16 February 1839, Darwin Correspondence Project Database, at www.darwinproject.ac.uk/entry-496, letter no 496, accessed 25 July 2011.

22 R.B. Freeman, *The Works of Charles Darwin: An Annotated Bibliographical Handlist*, 2nd edn, Dawson: Folkestone, 1977, pp. 31–37, at www.darwin-online.org.uk, accessed 14 February 2018. Darwin told his sister that Colburn had billed him for presentation copies, and that only 1,337 copies had been sold. Darwin to S.E. Darwin, 22 February 1842, Darwin Correspondence Project Database, at www.darwinproject.ac.uk/entry—621, letter no 621, accessed 14 February 2018.

23 Darwin to S.E. Darwin, 1 April 1838, Darwin Correspondence Project Database, at www.darwinproject.ac.uk/entry-407, letter no 407, accessed 14 February 2018.

24 Freeman, op. cit. (22); C. Darwin to J. Murray, 17 March 1845, Darwin Correspondence Project Database, at www.darwinproject.ac.uk/entry-841, letter no 841, accessed 27 September 2017.

25 Freeman, op. cit. (22), p. 33.

Luckily, we know considerably more about the life of John Clunies Ross than we do about the provenance of his manuscript. His varied activities as whaler, merchant captain, estate manager, shipbuilder and finally coconut plantation owner illustrate in remarkable fashion the commercial networks stringing through the British Empire. Ross was born in the Shetlands in 1786. The eldest son of a schoolteacher, George Cluness (*sic*), and Elizabeth Ross of Yell, he went to sea in 1800, first as an apprentice seaman on a whaler in Greenland, then joining a ship in the southern whaling trade, sailing in the south Atlantic and Pacific. He became master of a merchant ship in the East Indies trade. By 1816 he had entered the employ of Alexander Hare as overseer and manager for Hare's estate in Banjermassin, Borneo, acquired by Hare a few years earlier when the British occupied the Dutch East Indies at the end of the Napoleonic Wars. Hare left this property for Batavia, Java, as Borneo passed again into Dutch control, and eventually left the region for the Cape of Good Hope in 1820, taking a group of his slaves to develop a holding there. (They were only nominally 'freed' despite the recent abolitionist laws against slavery in the empire.) In the meantime, Ross, ejected by the Dutch authorities from the Banjermassin estates, returned temporarily to London, and in 1821 married Elizabeth Dycote, who had sheltered him from press gangs. He began looking for a place to settle as a base for his trading activities, apparently considering the prospects of several locations before deciding on Cocos-Keeling.[26] The atoll, twenty-five miles in circumference, was made up of some two dozen islands, of which the two largest were about five and six miles long.[27] Ross made an initial visit to the then uninhabited islands in December 1825, and returned with his family in February 1827.[28]

26 An account based on 'fortunate access to the journals of the Pioneer' appears in Frederic Wood-Jones, *Coral and Atolls*, London: Lovell Reeve, 1910, p. xxii. Wood-Jones lists Ross's interest in the Falklands, Melville Island in the Timor Sea, Kerguelen Islands (also known as Desolation Islands), another coral island off East Sumatra known then as Poggy or Poggee, and Easter Island, before deciding on Cocos-Keeling (p. 13). The writer lived on the islands in 1905–1907 as medical officer to the cable company station, and married a great-granddaughter of John Clunies Ross in 1910. He notes that a fire destroyed 'a great part of [Ross's] writings', though 'some fragments remain' (p. 24). He does not specify the manuscript I discuss.

27 H.B. Guppy, 'The Cocos-Keeling islands,' *Scottish Geographical Magazine* (1889) 5, pp. 281–297, 457–474, 569–588, 281.

28 The two most reliable sources are C.A. Gibson-Hill, 'Documents relating to John Clunies Ross, Alexander Hare and the establishment of the colony on the Cocos Keeling Islands', *Journal of the Malayan Branch of the Royal Asiatic Society* (1952) 25, pp. 7–301; and a pair of articles by historian Margaret Ackrill: 'The origins and nature of the first permanent settlement on the Cocos Keeling Islands', *Historical Studies: Australia and New Zealand* (1984), 21, pp. 229–244; and 'British imperialism in microcosm: the annexation of the Cocos (Keeling) Islands', London School of Economics: Working Papers in Economic History, March 1994, 18/94, pp. 1–40, at eprints.lse.ac.uk/id/eprint/22441, accessed 8 December 2017. Gibson-Hill (1911–1963) was (like Wood-Jones, op. cit. (26)) a medical doctor who worked for the cable and wireless company station at Cocos-Keeling in 1941. He collected documents on the early history of the island and later became curator of Singapore's Raffles Museum (now the National Museum of Singapore) and a leading figure in the Royal Asiatic Society, Malayan Branch. Both Gibson-Hill and Ackrill draw attention to the numerous errors in popular accounts of Ross and of Cocos-Keeling, which Ackrill attributes to the scattered nature of the official archives (i.e. Colonial Office and its predecessors: Mauritius, original correspondence, 1778–1950, CO 167, National Archives; Cocos or Keeling Islands and Seychelles, 1830–1839, ADM 125/131, National Archives). Ackrill has carefully assessed Gibson-Hill's sources, but does not

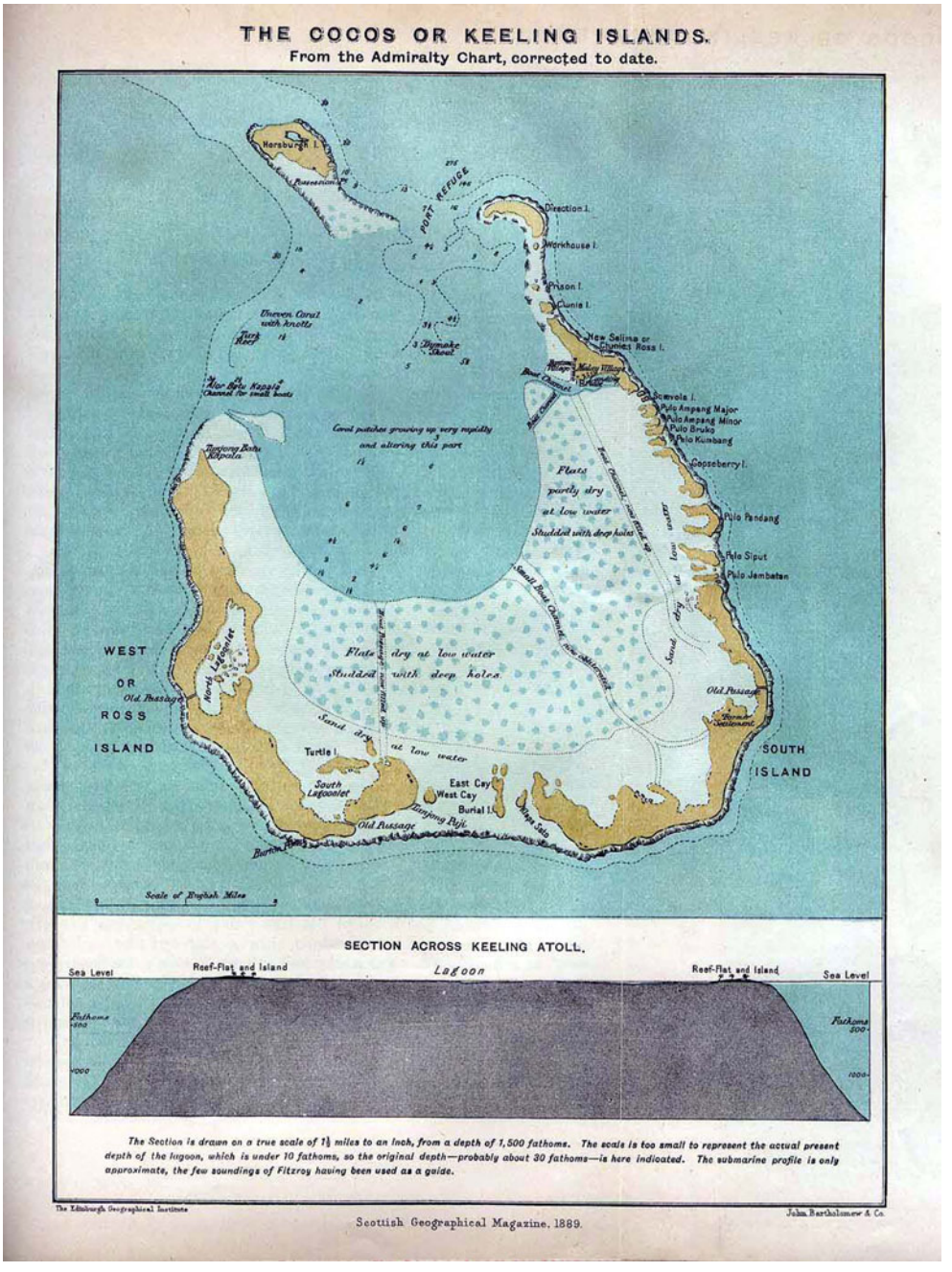

Figure 2. Chart of Cocos-Keeling made later in the century. H.B. Guppy, 'The Cocos-Keeling islands,' *Scottish Geographical Magazine* (1889) 5, pp. 281–297, 457–474, 569–588, following p. 512.

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Ross's relationship with his associate Hare became part of the disputes regarding his claim to original settlement of the islands. Dissatisfied with the spread of British abolitionist regulations, Hare had moved again with his slaves to Cocos-Keeling in 1826, settling on a different island in the group shortly before Ross returned with his family. Hare became notorious for his cruelty and especially for the abuse of his female slaves; Ross's approach, in which he encouraged a form of self-government among the Malays, seemed much more palatable to contemporaries. In 1831, when his slaves deserted en masse for Ross's protection, Hare left the islands. The population, consisting of the original groups of Hare's slaves and Ross's servants and family, grew steadily; around 1835, there were 175 inhabitants, with twenty of these 'native British'.[29] The former slaves harvested coconuts in return for wages from Ross; Ross processed the oil, took it to market, and supplemented the subsistence agriculture of the community with traded goods.[30]

Ross's hopes for his settlement spread through the printed word. We know he wrote several petitions to the British authorities urging his claims, explaining the value of the islands and urging that the territory become a British possession. He also provided information and a detailed chart of the islands to the geographer of the East Indies Company, James Horsburgh; the latter's *India Directory*, the standard reference for navigators, gave a few pages of information on Ross and his settlement in the fourth edition (1836), telling navigators that there they could find supplies of water, hogs and poultry and make minor repairs.[31] Ross's hopes emerged in more detail in a monthly journal published in Calcutta, *Gleanings of Science*. This monthly had been founded in 1829 by Captain J.D. Herbert, deputy surveyor general for India, to serve its readers with a digest of European scientific news and to act as a forum for local contributions.[32] An article on the Cocos-Keeling settlement in October 1830 seems to have

appear to have used the family papers in the British Library. See Ackrill, 'The origins and nature of the first permanent settlement on the Cocos Keeling Islands', op. cit., p. 243.

29 Most information about Hare comes through Ross, so needs caution. The population figures come from Ross's long account of the settlement that he submitted to Sir Bladen Capel, commander-in-chief of the East Indies Station, the writing of which Gibson-Hill dates to late 1835; it is reprinted in Gibson-Hill, op. cit. (28), p. 228.

30 J.S. Bastin, 'Britain as an imperial power in south-east Asia in the nineteenth century', in J.S. Bromley and E.H. Kossman (eds.), *Britain and the Netherlands in Europe and Asia*, London: Macmillan, 1968, pp. 174–190; Peter Boomgaard, Freek Colombijn and David Henley (eds.), *Paper Landscapes: Explorations in the Environmental History of Indonesia*, Leiden: KITLV Press, 1997; David Cannadine (ed.), *Empire, the Sea and Global History: Britain's Maritime World, 1760–1840*, Basingstoke: Palgrave Macmillan, 2007; M.C. Ricklefs, *A History of Modern Indonesia since c.1200*, Bloomington: Indiana University Press, 1981; Eric Tagliacozzo, 'Hydrography, technology, coercion: mapping the sea in Southeast Asian imperialism, 1850–1900', in David Killingray, Margaret Lincoln and Nigel Rigby (eds.), *Maritime Empires: British Imperial Maritime Trade in the Nineteenth Century*, Woodbridge: Boydell/National Maritime Museum, 2004, pp. 142–158; Tagliacozzo, 'Navigating communities: race, place and travel in the history of maritime Southeast Asia', *Asian Ethnicity* (2009) 10, pp. 97–120.

31 James Horsburgh, *India Directory, or Directions for Sailing to and from the East Indies, China, Australia, Cape of Good Hope, Brazil and the Interadjacent Ports Compiled Chiefly from Original Journals of the Company's Ships and from Observations and Remarks Made during Twenty-One Years' Experience Navigating in Those Seas*, 4th edn, 2 vols., London: W.H. Allen, 1836, vol. 1, pp. 134–135.

32 In 1832 the journal was absorbed into the *Journal of the Asiatic Society*. David Arnold, *Science, Technology and Medicine in Colonial India*, Cambridge: Cambridge University Press, 2000, pp. 30–31.

been based on documents Ross sent to the Colonial Office, and perhaps written by Herbert. It represented the atoll as a secure anchorage and 'a convenient entrepôt for much of the trade in which England, Australia, Mauritius, India and the Eastern Islands are engaged'. Alongside a catalogue of native vegetation and fauna was added an account of all the crops which Ross had introduced, from figs and oranges to watermelon, leeks and lettuce. Describing a salubrious climate, with no jungles or pestilence, no snakes or poisonous fish, the article suggested that an invalid visitor from Calcutta (a month's voyage away) could 'combine all the salutary influences of a sea voyage, with the conveniences and comforts of the land'.[33] From its origins, then, the settlement built its existence on the prestige and appeal of hydrographical knowledge, natural history and even medical theory, packaged for a wide readership.

For the remainder of his life, Ross remained based on Cocos-Keeling, navigating the Anglo-Dutch rivalry in the region and developing his own family and community on the islands. He died in 1854, aged sixty-eight, and was buried near his home called Selma, under a gravestone of imported Scottish granite.[34] Despite his many petitions, the British authorities remained reluctant to annex the islands, as this would risk contravening agreements made in 1824 to demarcate their colonial interest in Malaysia and Singapore from the Dutch East Indies. Yet in 1857, the British Navy unexpectedly sailed in from Australia to plant the flag, greeted by Ross's puzzled son, John George Clunies Ross. The Foreign Office in London had in fact sent instructions to take possession of different 'Cocos' (of the Andaman Islands in the Bay of Bengal), but it proved to be a difficult mistake to correct diplomatically. In the short term, this piece of truly 'accidental empire' may have cost the Ross family their favourable trading position with Dutch-controlled ports in the region.[35] Incorporated subsequently into the governments of Ceylon (1878), the Straits Settlement (1884) and then Singapore (1903), the high point of political importance for the islands perhaps came in the world wars of the twentieth century, when they offered Allied forces a vital cable and wireless station. With the community still led by the Ross family, Cocos-Keeling remained a British possession until it passed to Australia in 1955.[36]

Ross's ambition for the islands explains many of his attitudes in his satire. Although he was not present during the *Beagle*'s visit in 1836 (being absent on a trading voyage to Batavia), he strongly resented the aristocratic young naval officer FitzRoy and was slighted by his punctilious refusal in the *Narrative* to use the courtesy title 'captain' (instead of 'master') to describe him. He mocked FitzRoy's description of the ceremony of crossing the equator as a 'truly exhilarating ceremony' that provided rough sailors with 'quite … a blessed relief from the ennui of Dandyism'. He criticized FitzRoy's navigational skills and mocked his explanations of two infamous Royal Navy shipwrecks in South America, the HMS *Thetis* wreck of 1830 and the HMS *Challenger* wreck of 1835.

33 'Some account of the Cocos or Keeling Island and of their recent settlement', *Gleanings of Science* (1830) 2, pp. 293–301, 294.

34 Wood-Jones, op. cit. (26), p. 25.

35 Ackrill, 'British imperialism in microcosm', op. cit. (28).

36 Nicholas Tarling, 'The annexation of the Cocos Keeling Islands,' *Historical Studies: Australia and New Zealand* (1959) 8, pp. 400–404.

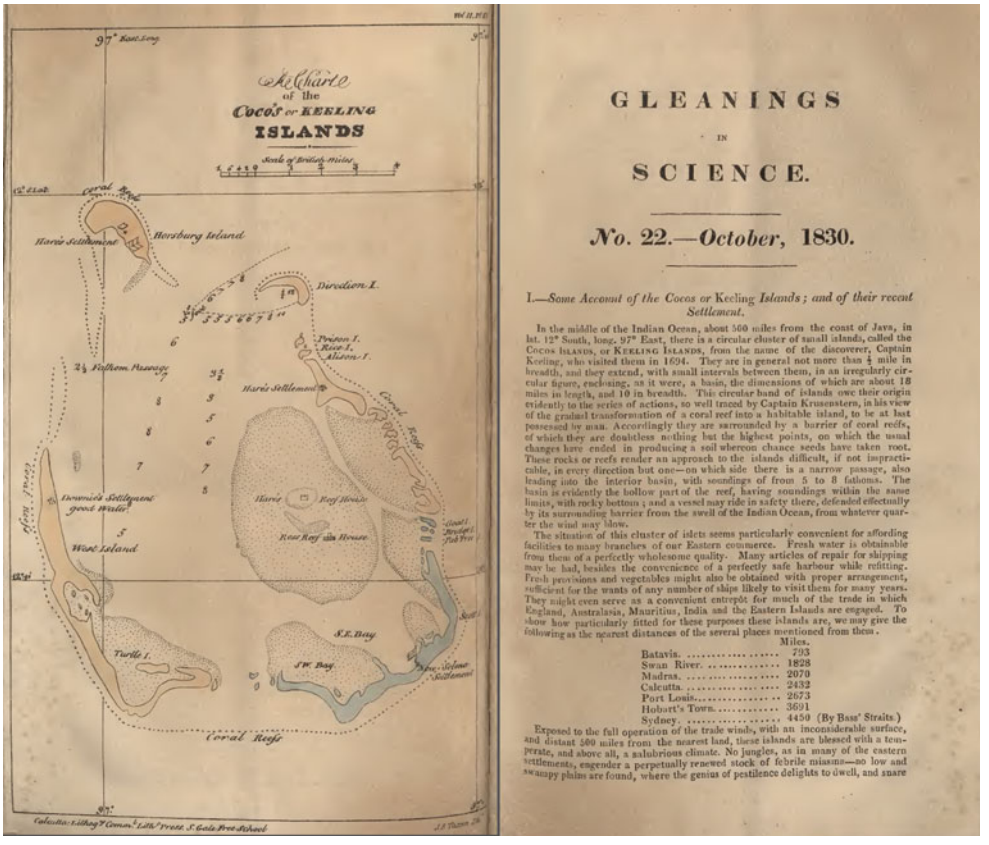

Figure 3. Chart and description from 'Some account of the Cocos or Keeling Island and of their recent settlement', *Gleanings of Science* (1830) 2, pp. 293–301, 293.

He was equally scathing about FitzRoy's judgements concerning settler life and trade in the places the *Beagle* had visited. Accusing FitzRoy of naivety regarding the abolition of slavery in Brazil, Ross outlined the labour practices Ross himself had introduced in Cocos-Keeling, which he characterized as a style of serfdom like that of medieval Europe on the one hand, and of contemporary village practices in India on the other. He also relentlessly satirized the relationship between FitzRoy and Darwin, presenting it as a competition between two equally ambitious young men. In the opening part of the supplement, Ross wrote,

> I [i.e. FitzRoy] naturally wished to have a savant at my elbow in the position of a humble toadyish follower who would *do* the Natural History department on my sole account, but not being able to obtain such a one I was compelled to take Mr. Darwin on a far too independent footing.

Later, speculating about FitzRoy's doubts regarding a chart of Cocos-Keeling, he imagined a conversation between the Royal Navy officer and the naturalist:

https://doi.org/10.1017/S000708741800050X Published online by Cambridge University Press

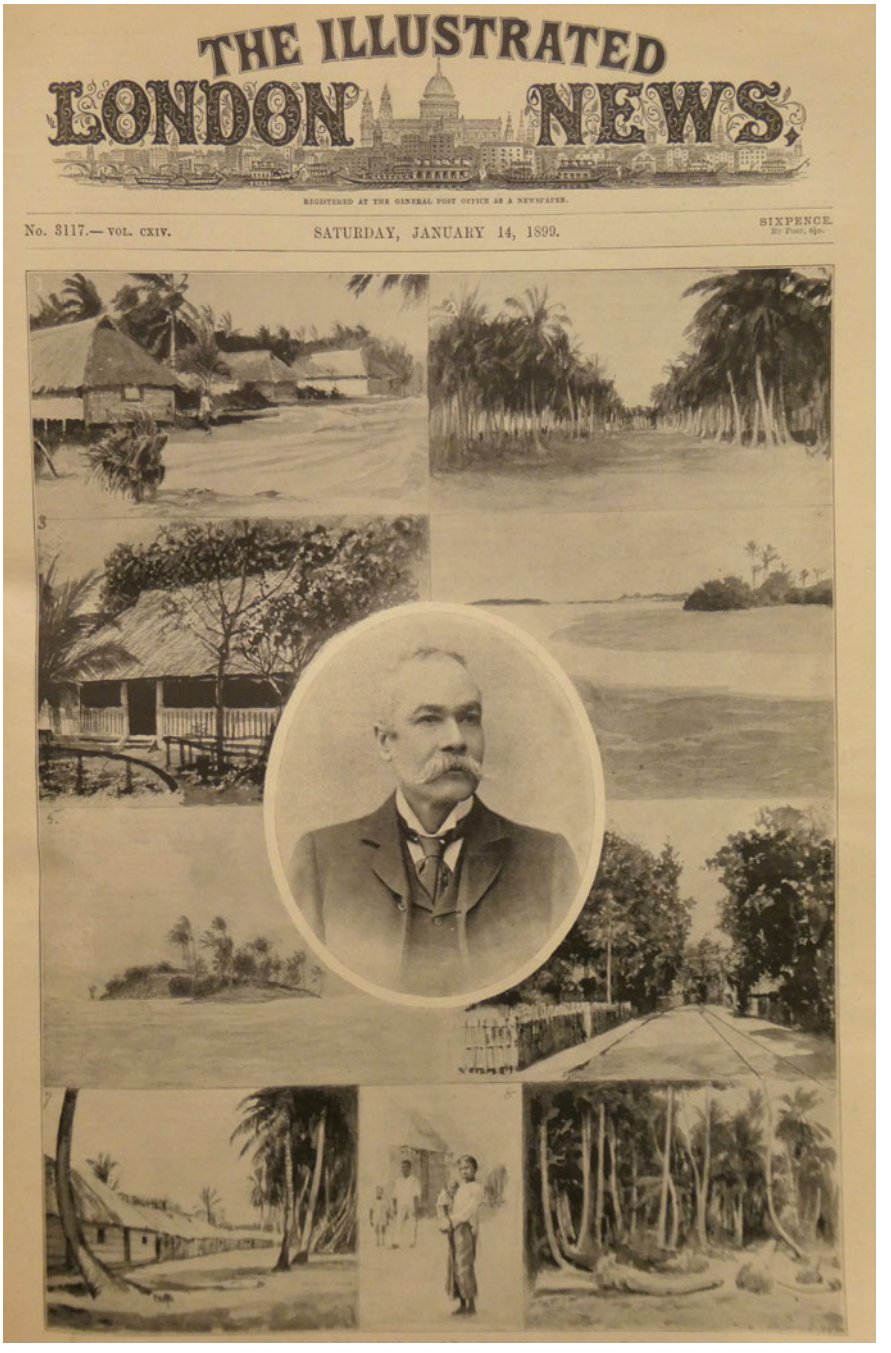

Figure 4. *Illustrated London News* (14 January 1899) 114, p. 37, showing the appearance of the island at the end of the century, with George Clunies Ross, John's grandson, in the centre. From the Clara Thomas Archives and Special Collections, York University.

https://doi.org/10.1017/S000708741800050X Published online by Cambridge University Press

> I therefore hit upon the expedient of giving it to Mr Darwin to put into his Volume. Here – said I – take this – I can very well spare it, and it will shew that we are indeed the best of friends &c &c notwithstanding our little sniffs about the Elevation part of your Geological Theory – the Gallapagos [*sic*] animals &c &c'.[37]

Enlarging: a satire of complete knowledge

The description of the FitzRoy–Darwin relationship suggests how Ross's social resentments and objections to naval authority found a focus in his critique of the scientific objectives of the voyage. His essential point was that he, Ross, represented the truly scientific observer of Cocos-Keeling. His account, then, though it might be fairly described as digressive, was far from a random scattershot of barbs. Instead it was structured around a systematic critique of knowledge-making as an imperial enterprise. His frustrations expose a compelling picture of relationships of knowledge and power in the networks of Britain's maritime empire. The observations and theories circulating in the *Narrative*, Ross knew, could matter to decisions at the highest levels of government about the future of the island as a British possession. They mattered economically, by shaping the reputation of the islands as a safe harbour and hence a waypoint for trading ships. They also expressed an intellectual hierarchy between the travelling expert and the local informant that – in Ross's eyes – carelessly appropriated his own information and insights. Ross, then, by writing under the guise of a collaborator/amanuensis of FitzRoy, was reclaiming his own expertise.

We can follow this analysis through three of the targets to which Ross returned often: a satire of complete, global knowledge; a satire of observations and accuracy; and a satire of scientific theorizing. Most obviously, to open his satire, Ross mocked the idea of comprehensive knowledge by commenting on the length of the *Narrative*. Preferring 'brevity to verbosity and thinness to thickness', 'FitzRoy' complained that Colburn had unfairly restricted him in 1839 to a mere 1,052 pages. But in this forthcoming edition, he claimed, 'all the super-interesting extracts from hitherto unknown ancient and modern writings in Latin, Spanish, English, and French – prose and poetry – down to the Chilian [*sic*] newspapers of the other day' that he had collected could finally be revealed. '[A]mplified [and] enlarged', the volumes would turn into 'Kentledge pigs', the slabs of pig iron used as ship's ballast.[38]

There was a long tradition of criticizing voyage narratives for their exhaustive detail, so in this picture – Kentledge pigs aside – Ross was touching a familiar chord. But there seems also to be an echo of another satirical novel, Benjamin Disraeli's *The Voyage of Captain Popanilla* (1828).[39] In Disraeli's novel, Popanilla, a native of the uncharted

37 Ross, op. cit. (1), on titles, p. 2; crossing-the-line ceremony, p. 5; *Thetis*, p. 7; *Challenger*, p. 18; settlers, pp. 11–13, 112, 45; slavery and serfdom, pp. 9–10; toady, p. 3, original emphasis; little sniffs, p. 37, original underlining.

38 Ross, op. cit. (1), pp. 1–2.

39 Benjamin Disraeli, *The Voyage of Captain Popanilla*, London: Henry Colburn, 1828. On Disraeli and his early novels see Regina Akel, *Benjamin Disraeli and John Murray: The Politician, the Publisher and the Representative*, Liverpool: Liverpool University Press, 2016; Christopher Harvie, *The Center of Things: Political Fiction in Britain from Disraeli to the Present*, London and Boston: Unwin Hyman, 1991; Jane

Isle of Fantaisie, is seduced by a trunkful of tracts from the Society for the Diffusion of Useful Knowledge washed ashore from a wreck. Popanilla becomes a nuisance to the king, lecturing about hydrostatics and progress, and is disgraced, exiled and put to sea in a canoe. Blown by a storm to Hubbabub, Vraibluesia (i.e. London), Popanilla is immediately gulled by an opportunistic publisher and ghostwriter into authoring a hasty voyage narrative. Disraeli mocked the detail of voyage narratives in an interesting way, by stressing the labour of an authoritative account:

> The description of my island has cost me six months of constant composition, and each day it has grown more misty. I have consulted public libraries, and I have exhausted private collections. I have authorities for every circumstance, and every creature; my geography is most chorographically correct, my botany most generically minute, my mineralogy indisputable, my geology undisputed. Not less profound are my zoology, my ornithology, and my ichthyology.[40]

The echoes of Disraeli's novel are suggestive not least because they hint at how texts circulated in the empire. We know something, though not much, about Ross and his books. A Dutch captain visiting Ross in 1842 described Ross as having a large library of more than a thousand volumes, 'many of a very good taste, extensive and great erudition, especially those dealing with physics, geography, history and philosophy, mechanics not excepted'.[41] Ross's manuscript casually alludes to older volumes of travels and to Jonathan Swift's *Gulliver's Travels*, as well as to modern literary sensations such as Charles Babbage's *Ninth Bridgewater Treatise*.[42] He also noted in passing how he learned of books. For example, he had seen a manuscript summary of books of voyages in the Indian Ocean in 'an old Gentleman's library at the Cape of Good Hope'; he ordered FitzRoy's *Narrative* when he heard of its 'importance towards him and his undertaking', although he was 'out of the way of bookshops'. Later, he recorded that an acquaintance had copied out and forwarded to him relevant parts of a *Narrative* by Sir Edward Belcher published in 1848.[43] We even know from Ross's own records that his brother, Robert Clunies Ross, also a merchant captain, touched at Cocos-Keeling to deliver 'letters and stores' after a ninety-four-day passage from London en route to Java, in December of 1828.[44] It does not, then, seem unlikely

Ridley, *Young Disraeli 1804–46*, New York: Crown Publishers, 1995; Daniel Schwarz, *Disraeli's Fiction*, New York: Palgrave MacMillan, 1979.

40 Disraeli, op. cit. (39), pp. 2–3.

41 Capt. Duintjer, from a visit to Cocos-Keeling in 1842, quoted in Gibson-Hill, op. cit. (28), p. 14. Gibson Hill's sources were nineteenth-century regional newspapers, the *Singapore Free Press* and the *New Rotterdam Courant* in 1857.

42 Ross, op. cit. (1), refers to 'the emperor of Brobdignang' (*sic*) at p. 148 and to Babbage at p. 36. In his article on Darwin's coral theory he says he has not yet obtained a copy of Lyell's work, but refers favourably to *Vestiges of the Natural History of Creation*, whose critics are marked by 'bigotry, cant, and … hypocrisy'. John Clunies Ross, 'Review of the theory of coral-formation set forth by Ch. Darwin in his book entitled: Researches in geology and natural history', *Natuurkundig Tijdschrift voor Nederlandsch Indie* (1855) 8, pp. 1–43, 11, 41.

43 Ross, op. cit. (1), on visiting a library at the Cape, p. 144; on ordering books, p. 27; on acquiring Belcher's account, p. 148.

44 Ross's list of ships visiting the islands during 1827–1830 is included in 'Some account', op. cit. (33), pp. 300–301.

that he would know of a satiric novel published in London in June of that year about an Indian Ocean island.

Without knowing the contents of Ross's library, of course, a direct connection to Disraeli's *Captain Popanilla* remains speculative, but it does indicate the need to consider a more general relationship with satire as a genre.[45] Although voyages and tours were certainly long-established satirical subjects, Ross seems up to date with satirical trends. However strongly and personally he critiqued FitzRoy, he was not writing in the bawdy and scatological Radical tradition of the first decades of the century. Instead, the work has more in common with what Kyle Grimes has called the 'markedly dialogical forms' of Romantic satire, which played with conventions of print to offer 'a material and intentionally disruptive intervention into the public discourses of the day'.[46] By engaging with a familiar critique of voyage narratives as ill-digested miscellany, and by writing about writing and authorship, both Ross and Disraeli spoke directly to contemporary conditions of literary and intellectual culture.[47] Disraeli helps us see, then, that Ross's attack on the *Narrative* of 1839 was recognizably related to other satires of 'the march of intellect' in which bewildering and proliferating forms of print were targets of the critique, even as they provided its vehicle.[48] Indeed, Martin Rudwick has shown such satirical elements entering geological science in this period, describing a series of caricatures attacking Charles Lyell by Henry de la Beche. De la Beche's *c.*1831 sketch of the 'Knowledge Locomotive Engine' was a jab at popular education just like the shipwrecked trunk of SDUK pamphlets that triggered the expulsion of Popanilla.[49]

45 On the shifts from Radical to Romantic to Victorian domesticated forms of satire see Marilyn Butler, *Peacock Displayed: A Satirist in His Context*, London: Routledge and Kegan Paul, 1979; Gary Dyer, *British Satire and the Politics of Style, 1789–1932*, Cambridge: Cambridge University Press, 1997; Steven E. Jones (ed.), *The Satiric Eye: Forms of Satire in the Romantic Period*, New York: Palgrave Macmillan, 2003; Frank Palmeri, 'Cruikshank, Thackeray and the Victorian eclipse of satire', *Studies in English Literature* (2004) 44, pp. 753–777; Palmeri, 'Narrative satire in the nineteenth century', in Ruben Quintero (ed.), *A Companion to Satire*, Oxford: Blackwell, 2007, pp. 361–376. Vic Gatrell, *City of Laughter: Sex and Satire in Eighteenth-Century London*, London: Atlantic Books, 2006; and Brian Maidment, *Comedy, Caricature and the Social Order 1820–1850*, Manchester: Manchester University Press, 2013, both focus on visual traditions in satire.

46 Kyle Grimes, 'Verbal jujitsu: William Hone and the tactics of satirical conflict', in Jones, op. cit. (45), pp. 173–184, 174–175.

47 See the comparison of Thomas Love Peacock and Disraeli in Dyer, op. cit. (45), pp. 94–138. Peacock is perhaps the best-known satirist of the 1820s, but his mannered settings and characters are very different from Disraeli's more chaotic Hubbabub. Ross seems to belong better with the latter, and to the later respectable satire of Henry Mayhew's *Punch* (founded 1841), than to Peacock's world of Headlong Hall and Crotchet Castle.

48 Secord, *Visions of Science*, op. cit. (5), pp. 1–23; James Paradis, 'Satire and science', in Bernard Lightman (ed.), *Victorian Science in Context*, Chicago: The University of Chicago Press, 1997, pp. 143–176. The 'March of Intellect' was a well-known 1825–1829 series of prints by William Heath, caricaturing the enthusiasm for technological innovations, reform and education.

49 Martin Rudwick, 'Caricature as a source for the history of science: De La Beche's anti-Lyellian sketches of 1831', *Isis* (1975) 66, pp. 534–560. Cf. other geological satires in Ralph O'Connor, *The Earth on Show: Fossils and the Poetics of Popular Science, 1802–56*, Chicago: The University of Chicago Press, 2007, pp. 99–114.

Ross's identification of his work as a 'Supplement' further specified a particular contemporaneous use of the 'dialogical' mode of satire. In the 1830s and 1840s, supplements and companions had emerged as a format that could experiment with content and audience while proposing a relationship with a more established or respectable periodical. The supplement was clearly ready-made for satire: a format that could be turned on its head to subvert, rather than merely accompanying or extending, the parent format.[50] One particularly notorious case was the publication of the great moon hoax of 1835; attributing the discovery of men and animals in the moon to Sir John Herschel, it was advertised as a 'supplement' to the *Edinburgh Journal of Science*.[51]

To insist on these elements as part of satirical tradition in this period is not to resist their unique flavour in Ross's work. His satire has an oceanic touch.[52] Besides sketches 'correctly drawn from memory and imagination' of an island not visited, he promised readers a

> full and accurate history of every sand-bank, every Reef, every Island, every group, whether consisting of one or many – and every conglomeration of Islands or Reefs existing now or formerly within the utmost limits of the Grand Ocean from Behring's Straits to Victoria's Land – nor shall the China – the Indonesian – the Indian and Antarctic Seas be withheld … [giving] exact charts, bird's eye views, ground plan, profiles, front and back sides &c … every individual [island] so historified.[53]

The forthcoming new edition would be a comprehensively global geography, giving the reader the oceans themselves, just as its expanded historical remarks on New Zealand and Australia would be 'somewhat commensurate with the extent of those countries'.[54] Ross pointed here to the globalist mandate of nineteenth-century scientific expedition – not to discover, but to fill in the blanks, recording everything, everywhere, past and present. Voyage narratives, their charts and appendices represented the infrastructure of navigational and geographical knowledge that supported the all-encompassing ambitions of a maritime empire.

Revising: a satire of observation and accuracy

Ross affected to 'enlarge' upon the *Narrative*, but throughout the text there were also extensive revisions that established his own authority as an expert observer. Some were minor, though pointed, corrections. For instance, FitzRoy and Darwin had both described Ross's manager, Mr. W.C. Leisk, as 'an English resident', and Ross (the Shetlander) allowed that Leisk was British, but certainly not an Englishman.[55] But other revisions tackled essential natural-historical and hydrographical matters.

50 On supplements see the special issue of *Victorian Periodical Review* (2010) 43, pp. 97–215.

51 See hoaxes.org/archive/permalink/the_great_moon_hoax#refs, accessed 13 February 2018.

52 Saul Dubow, *A Commonwealth of Knowledge: Science, Sensibility and White South Africa, 1820–1900*, Oxford: Oxford University Press, 2006; Christopher Holdridge, 'Laughing with Sam Sly: the cultural politics of satire and British colonial identity in the Cape Colony, *c.*1840–1850', *Kronos* (2010) 36, pp. 29–53.

53 Ross, op. cit. (1), p. 23.

54 Ross, op. cit. (1), p. 24.

55 Ross, op. cit. (1), pp. 51, 130.

To Darwin's own rather flowery account of the islands, Ross added new details about the height of land, the tides and the channels in the lagoon, and described bird species and vegetation unmentioned by Darwin.[56] Ross also insisted on correcting FitzRoy's nomenclature for the islands, explaining his reasoning at length. FitzRoy followed the older name of Keeling (after the captain of the Dutch East India Company who plotted the islands in 1609), but Ross used 'Cocos and Keeling' in order to distinguish between the higher Keeling's (also called Horsburgh) Isle to the north and the low-lying southern group he called the 'Cocos chain', upon two of which Ross and Hare had settled. It was a distinction, he said, which prevented shipwreck – mariners who spotted the northern island and took it for the whole could otherwise mistakenly steer into the shallow areas and reefs between the two groups. More importantly, Ross argued that what accurate observations FitzRoy had produced – the positions of the islets and soundings in the lagoon – had simply relied on surveys shared by Leisk, and made by Ross.[57]

Ross presented his extensions and revisions using a distinctive textual technique that emphasized the work of reading, comparing and writing in order to distinguish real from false knowledge. As he tackled each aspect of these matters to do with Cocos-Keeling, what he called his 'chef d'oeuvre', Ross repeatedly divided his manuscript into two columns, with the original text on the left and his revisions to the right. This device called attention to itself as a record of competing or related texts. This was a technique used similarly in Bible printing to relate Old and New Testament. James Secord has noted the publication of such parallel passages in early Victorian periodicals, where they could be used either to identify anonymous authors or to produce evidence of plagiarism.[58] Essentially, Ross had the latter purpose, pointing to the impossibility of reconciling his and FitzRoy's or Darwin's points of view; that is, the issue was revision not only of error, but of culpable error. By insisting that he was producing a new edition, he shifted the accusation of intellectual theft – or as he called it, in a sailor's metaphor, the 'impressment' of work[59] – into proof of his own 'inexpressible attachments to Science'. Instead of crying

> Plagiarism – Piracy … I shall now rewrite that paper and add the demonstrations in sufficient detail. As for publication there is no hurry in the case – It would be unkind to Mr Colburn for whom I feel much respect to damn these books to the fate they deserve – namely – to moulder on his shelves and thence go to the grocers and trunk-makers.[60]

56 Ross, op. cit. (1), pp. 40–43. For an account of Darwin's observations on Cocos-Keeling see Patrick Armstrong, *Darwin's Other Islands*, London: Continuum, 2004; and Alistair Sponsel, *Darwin's Evolving Identity: Adventure, Ambition and the Sin of Speculation*, Chicago: The University of Chicago Press, 2018.

57 Ross, op. cit. (1), reason for name of island, pp. 43–45; FitzRoy's theft of his own survey, pp. 31, 36–67, 148.

58 E.g. *The Annotated Paragraph Bible … Arranged in Paragraphs and Parallelisms*, 2 vols., London: Religious Tract Society, 1853. Secord, *Victorian Sensation*, op. cit. (5), p. 291.

59 Ross here vividly equated intellectual property with the legal freedom of the person. Impressment referred to a long-established practice of forcing men into service on Royal Navy vessels; in some periods, notorious 'press gangs' roamed ports, looking for experienced hands to seize. In the Radical press, impressment became a potent example of violent class injustice.

60 Ross, op. cit. (1), p. 35.

Theorizing: a satire of intellectual enthusiasm

Enlarging and correcting, Ross's manuscript had a third significant line of attack as well: on the nature of proper and improper scientific theorizing. Contrasting his own work with the hasty work of scientific travellers, Ross accused both FitzRoy and Darwin of theorizing wildly, led astray by their philosophical ambition. Fitz Roy's own volume had made him an easy target on this score. After escorting the *Beagle* back to Plymouth in the penultimate chapter, FitzRoy had devoted his final chapter to the question of geological evidence for the Deluge. As he piously remarked, he thereby hoped to educate young officers who, like his former self, knew little of the strength of the Bible's evidence.[61] Reviewers in 1839 had deplored this part of his volume. The *Quarterly Review*, for example, noted that 'on this subject the gallant Captain has got quite beyond his depth'.[62] Ross shared these views, making repeated scornful references to FitzRoy's biblical literalism.[63] Ross further marked FitzRoy as a hopeless theorizer by attacking his essay on tides, in which the latter commented on the theories of tidal movements proposed by William Whewell, the Cambridge mathematician and philosopher who had initiated a project to collect tidal data across the world's ocean midway through the *Beagle* voyage.[64] Ross also dismissed FitzRoy's meteorological speculations, suggesting that FitzRoy developed his 'Low Island Squall-causing theory' simply because he was 'ambitious to rival Mr. Darwin in the line of theory – [and] invention'.[65] FitzRoy's contributions to all three questions – tides, storms, mosaic geology – indicate his engagement with the scientific debates of his day. By attacking each of them, Ross was also attacking his tendency to theorize.[66]

But the attacks on FitzRoy's views were a mere prologue. Darwin's theory of the formation of coral reefs was the scientific debate that concerned Ross most. Indeed, the whole manuscript can be viewed as a preamble to a separate refutation of Darwin ('a perfect adept in the science of assertion') which posthumously appeared in a natural-history journal published in Batavia in 1855.[67] There was much at stake in the coral reef question for both men. In a practical sense, in an age of expanding oceanic trade, reefs were feared as a hazard to ships. But they also held complex philosophical, religious

61 Robert FitzRoy, 'A very few remarks with reference to the deluge', in FitzRoy, op. cit. (2), vol. 2, pp. 657–682, 657.

62 'Voyages of the Adventure and Beagle', *Quarterly Review* (1839) 65, pp. 107–126, 115; other major reviews were *Athenaeum*, 1 June 1839, pp. 403–405, 15 June 1839, pp. 446–449; and *Edinburgh Review* (1839) 69, pp. 467–493.

63 Ross, op. cit. (1), pp. 14, 165.

64 Robert FitzRoy, 'Remarks on tides', in FitzRoy, op. cit. (2), appendix to vol. 2, pp. 277–297; Michael Reidy, *Tides of History: Ocean Science and Her Majesty's Navy*, Chicago: The University of Chicago Press, 2008. Ross, op. cit. (1), pp. 6–7, 32–37.

65 Ross, op. cit. (1), p. 8.

66 There is an intriguing reference to John Clunies Ross's response to another notable theorizer. Wood-Jones notes that he saw a two-volume treatise on Malthus written by Ross, 'a work of great erudition written from an extreme point of view, but although it makes a fierce attack upon every premiss [*sic*] and every argument of Mr. Malthus, it cannot be said to detract greatly from the patiently drawn conclusions'. Wood-Jones, op. cit. (26), p. 25.

67 Ross, op. cit. (42), p. 7.

and cultural associations. In the early Victorian imagination, coral and coral islands evoked ideas about geo-history (the relationship of sea and land), about the nature of living things (coral shifted between definitions of plant, animal and mineral), and also about the evangelical Christian mission to tropical societies (islands as miniature worlds of redemption and progress).[68] In particular, as historian Alistair Sponsel has shown, debates about coral reef formation reflected concerns about scientific theorizing itself.[69] Early nineteenth-century geologists were preoccupied with questions of evidence – studies of stratigraphy, fossils, mountains or volcanic action – and styles of reasoning.[70] Literally and figuratively, coral involved knowledge beneath the surface of direct observation, sharpening the relationship of empiricism and theory. What knowledge about coral reefs was the fruit of a disciplined scientific imagination, and what was baseless speculation, mere enthusiasm and ambition? Ross's work indicates that such philosophically tinged debates about coral reef formation were widely known.

Darwin considered his ideas on coral reefs the most important result of his voyage, and presented them to the Geological Society in 1837 promptly on his return. Ross does not seem to have seen the account printed in its journal, nor Darwin's separate monograph of May 1842, but he did read closely the version of the 1837 presentation that was reprinted in Darwin's volume of the *Narrative*. Ross's response swung between mockery and detailed criticism. Denouncing the 'super-sublimity and deeply-diving profundity of his [Darwin's] theory', Ross imagined an exchange between FitzRoy and Darwin on the uplift of coral islands in which Darwin, 'in a densely deep-brown study to find out something plausible', was persuaded to turn away from volcanic evidence:

> he jumped up – threw his hat in the air and made some half dozen somersets [*sic*] … bellowing out all the while, Eureka – Eureka – Eureka &c concluded with Bravo my dear Captain we'll keep this a secret just now between ourselves – the sinking house post story and the earthquakes will do for present.

FitzRoy's geological speculations, Darwin promised, would be saved until needed 'for a clincher'.[71]

Setting aside this spoof, Ross's critical review of Darwin's evidence – here, and in Ross's separate article – is a good example of contemporary debates over coral reef formation. Darwin's conclusions about coral reef formation were closely related to his geologizing in the Andes and his experience of the 1835 earthquake in Concepción,

68 Ross, op. cit. (42). For coral's evocative cultural tradition see Barbara Stafford, 'Images of ambiguity: eighteenth-century microscopy and the neither/nor', in David Philip Miller and Peter Hans Reill (eds.), *Visions of Empire: Voyages, Botany and Representations of Nature*, Cambridge: Cambridge University Press, 1993, pp. 230–257; Katharine Anderson, 'Coral jewellery', *Victorian Review* (2008) 34, pp. 47–52. For an example of coral islands as a key site for evangelical geohistory see James Montgomery, 'Pelican Island (1827)', in *The Poetical Works of James Montgomery*, vol. 4, London: Longman, 1860, pp. 3–116.

69 Sponsel, op. cit. (56); Alistair Sponsel, 'Pacific islands and the problem of theorizing: the U.S. exploring expedition from fieldwork to publication', in Anderson and Rozwadowski, op. cit. (15), pp. 79–112; David Stoddart, 'Darwin, Lyell and the geological significance of coral reefs', *BJHS* (1976) 9, pp. 199–218.

70 Martin Rudwick, *Bursting the Limits of Time: The Reconstruction of Geo-history in the Age of Revolution*, Chicago: The University of Chicago Press, 2005.

71 Ross, op. cit. (1), pp. 3, 149.

Chile. He argued that the South American continent was undergoing elevation, and that the Pacific basin was subsiding in correspondence with the uplift. Using this insight, paired with evidence that coral organisms could not grow at great depths, he could unify the different appearances of reefs – fringing reefs, barrier reefs and the atolls of the Pacific, such as Cocos-Keeling – under a single explanation. Fringing reefs formed offshore in tropical waters, around the height of the lowest tide; as the coral mounted up above the level of the surf, it died off and the reef grew in an outward direction. If the coastland were stable, it gradually formed a large barrier reef, such as that off the coast of Australia. When a fringing reef formed off a coast that was subsiding, however, it slowly took on the distinctive circular appearance of the atolls; that is, the corals grew up as the land within the fringe sank.

Ross rejected this account, holding to an older viewpoint that corals grew up through the ocean from the tops of submarine mountain ridges or volcanoes. The fullest account of his own views was published in 1836 in the *Singapore Free Press*, a weekly newspaper, in an essay titled 'On the formation of the oceanic islands in general and of the coralline in particular'. There he described the 'birth' stage of islands, with coral forming on extinguished volcanoes, their growth stimulated first by the heat of the submarine mountain, and then, once at a certain level from the surface of the ocean, from solar heat that could reach the coral. He explained in detail how channels would break into the generally circular shape of the coral growth, forming triangular islets, steeply dropping on the ocean side and sloping on the other to gradually produce the central, shallower area of the lagoon. These islets, smoothed and glazed by coral growth, debris and the silt produced by fish and worms, would eventually reattach into a curving island with one deep channel into the lagoon. Fresh rainwater, filtering through the chalky silt to press seawater downwards and outwards, would accumulate in a reservoir, followed by vegetation that would further add to the island's growth. It was a distinctly providential geology: Ross saw oceanic islands like his as being designed 'to facilitate the beneficial intercourse of man with man on either shore'. Moreover, they were a site for man's 'avocation of improving' the 'inanimate and irrational agents of creation' through his labour, through agriculture, by building dykes to increase land mass, and by constructing shallow walls within the lagoon for fish ponds.[72]

The account was not unusual, in that it followed the outlines of the 'crater' or submarine theory of coral development, including the idea of their gradual development into land fit for human habitation. Yet it was no mere summary.[73] It showed Ross's familiarity with the key points of debate in the 1820s and 1830s, such as the depths at which

72 John Clunies Ross, 'On the formation of the ocean islands in general, and of the coralline in particular', *Singapore Free Press*, 2 June 1836, reprinted in Gibson-Hill, op. cit. (28), pp. 251–260, 256, 258.

73 Ross does not cite his sources, but the idea of coral reef islands emerging from the sea to develop into a habitable space for humankind was a familiar one by the time he settled on Cocos-Keeling. The storyline was established in the brief remarks on Pacific coral islands written by Friedrich von Eschscholtz, naturalist on the Pacific voyage of Otto Koetzebue in 1815–1818. The findings about coral living only at shallow depths, which became an important and disputed point, emerged from the work of naturalists Jean René Quoy and Joseph Paul Gaimard, on the circumnavigation of *L'Uranie* commanded by Louis de Freycinet, 1817–1820. For a summary see Sponsel, op. cit. (56). Ross seems to have known of John MacCullough's *System of Geology with a Theory of the Earth and an Explanation of Its Connexion with the Sacred Records*, 2 vols., London:

coral could grow, or the difference between coral environments of the lagoon and those of the turbulent outer edge of the reef. Ross's 1836 essay dealt only with atoll islands, but in the article published posthumously, he addressed another type, the islands with distinctive central peaks surrounded by fringing reefs, such as Tahiti. These peaks, he argued, developed as matter from an original eruption that had fallen into the center of the cone, forming a kind of plug that was then steadily pushed upwards by pressure from the Earth's molten core. Ross also pointed to geological evidence of elevation in other islands of the Pacific to counter Darwin's claim of general subsidence, with strong words about Darwin's limited and unsystematic investigation. His allusion to 'the sinking house-post story' referred to Darwin's interest in a Cocos-Keeling marker that inhabitants told Darwin had been much higher within the last decade – evidence of rapid subsidence that Darwin, fresh from observations of the sudden upheaval of the shoreline in the South American earthquake of 1835, seized for his theory. (Ross explained this marker in terms of superficial shifts of the sandy soil on the islands, like changes to a sandbar or spit, such as were part of his own direct experience of Cocos-Keeling.) On Ross's point about coral living at great depths, much of the recent scientific evidence was decisively against him. But in his latter point about mixed and inconclusive evidence, especially once a number of coral islands were compared, Ross held some indisputable cards – one of the reasons the scientific debate about coral reef formation would continue for many decades.[74]

In sum, Ross was arguing for evidence that islands were emerging out of the Pacific, and Darwin that islands were gradually sinking beneath it. This identifies succinctly enough why a man intent on developing a colony on a tiny Pacific atoll might resist Darwin's theory.[75] For Darwin, the theory of coral reef formation was a step into maturity as a scientific thinker and an important stage in his thinking about species. With it, he declared strong intellectual allegiance to the geologist Charles Lyell's gradualist methods, the view that changes in the Earth can be explained by the slow accumulated results of forces whose operation the naturalist can find in the present. For Ross, Darwin's theory of subsidence merely reflected an 'effort at depreciation' of the Cocos-Keeling themselves.[76]

The substance of these debates, whether geological, tidal or meteorological, has been only lightly sketched here. Instead, it is their significance as part of Ross's satire that interests us. What can these engagements with theorizing tell us about scientific voyaging and the circulation of knowledge? First, they remind us of who could engage. Those who

Longman, Rees, Orme, Brown and Green, 1831, which added an argument about the balance of fresh to saline water on coral islands to the by-then familiar geodynamical narrative.

74 For a near-contemporary assessment, similarly critical of Darwin's evidence at Cocos-Keeling, see Guppy, op. cit. (27). Guppy concluded that 'neither of upheaval nor of subsidence is there any evidence of an unequivocal character' (p. 588). On the continued debate see David Dobbs, *Reef Madness: Charles Darwin, Alexander Agassiz, and the Meaning of Coral*, New York: Pantheon, 2005. For a summary of modern research see Colin D. Woodroffe (ed.), 'Ecology and geo-morphology of the Cocos (Keeling) islands,' *Atoll Research Bulletin*, nos 399–414, Washington, DC: National Museum of Natural History–Smithsonian Institution, 1994.

75 'Some account', op. cit. (33), p. 293.

76 Ross, op. cit. (1), p. 3.

considered themselves entitled and prepared to engage in scientific culture extended geographically and socially, from Calcutta to Cocos-Keeling to London, and from merchant trader to naval officer to gentleman-naturalist. This range of participants depended on shared familiarity with the historical record, assuming knowledge of the importance of other travels to the growth of natural knowledge. It relied as well on contemporary awareness of growing commercial and political networks throughout the British Empire. John Herschel's *Manual of Scientific Enquiry Prepared for the Use of Officers in HM Navy and Travellers in General* was first published in 1849 but it really sought not so much to instigate new activity as to regulate the status quo: naval cruisers and merchants 'in every sea', and a flow of '[v]aluable reports … from men of observation and intelligence'.[77]

Second, the satire and its context reveal the ways in which such debates hinged on collective projects (conceived, like Herschel's *Manual*, in Baconian ways) and how, in turn, these involved hierarchies that were negotiated in print. Naval expeditions and navigational science, as we have seen, were manifestly collaborative affairs, collecting input from many different sources, and crediting those in managed ways in their printed productions, whether voyage narrative or charts and sailing directions. Whewell's tidal investigations, into which FitzRoy carefully inserted his own experiences and thoughts, were modelled on such practices for amassing data from different corners of the globe and from men from different walks of life.[78] Print made those hierarchies of authority visible, but, as Ross showed, they simultaneously made them open to challenge. Whose contribution was most vital, or most vulnerable? That such disputes could arise is an obvious and familiar point in the history of science. The *Narrative* satire, in its play with editing, revising and repositioning authorship, underlined the slightly different message that print culture gave 'credit' and authority in science its instability as well as its reach. It was not so much that natural knowledge was mutable, in the formulation of historian of science Kapil Raj, with meaning and skills changing depending on geography and circumstance. It was rather that knowledge emerged from several, sometimes competing, structures of authority – that is, it could be repackaged or serialized, with the standing of a FitzRoy, a Darwin, a Whewell, a Horsburgh or a Ross taking precedence differently in different contexts.[79] The way that texts and records cycled between different settings was a demonstration that knowledge could be unfixed, not merely distributed.

Character and global knowledge

Ross's commentary on print culture as an ingredient of contemporary science was central to his text. Colburn's 'literary dairy' was as much a target as FitzRoy's 'impressment' of observations, or Darwin's 'science of assertion'. In a revealing finale, Ross

77 John Herschel (ed.), *Manual of Scientific Enquiry*, London: John Murray, 1849, p. iii.

78 Reidy, op. cit. (64).

79 Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650–1900*, Basingstoke: Palgrave, 2007.

ended his text with the question of the public record, giving competing assessments of himself and FitzRoy, again using his technique of parallel columns. The testimonial for FitzRoy consisted of an extract from a leader in the weekly *London Examiner* of 21 June 1845, which attacked Fitzroy's brief and unpopular tenure as governor of New Zealand. Ross had clearly read the *Narrative* in light of the anti-colonial, pro-native reputation that FitzRoy had acquired in New Zealand. The *Examiner* was known for its sharp political journalism, especially concerning foreign affairs. Associated most often in its opinions with the radical wing of the Liberal Party, its disapproval of the Tory FitzRoy is unsurprising.[80] Whatever his other merits, FitzRoy was no diplomat, and had antagonized the colonial population by resisting (quite reasonably, in modern assessments) their aggressive efforts to dominate New Zealand natives.[81] Ross transcribed the article's conclusion into his manuscript as FitzRoy's 'character':

> Captain Fitzroy, possessed by the genius of misrule in rare perfection, has so exhausted every error and blunder as hardly to leave room or opportunity for any new mismanagement. His successor can hardly help going right – the wrong course being marked out by such stupendous monuments of folly. It is a navigation by which the true Channel may be traced by the wrecks on every shoal.[82]

If the tone of satire – the essential amiability of *Punch* or the anger of Swift – can be defined by its ending, then Ross steered in conclusion toward anger, his attack on FitzRoy becoming a cry against public wrongdoing. It was a venomous portrayal of the imperial surveyor, reversing FitzRoy's remarkable achievements as an Admiralty hydrographer. In the *Examiner* analogy, the 'chart' of FitzRoy's actions in New Zealand became the blueprint for future imperial political activity – just as his literal charts had always been sending the Royal Navy through the world's oceans, and directing the traffic of British goods and people.

Ross gave his defence of his own character through the voice of one Captain Francis Harding, incorporating into his manuscript part of a report concerning yet another official naval visit to the islands at the end of 1837. Harding on HMS *Pelorus* arrived to evaluate a complicated dispute between Ross, his foreman Leisk and another employee, an American sailor, which had ended in accusations that Ross kept the natives on Cocos-Keeling against their will. Given the British abolitionist laws, it was a serious allegation, because Ross was still eager for recognition of Cocos-Keeling as a British possession. Harding's report had vindicated Ross. Opposite the *Examiner*'s denunciation of FitzRoy, then, Ross transcribed Harding's praise of Ross's 'management …

80 'Political examiner', *London Examiner*, 21 June 1845. On the politics of the *Examiner* and its editor see James A. Davies, 'Albany Fonblanque', *Oxford Dictionary of National Biography*, 2004, at https://doi-org.ezproxy.library.yorku.ca/10.1093/ref:odnb/9798.

81 Most biographical accounts of FitzRoy treat his time in New Zealand briefly. H.E.L. Mellersh, *FitzRoy of the Beagle*, London: Hart-Davis, 1968. Cf. Ian Wards, 'FitzRoy, Robert', *Dictionary of New Zealand Biography*, first published 1990, at https://teara.govt.nz/en/biographies/1f12/fitzroy-robert, accessed 15 February 2018; and George Henderson, *Sir George Grey: Pioneer of Empire in Southern Lands*, London: Dent, 1907. A personal version appears in Robert FitzRoy, *Remarks on New Zealand*, London, privately printed, 1846.

82 Ross, op. cit. (1), pp. 167–169; 'New Zealand-Governor FitzRoy', *The Examiner*, 31 May 1845, p. 386.

discriminating judgement, forbearance under injury and philanthropy generally'.[83] In parallel columns, the merchant captain was upheld by the authority of the Royal Navy, and the naval officer pilloried by a weekly newspaper. There Ross ended the whole manuscript. He rested his case, as it were, with testimony that contrasted merchant captain-turned-settler and naval captain-turned-governor. The ending fits the intent and form of the satire in returning not just to politics and personalities but also to the circulation of texts. It highlighted (and equalized) two different forms of written judgement, the Admiralty report and the newspaper editorial. Moreover, by adopting this explicit distinction between himself and FitzRoy as his last word, Ross came full circle from the deliberate ambiguity of his authorial identity in the preface. No longer a nobody sort of fellow, a collaborator to FitzRoy, or his amanuensis, Ross revealed himself as FitzRoy's equal: captain, colonist and author.

Ross's satire gives us new glimpses of a famous voyage. The picture of FitzRoy and Darwin trading 'deep-brown studies' while perched on a coral reef is intriguing for its suggestions about the two men's developing relationship. We could further explore the manuscript to learn much more from Ross's remarks on ethnography and race, or his sense of relations between merchant marine and the Royal Navy. From Ross's remote vantage point in Cocos-Keeling, FitzRoy and Darwin had appropriated local experience and knowledge carelessly in order to build their global perspectives. At best, this was a form of theft or 'impressment'; at worst, it gave an inaccurate account that damaged local interests without apparently affecting the public reputation of either scientific traveller.

Yet the principal significance of the manuscript lies with its demonstration of the practices of an engaged colonial reader. Ross's critique of the *Narrative* moved in several layers – familiar jibes about the voyage narrative as an exhaustive and lumpy set of records, revisions and corrections of the details of both Darwin's and FitzRoy's observations, and finally a denunciation of the appeal of 'assertions' or theorizing rather than observation in modern scientific culture. It shows how scientific debate circulated and was deployed throughout the empire within the frameworks of a print culture with global reach – its books, its journals, its newspapers; its collection, revision and digest of documents. In that sense, Ross shared much more with Darwin and FitzRoy than any of the three would have been likely to admit. The prestige and widening appeal of scientific knowledge, and the media through which that flowed, were critical to all their projects. Print culture both assumed and created possibilities of participation in collective enterprises and larger debates – whether this meant contributions to navigational charts and directions, or engagement with investigation of tides, coral reefs, climate and the distribution of plants and animals. The miscellany of the voyage narrative and its shifting voices – whether the original edition or the satire – reflected these conditions.

All three of the protagonists here – Ross, FitzRoy and Darwin – were remarkable scientific travellers, observers and authors. Although we often think of travel writing

83 Ross, op. cit. (1), pp. 168–169; the report is reprinted as 'Extracts from Rear Admiral Maitland's report on the visit of H.M. sloop *Pelorus* (Francis Harding, Commander) to Cocos, December 1837', in Gibson-Hill, op. cit. (28), pp. 273–283.

as produced for readers in their armchairs in Britain, Ross's manuscript helps us see how books and periodicals circulated to some of the most apparently isolated places on earth. It also illuminates the complexity of the colonial print world, pointing to fractures of class and conflict within communities of both colonizers and colonized. No straightforward hegemonies of print are indicated by Ross's suggestion that 'Mr. Darwin should be very careful of the books and charts, on whose authority he sets forth these assertions, for assuredly these documents … have been engraved and printed solely for geologists of his class and station'. Indeed, he concluded, 'we should prefer rather trusting to the ones in common use by common navigators on this hemisphere'.[84] If we want to understand both the dense thickets of local circumstances and the powerful abstractions and infrastructures of modern science, then we know that travellers are a good place to start. Like the naturalist and the naval officer and the merchant captain, texts like the *Narrative* trailed across the world, trying to piece things together.

84 Ross, op. cit. (72), p. 27; on the complexity of colonial print and class see Dubow, op. cit. (52); and Anindita Ghosh, *Power in Print: Popular Publishing and the Politics of Language and Culture in a Colonial Society, 1778–1905*, Oxford: Oxford University Press, 2006.