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# The Infusoria of Ichaboe

Wayne Barrar

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### Abstract

In 1842, the tiny, uninhabited southern African island of Ichaboe was the site of acute speculative activity in the form of guano mining. Within just a few years, fierce and often desperate competition left the island essentially stripped of its ecological history. Though guano's fertilising power was the paramount focus, an unanticipated spin-off enterprise arose when the material was found to hold the fossilised remains of algae. These glassy, jewel-like diatoms provided an ideal subject for the Victorian microscope craze and were used to make highly valued microscope slides. Traded widely, they brought Ichaboe a new, supplementary fame. This article—which forms part of the author's broader photographic-based project, *The Glass Archive*—considers these artefacts as microscopic traces that serve as metaphoric links to landscape history and as 'prompts' to remember and understand aspects of this colonial period more fully.

Keywords: Ichaboe, diatoms, guano mining, microscopy, Victorian studies, scientific archives, landscape

Scepticism may account for the delay in following up on Benjamin Morrell's notable, if low-key, reference to Ichaboe—a tiny island off the south-western coast of Africa which had previously been overlooked and which, he claimed, was covered with 25 feet of guano.<sup>1</sup> It was not until 1842, ten years after the explorer's published account of his travels, that a near-clandestine voyage finally headed in search of Ichaboe's guano treasure.

Guano is essentially a deep accumulation of weathered bird droppings, typically found on small islands that have accommodated large numbers of birds over an extremely long period. This unlikely commodity became extraordinarily valuable in the 19th century. As agricultural economies tried to find ways of preventing food shortages, and the power of fertilisers was increasingly recognised, guano was identified as the magic bullet capable of transforming agricultural production.<sup>2</sup>

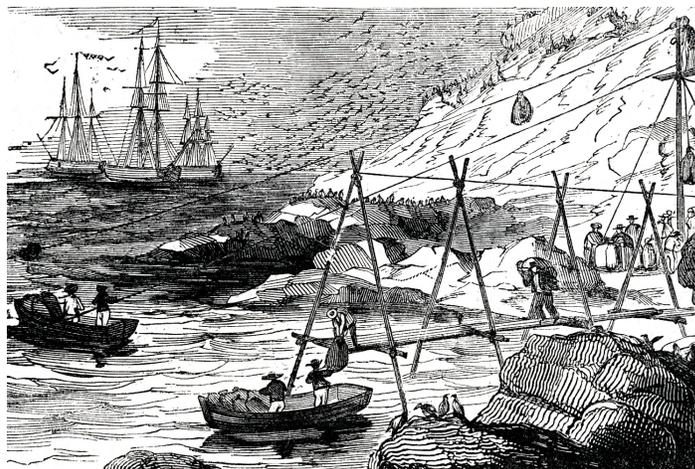
Figure 1. Wayne Barrar, Spicule/slide boundary, guano from Ichaboe. From a slide by an unknown maker (diamond etched), c.1850. (Photographed 2013.)



The guano was removed by ‘scraping’, a low-technology and labour-intensive process involving very rudimentary hand tools wielded by an often desperate labour force. The material was extracted to exhaustion; operations then moved to a new source. Living conditions on a guano island were inevitably grim, often lacking water supplies or any form of shelter, and the temporary nature of the site meant that little effort was made to remedy this situation. The guano itself was unhealthy and unpleasant to handle, and even getting on and off the island was often extremely dangerous. Many of those involved were disappointed in their reward: guano-scraping ventures often struggled to be economic and the business was always a ‘boom and bust’ affair. Nonetheless, the value attached to the material meant that individuals and ships were prepared to risk it.

Within months of the initial expedition’s arrival at Ichaboe, the island was inundated with activity. A lack of indigenous human inhabitants aside, it quickly exhibited the type of frontier history narrative that often accompanied the colonial project, fulfilling the characteristics of what Hendrik Snyders terms an ‘anarchic frontier’, where unmonitored dodgy dealings secured the physical space to enact exploitation of a new claimed and named territory.<sup>3</sup> The island became the site of contestation between competing claimants to the resource, and of labour exploitation, mutiny, and extreme environmental degradation. Accounts relating to Ichaboe in this period are scarce and generally informal, but they often refer to hundreds of ships moored off the island waiting to load their booty. One on-location account by Captain W. Broderick cites over 80 ships moored and 3,000 people scraping the island surface in 1844.<sup>4</sup> An extensive account by Charles Andersson notes a peak of 450 ships and thousands of hardened miners tented ashore, also recording that ‘bacchanalian orgies were held in the encampment, abominable beyond belief’.<sup>5</sup>

Figure 2. Artist unknown, *Ichaboe – mode of shipping the Guano* (detail). Engraving in *Illustrated London News*, 28 September 1844.



Other guano islands had different specific histories, reflected in the differing extent to which they were documented. For example, the large operation in the Chincha Islands off Peru (where the word ‘guano’ first appeared) was far more connected to the broader politics of colonialism in the region, whereas the

exploitation of the central Pacific Islands, such as Baker Island, remains largely unknown and difficult to decipher from contemporaneous accounts—even more of a historical remnant than Ichaboe. Now infamous for its role as host to an Australian detention centre, the island of Nauru, too, was enmeshed in the 19th-century guano and phosphate industry. As on Ichaboe, the operation to claim Nauru and its resource was a secret affair involving the dispatch of a survey party from Britain. Here, though, the initial excitement was sparked not by a published report, but by the fortuitous chemical testing of a rock that had been serving as a doorstep in a company office in London. This chunk of topography now serves as the default and uneasy memorial for the industry that was to change Nauru's environment, culture, and prospects so dramatically in the 20th century.<sup>6</sup>

While mining on Nauru was documented, much of the cultural memory of this tumultuous time is affected by its being appended to the formal photographic and written archives of the controlling phosphate company operated by Australia, Great Britain, and New Zealand. The Ichaboe venture, by contrast, lacks even this kind of formal archive, and there are no photographs of it (the guano being all but exhausted by the time photography was becoming established as a medium). Visual representation from the period is limited to a few lithographic reproductions mainly used to promote or report on the venture in British newspapers.

In a strange twist, though, Ichaboe is linked to another optically centred technology of the Victorian era: microscopy. Microscopes were extremely popular among the educated and elite, and were routinely displayed in their living rooms. Prepared and commercially produced microscope slides could be acquired for viewing, but a wide range of enthusiasts became highly skilled in preparing material for viewing themselves.<sup>7</sup> The almost fanatical craze for microscopes and viewing specimens in the mid-to-late 19th century resulted in a little-known subsidiary industry for the pungent guano, and as a side effect we now have at least some material link to the actual object of desire.

Guano contains masses of microscopic diatoms—or, more specifically, the silica shells of these marine or aquatic algae. They remain intact, despite having experienced the inner workings of at least two digestive systems (those of the diatom-eating fish, and of the penguins, cormorants, and other seabirds which ate them and were responsible for the deposits on the island). A cup of guano could provide hundreds of microscopists with ample source material to view, examine, and draw or photograph under their Victorian microscopes.

Diatoms represented a kind of royal pinnacle among microscopic specimens. They are extremely beautiful, hugely diverse, and specialised enough for those so inclined to become experts in the domain of amateur science and taxonomy. Diatom-focused microscopists constructed complex geometric 'exhibition mounts' of hundreds—and in one instance thousands—of carefully arranged diatoms. Given that even several hundred hand-positioned diatoms take up only a millimetre or so in diameter on the glass, this was patently a process which took care, skill, and labour, and often a degree of aesthetic sensibility.

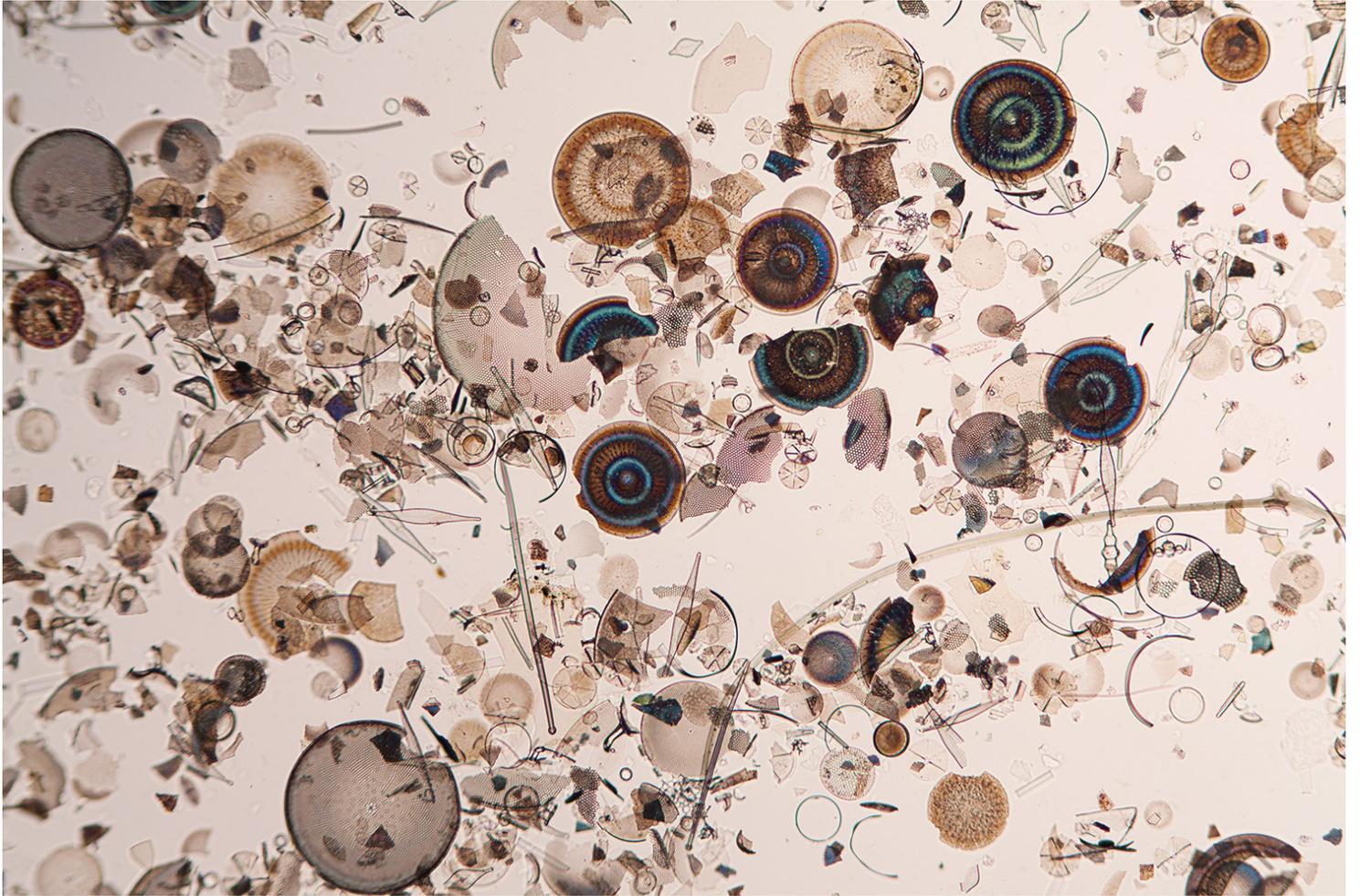


Figure 3. Wayne Barrar, Strew of guano from Ichaboe. From a slide by an unknown maker, c.1870. (Photographed 2013.)

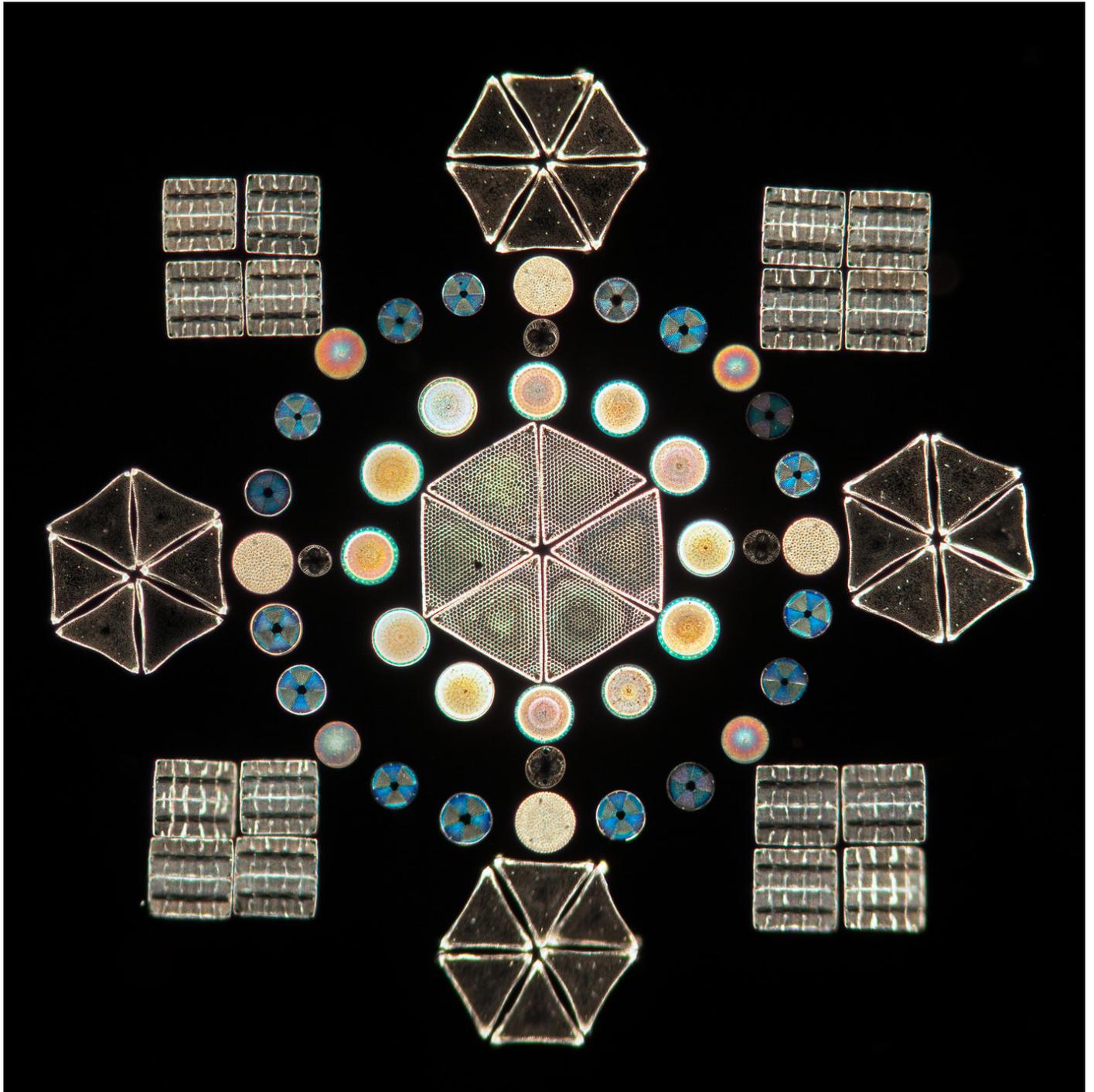


Figure 4. Wayne Barrar, Arranged diatoms.  
Exhibition mount by J. D. Möller, c.1880.  
(Photographed 2014.)

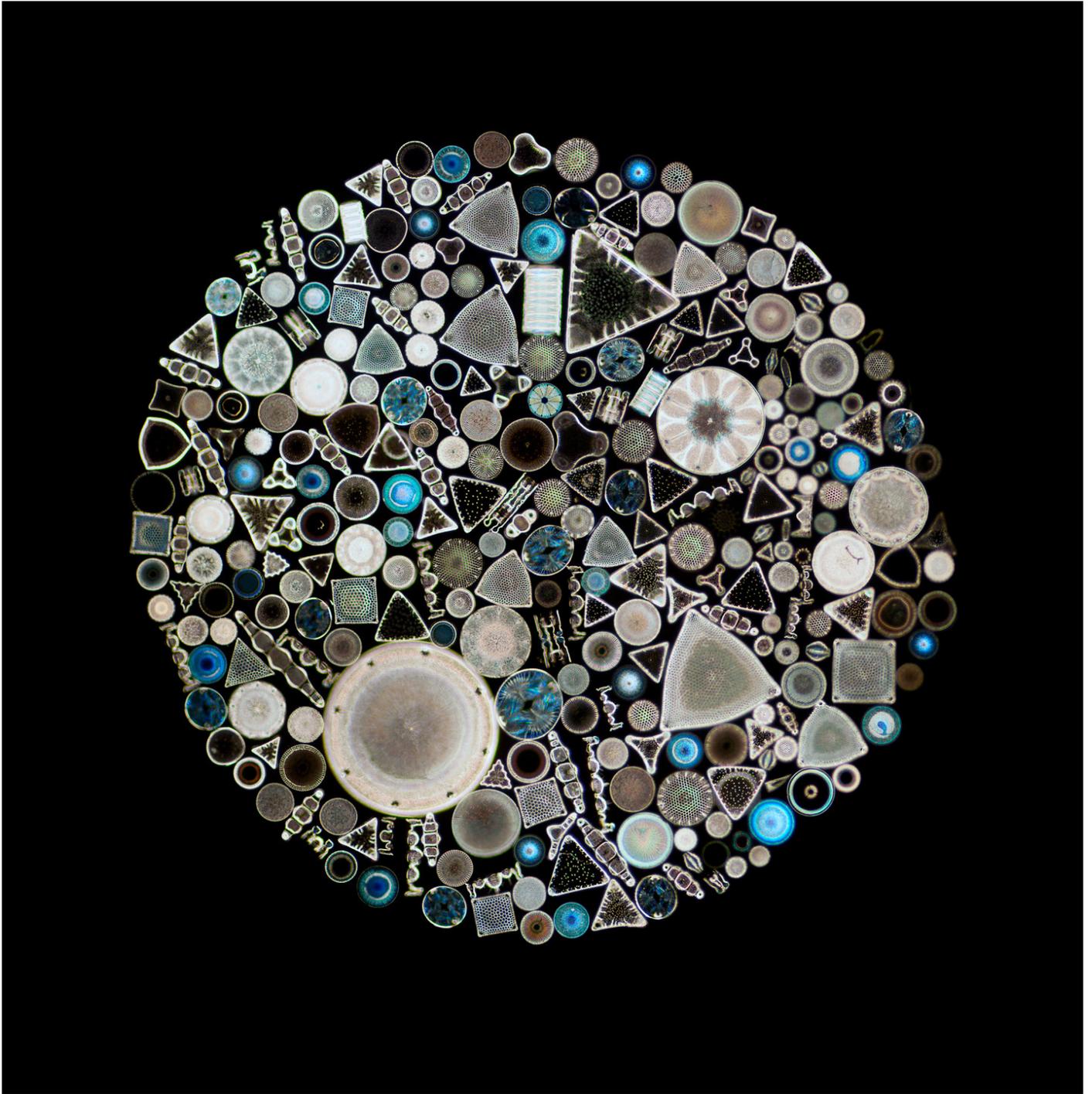


Figure 5. Wayne Barrar, 'Group of diatomaceae, various': circular arrangement of 278 diatoms from Oamaru. Slide by Watson and Sons, c.1890. (Photographed 2014.)

These slides were traded in a lucrative industry along with mounts of named single-species diatoms set out in simpler but often still formally impressive arrangements. Small samples of diatom-bearing material (often referred to as diatomaceous earth, infusoria, or ooze) were also readily exchanged throughout communities of microscopists. For instance, Mary Ann Booth—one of the few women working in this field in the 19th century—not only traded and sold slides from her Massachusetts home, but also actively accumulated ‘earths’ via exchange with her contemporaries in the USA, Europe, and further afield.

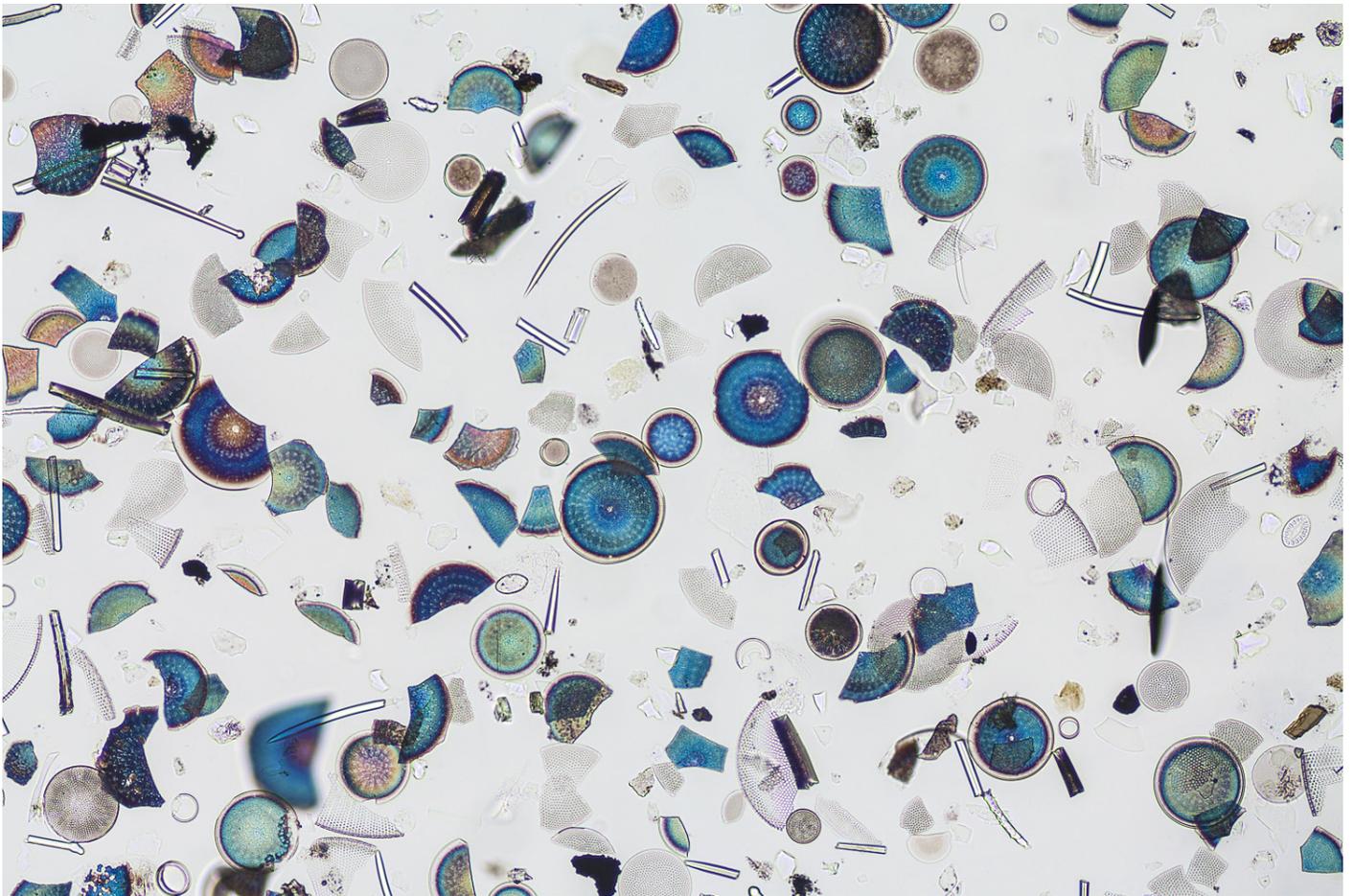
Diatomaceous material was sourced from what were often very small sites in an impressive range of geographic localities, including Jutland, Russia, the Antarctic, and the deepest of ocean trenches. A number of the locations were famous; the names of specific islands, bays, and even paddocks turn up over and over again on the labels of Victorian slide mounters from all over the world who had obviously been at pains to keep their inventories relevant and desirable.

Figure 6. Wayne Barrar, Two slides of diatoms from Ichaboe, British and French makers, c.1850. (Photographed 2014.)



The famous scientist and diatomist Christian Ehrenberg was among the first to taxonomically describe diatoms in guano around 1844, and it appears that Ichaboe material was involved here. His sample seems to have been supplied by one of the most well-known microscope slide mounters of the time, Charles Topping of London.<sup>8</sup> How Topping got hold of the sample is unclear, but no doubt he would have been aware of the flurry of tall ships arriving fully loaded from the island. Topping himself also distributed mounted slides of Ichaboe specimens, with one example, titled ‘Infusoria from guano, Schabo 1844’, still held in excellent condition in the diatom herbaria at the Academy of Sciences in Philadelphia. Another diatomist, Henry Deane, also worked with the Ichaboe guano early and published a paper outlining how he recovered the ‘siliceous shells’ of the diatoms (though, as his paper indicates, they were thought of as animals at the time). Boiling the sample in concentrated nitric acid, he was able to extract the pure glass shells of the algae and dispense with the organic and other remnants of the crusty old manure.<sup>9</sup>

Figure 7. Wayne Barrar, Strew from Ichaboe deposits. From a slide by an unknown maker, c.1850. (Photographed 2014.)

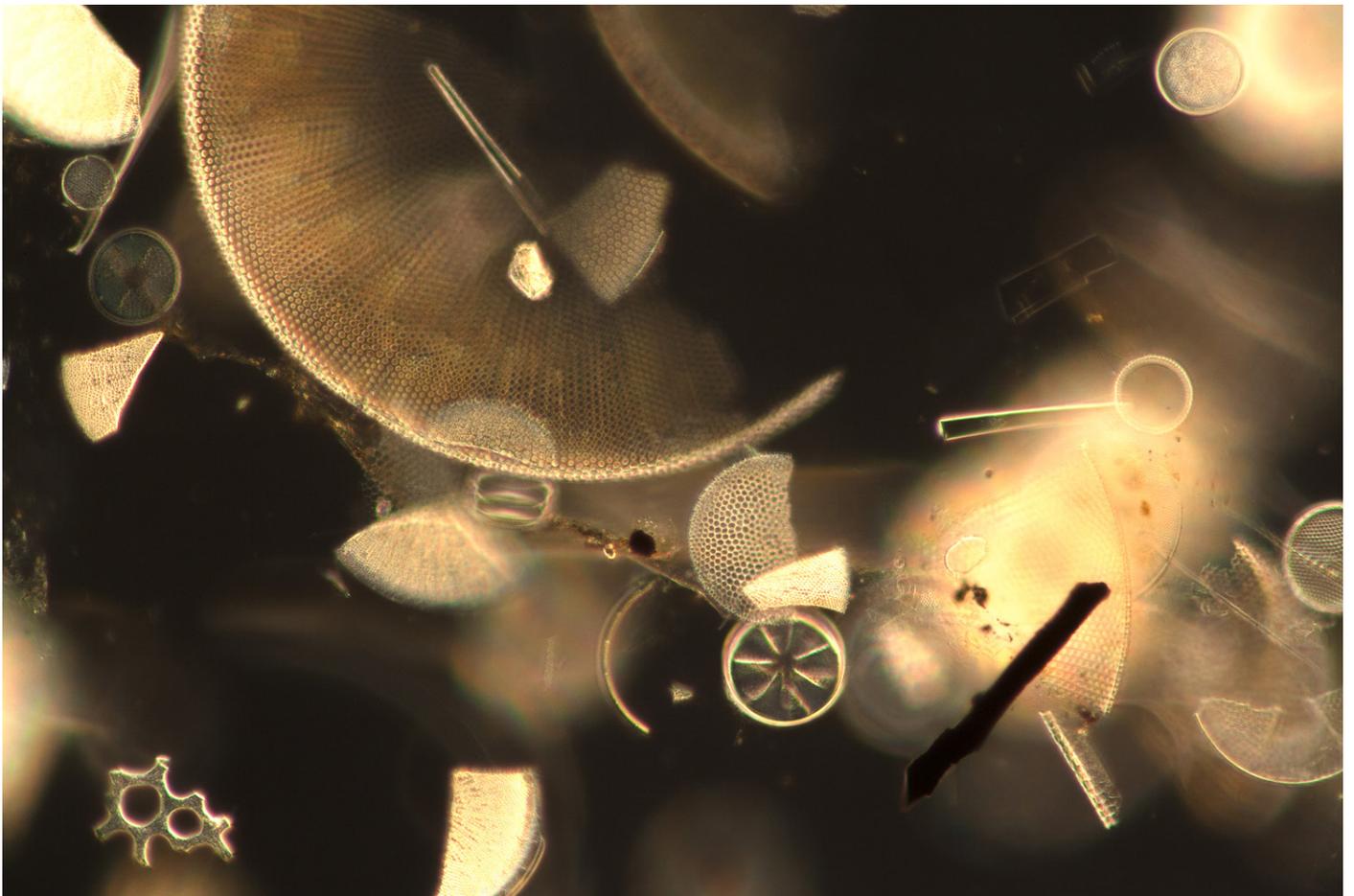


Once extracted, the Ichaboe diatoms were of considerable appeal, largely due to their inclusion of a striking form from the genus *Arachnoidiscus*, discovered and named in early samples by Henry Deane.<sup>10</sup>

Wherever diatoms were found, diatomists were quick to attempt to classify and name them. But this was not a ‘controlled science’, particularly where the organisms were the side effect of the guano trading business. Merchants diluted the high-quality guano from Ichaboe with material from other regions, and stocks got mixed or mislabelled, creating a taxonomic nightmare for those wanting to assign particular species to particular geographical locations. Diatomists were often a little sloppy in their record keeping, too, adding to the confusion.<sup>11</sup>

What is certain is that the guano diatoms from Ichaboe were always highly sought after and considered ‘exotic’. Material from the initial samples was still being traded well into the 20th century, and new slides can still be made from one of these by a professional slide mounter in Britain (who has diatomaceous material from a number of historical locations including Ichaboe).<sup>12</sup>

Figure 8. Wayne Barrar, Various diatoms from guano from Ichaboe. From a slide by an unknown maker (diamond etched), c.1850. (Photographed 2014.)



A cleverly observant article in *Household Words*, a fortnightly London journal founded and edited by Charles Dickens, stated in 1857 that:

we should have speculators buying up the diatoms from Ichaboe guano, and causing them to disappear as the substance itself grows scarcer, and the present microscopic preparations from it enter the list of works by the ‘old masters’.<sup>13</sup>

The unidentified author of the article clearly understood the industry associated with Victorian microscopy. Even in this period, a number of claims for the Ichaboe diatoms are made. They are rare; they will become rarer and hence more valuable; and most significantly they are analogous to great artworks. This extraordinary idea of value is devoid of any relationship to the historical narratives of the mining or to those people involved in extracting the stuff from its isolated location. Ichaboe as a place or location is unremembered in this context. The exotic name is a signifier of exotic beauty but not for its geographic heritage or connections. Instead, these samples are so acculturated and distanced from nature at this point as to be considered artworks.

From a contemporary standpoint informed by environmental awareness, it is harder to avoid the many meanings, taxonomies, and contexts for these extraordinary remnants. These artefacts and their images are both physical and metaphoric connections to the surface of the island. Every diatom was scraped by someone collecting guano into sacks which were then lugged onto tall ships bound for the developed world. This monumental task has in effect perhaps left the island with the closest thing to a memorial—a dispersed and mostly de-contextualised network of balsam-bound glass slides—inherently perfectly preserved but buried in diverse archives.

## Endnotes

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2. Jill Kinahan and John Kinahan, “‘A Thousand Fine Vessels are Ploughing the Main...’: Archaeological Traces of the Nineteenth-Century ‘Guano Rage’ on the South-western Coast of Africa”, *Australasian Historical Archaeology* 27 (2009): 45, [www.jstor.org/stable/29544613](http://www.jstor.org/stable/29544613).
3. Hendrik Snyders, “‘Stinky and Smelly – But Profitable’: The Cape Guano Trade, c.1843-1910” (PhD diss., Stellenbosch University, 2011), 44, [www.researchgate.net/publication/259583642 Stinky and smelly - but profitable The Cape guano trade 1843 - 1910](http://www.researchgate.net/publication/259583642_Stinky_and_smelly_-_but_profitable_The_Cape_guano_trade_1843_-_1910).
4. “Ichaboe Island – The Guano Trade”, *Illustrated London News*, 28 September 1844, 196.
5. Charles John Andersson, *The Okavango River: A Narrative of Travel, Exploration, and Adventure* (New York: Harper & Brothers, 1861), 412.
6. Wayne Barrar, “Fields of Vision: Photography, Phosphate and Landscape from a Pacific History” (MA thesis, Massey University, 2005), 50.
7. Contemporary diatomists’ letters outlined extensive buying, selling, and exchange of specimens (including guano from Ichaboe). See, for example, George Mansfield Browne, Letters to G. A. Walker-Arnott, 26 June 1862 and 11 January 1868, Letters to G. Walker-Arnott, Diatom Collection Archives, Natural History Museum, London.
8. G. A. Walker-Arnott, “Notes on Arachnoidiscus, Pleurosigma, Amphiprora, Eunotia, and Amphora”, *Journal of Cell Science* s1-6 (1858): 195, <https://doi.org/10.1111/j.1365-2818.1858.tb04561.x>.
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10. George Shadbolt, “On the Structure of the Siliceous Loricæ of the Genus Arachnoidiscus”, *Transactions of the Microscopical Society of London* 3 (1852): 49, [www.biodiversitylibrary.org/item/20084#page/579/mode/1up](http://www.biodiversitylibrary.org/item/20084#page/579/mode/1up).
11. G. A. Walker-Arnott, “On Arachnoidiscus”, *Quarterly Journal of Microscopical Science* 6 (1858): 160, [www.biodiversitylibrary.org/item/48900#page/166/mode/1up](http://www.biodiversitylibrary.org/item/48900#page/166/mode/1up).
12. Klaus D. Kemp, “Diatom Deposit and Locality Interest”, *Klaus D. Kemp - Microlife Services* (webpage), [www.diatoms.co.uk/locloc.htm](http://www.diatoms.co.uk/locloc.htm).
13. “Microscopic Preparations”, *Household Words* XVI, no. 385, 8 August 1857, 134, [www.djo.org.uk/household-words/volume-xvi/page-134.html](http://www.djo.org.uk/household-words/volume-xvi/page-134.html).

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## Biographical Note

Wayne Barrar is a photographer and Associate Professor at Whiti o Rehua School of Art, Massey University, Wellington. His work often considers the human construction of landscape or critiques ‘re-definitions’ of nature. Recent solo exhibitions include *The Glass Archive*, Hocken Gallery, Dunedin; *Underground: Subterranean Economies and Ecologies*, Prichard Art Gallery, University of Idaho; *Bio Borders*, Pataka Museum of Art and History; and *An Expanding Subterra*, toured by Dunedin Public Art Gallery to other venues in New Zealand and the USA. He has also been recently included in major group exhibitions at the Auckland Art Gallery, National Gallery of Australia and Museum of New Zealand Te Papa Tongarewa. His monographic books include *Shifting Nature* (Otago University Press, 2001); *An Expanding Subterra* (Dunedin Public Art Gallery, 2010); and *Torbay tī kōuka* (University of Plymouth Press, 2011).

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