

“A thousand fine vessels are ploughing the main ...”¹

Archaeological traces of the nineteenth-century ‘Guano Rage’ on the south-western coast of Africa

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Industrial-scale exploitation of seabird guano deposits on the islands off the south-west African coastline during the nineteenth century lasted less than two years. There are abundant documentary accounts of the ‘Guano Rage’, but the archaeology of this intense, short-lived activity has not been examined before. Evidence of guano digging is well preserved at Hottentot Bay, where the higher sea-levels of the mid-Holocene turned the rocky headland briefly into an island seabird colony. This paper examines traces of the diggers’ presence on the coast, and of their interaction with indigenous communities who formed part of local exchange networks extending deep into the desert interior.

INTRODUCTION

The trade in guano from the south-western coast of Namibia between 1843 and 1845 yielded immense profits for British merchants. The wealth and excitement generated by the exploitation of this natural resource was rivalled only by the discovery of diamonds sixty years later. The scale of the guano trade involved hundreds of ships and thousands of diggers, all concentrated on the tiny offshore island of Ichabo, about two kilometres from the desert mainland. In spite of the isolation of this coast and its apparent lack of water, a small number of indigenous people lived near a brackish spring in a bay opposite the island and came into contact with the guano diggers (*Nautical Magazine* 1845:647; Eden 1846:43). Indeed, ‘Ichabo’ is an English approximation of its indigenous name, no longer known. The time of this contact, near the end of the first half of the nineteenth century, is at a period which is poorly represented in archaeological sites elsewhere on the coast. Although the trade in guano was short-lived, the intensity was such that material signs of it still remain. The archaeology of this historical event complements detailed studies of contact and trade at the entrepôt of Walvis Bay (Figure 1), a natural harbour and the largest and safest anchorage on the coast, c. 500 km to the north (Kinahan 2000, 2005; Kinahan 2001).

Background research

Isolated contacts with Europeans first occurred at Walvis Bay during the late seventeenth century, becoming more frequent a century later, and then permanent. During initial contact independent, wealthy indigenous pastoralists controlled extensive

grazing lands in the interior of the country, periodically visiting the coast to exploit its resources (Kinahan 2001). From the late eighteenth century, Walvis Bay became the gateway to the interior for traders, explorers, missionaries and

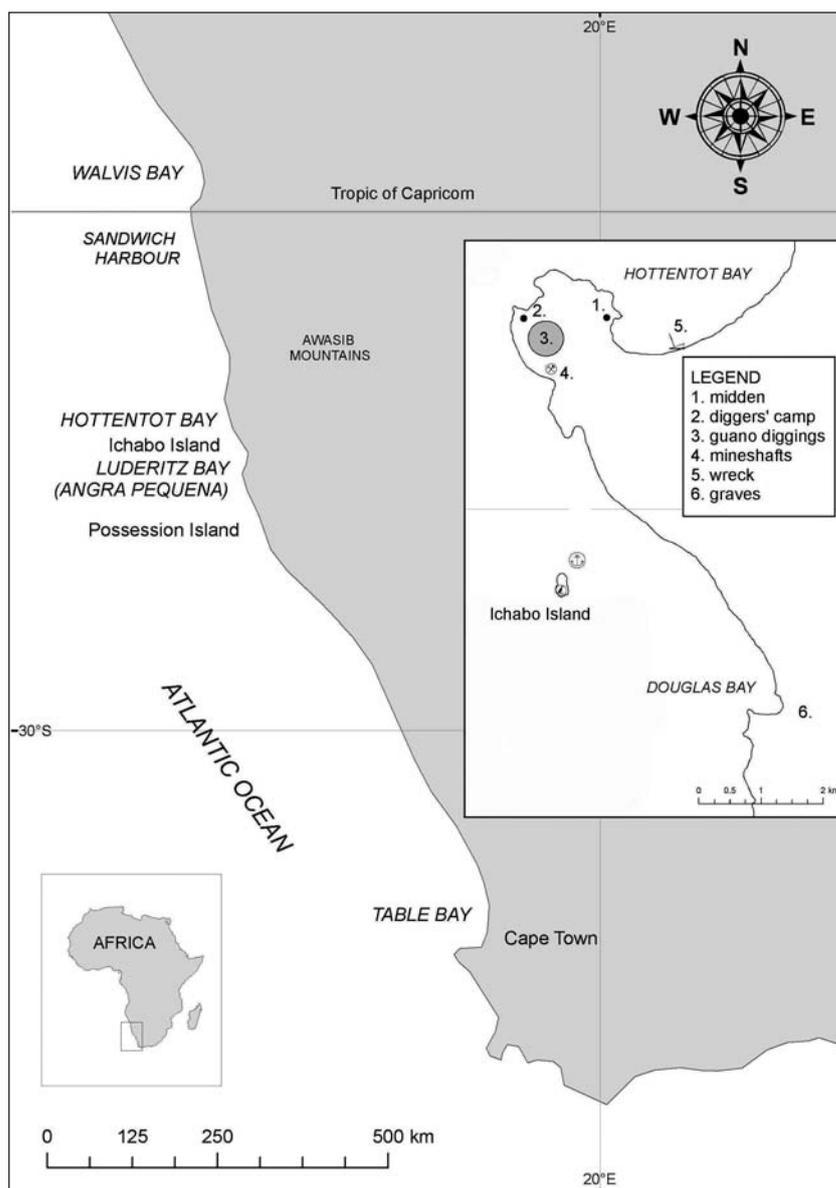


Figure 1: Maps showing the location of the study area within Africa; the south-west African coastline from Walvis Bay to Table Bay with localities referred to in the text, and (inset) the distribution of nineteenth-century sites on the headland at Hottentot Bay.

settlers. Their presence added to the attraction of the place for indigenous pastoralists who began to trade cattle, sheep, hides and feathers. Two major dry-river courses with stands of riparian woodland and subsurface water allowed the pastoralists to move livestock from the grazing lands of the highlands to the trading entrepôt on the desert coast. Contact at the coast was sustained throughout the nineteenth century, became articulated within the regional cattle trade and was documented by many of the visitors (Kinahan 2000; 2001).

Archaeologically this contact with the Western world is highly visible in the episodic river delta at Walvis Bay, with 58 sites presently recorded. Material evidence of the livestock trade is abundant, large numbers of glass beads and imported porcelain allowing high resolution dating of sites within the period of sustained contact, with the curious exception of the first half of the nineteenth century (Kinahan 2000). The abundance of imported trade goods also allows the tracking of people's movements inland. Evidence from commercial fishing operations at Sandwich Harbour, 40 km south of Walvis Bay, shows fishing establishments existing side-by-side with indigenous settlements from 1860 to the late 1880s, the local people by then having become impoverished and largely dependent upon wage labour and European charity (Kinahan 1991).

The archaeology of the guano trade provides information on the start of large-scale commercial operations that drew indigenous inhabitants into relations of exchange with the West. We begin by describing the physical conditions that give rise to the accumulation of guano on the Namib coast, conditions similar to those on the coasts of South America and Western Australia. We describe the African guano rush and give historical detail to illuminate the nature of contact.

A central theme of our research is how the material remains corroborate information from the documentary record. We compare glass beads and imported porcelain with other, related assemblages to refine and extend the use of these artefacts for dating. The occurrence of glass beads, porcelain and other coastal artefacts on inland sites suggests further directions for research.

Physical geography

Namibia's arid coastal conditions are maintained by the cold Benguela Current that flows northwards from the South Atlantic Ocean, driven by strong south-westerly winds. Upwelling of cold, deep water brings nutrients from the ocean floor to the surface, providing an exceptional food supply for marine life. The Lüderitz Cell, in approximately 25° South, is the largest of these upwellings (Mendelsohn et al. 2002), providing rich feeding grounds for penguins *Spheniscus demersus*, gannets *Sula capensis* and cormorants *Phalacrocorax capensis*. These species colonize offshore islands and rocks where their nests are safe from mainland predators such as jackal *Canis mesomelas* and hyena, *Crocuta crocuta* and *Hyaena brunnea*.

Although primarily a sandy desert, the Namib coast is punctuated by rocky areas, including numerous offshore islands, particularly along its southern quarter in the vicinity of Lüderitz (previously Angra Pequena), providing seabirds with a variety of nesting places. Possession Island, four kilometres long and just less than one kilometre wide, is the largest of the thirteen offshore isles but seabirds and seals frequent even the smallest that are no more than rocks



Figure 2: Ichabo Island viewed from the south-west. Hottentot Bay lies behind the dark rocky headland at top left. The present day buildings and jetties on the north-eastern side overlook the anchorage used during the guano rush. The low seawall on the perimeter of the island is to protect the seabirds. The historical sketch in Figure 3 shows the same view. Rod Braby, (NACOMA), July 2009.

extending above the surface of the sea. Ichabo Island at its centre is 30 feet (9 m) above sea level, with a slight elevation on its south-west side which gives some shelter to seabirds roosting on its northern end (Rand 1951). Ichabo provided the most sought-after guano during the nineteenth century, and is still productive today (Figure 2). Throughout the Holocene the rocky isles presented viable breeding grounds for seabirds, unaffected by high winds, increasing dryness and transport of vast quantities of sand. The aridity of the climate (fog providing more moisture than rainfall); the confined but ideally protected nesting sites on the offshore islands; the abundance of fish, and the birds' fidelity to the same breeding sites create optimal conditions for the formation of deposits of bird droppings. Properly called guano, the droppings consist principally of ammonia and nitrates, and make a remarkable fertilizer. In 1845, the master of the brig *Forrester*, from Mystic Seaport, USA, which was at anchor off the island in 26° 22' S, 14° 51' E described Ichabo and its deposits of guano thus:

... This Island certainly is a wonderfull [sic] production of nature, surrounded as it is with reefs & a heavy surf continually rolling on it ... the deposit ... appears to have been formed by layers or strata of Animals, such as the Penguin, Gannet & Seal which by some means had been deprived of life, Generation after Generation the live depositing their excrement [sic] on the Dead for thousands of Years & the whole becoming decomposed has formed Guano. The skins or skeletons of the different Animals are perfectly fresh only are squeezed flat by the weight over them ... (Forrester 1845).

HISTORY OF THE GUANO TRADE

The extraordinary properties of guano as a fertilizer had been known for centuries in South America, where the cold Humboldt Current washes the hyper-arid Peruvian coast. Guano was not used on a large scale until 1809, when a breakthrough in the process of refining nitrate made industrial operations possible (Jiménez 2005). In the course of the 1830s, a Peruvian merchant attempted to interest British and other merchant houses in speculating in guano, importing casks of the fertilizer into England for experiments on crops. The experiments proved so successful that a definite interest was aroused, leading in 1842 to a partnership of W.J. Myers, a Liverpool merchant with trading interests in South America, and London and Liverpool agents, Anthony Gibbs & Sons (Craig 1964:26; *Nautical Magazine* 1845:621).

Myers and Gibbs vigorously promoted the use of guano in Britain through pamphlets (e.g. *Johnston* 1841). Within a year, imports of South American guano rose by over 700 percent: 2,881 tons in 1841 and 20,398 in 1842 (*Accounts and Papers* 1851, cited in Craig 1964). At approximately £20 per ton, Peruvian guano proved highly profitable (Craig 1964:27). A retired master mariner in Liverpool, Andrew Livingstone, observed the trade with interest. He had read American sealer and entrepreneur Captain Benjamin Morrell's published narrative of his voyages to the southern oceans. In his account of the southwest African coast, Morrell described the island of Ichabo as "being covered in birds' manure to the depth of twenty-five feet [9 m]" (Morrell 1832:204). Livingstone persuaded a Liverpool merchant, John Rae, to send out three ships in strict secrecy to establish the whereabouts of the island on the poorly charted coast and bring back a cargo of the African guano. Of the three, only one ship returned laden, her captain having obtained detailed sailing directions from an American whaler who had visited the island.

The African guano trade and Ichabo Island

The shipping here are all English, our flag being the only American one.²

... with the immense number of British shipping crowding round it to the number of 300 Sail ... I consider it to be a very dangerous anchorage amongst such a number of ships & I am not sorry I am going to leave it without loading.³

Deposits of guano off the south-west African coast near Britain's Cape Colony opened the possibility of a new trade during a time when foreign competition and industrial depression had caused a slump in British shipping (Craig 1964:25). Many vessels were underemployed and freight rates were low. Guano was a high bulk commodity that could be loaded straight into the hold, ideal for shipowners whose ships did not meet the standards laid down by Lloyd's system of classification for other valuable cargo such as tea (Craig 1964:51). The guano itself cost nothing and as long as the vessels were insured against repairs and losses, a cargo could be fully remunerative. The captain of the *Douglas*, the first ship to return to Ichabo after the initial exploratory voyage, immediately took possession of the island for the Queen (Watson 1930). Although the island was not formally annexed to Britain until later, British merchants ensured their monopoly over the guano by every means to hand so that, in spite of the presence of entrepreneurial Americans in these waters, the trade remained exclusively the preserve of merchant houses from Liverpool, London and Glasgow.

Faced with no wharf, high rollers on a dangerous sea, and a barren rocky island perimeter, the first shipmasters in the trade constructed stages by which to load. These consisted of crossed legs of spars lashed with rope and wedged into the most suitable niches in the jagged ocean floor. The spars formed shears that were linked by cross spars and planks to form walkways. In order to get beyond the surf, they had to extend between sixty and ninety metres in length (Figure 3). Labourers and seamen carried the guano in bags to a swinging platform that could be raised or lowered according to the height of the water, to load into the ships' boats (*Nautical Magazine* 1845:623). It was heavy and dangerous work but the most practical method. Agents of the merchant houses, who had established themselves initially, controlled the stages and could prevent other ships from using them, or charge exorbitant rates for loading.

As more and more ships sailed to Ichabo, the only possible anchorage, which lay to the northeast between the island and the mainland, became too crowded, and vessels fell foul of one another. It was too exposed, had bad holding ground that caused anchors to drag, and was continuously subject to gales and heavy swells. There were many shipping losses. Conditions among the diggers on the island itself became more and more chaotic, with thousands of men housed in tents working the guano pits. There was drunkenness and debauchery, sickness and scurvy caused by the poor diet, and regular accidents, either from the sides of the pits collapsing onto the diggers below or the hazardous nature of loading the boats. The labourers and seamen regularly behaved with wanton violence. Watson (1930:638) describes an attack on a village of indigenous people living on the mainland approximately eight miles (c. 13 km) south of Ichabo and two miles (c. 3 km) inland, during which all the villagers' dogs were killed, water and weapons seized, and habitations burned. M.B. Wade (*Nautical Magazine* 1844:401–402) noted this village of about 50 inhabitants and a pathway to it from Douglas Bay, opposite Ichabo, as part of an Admiralty survey in January 1844.

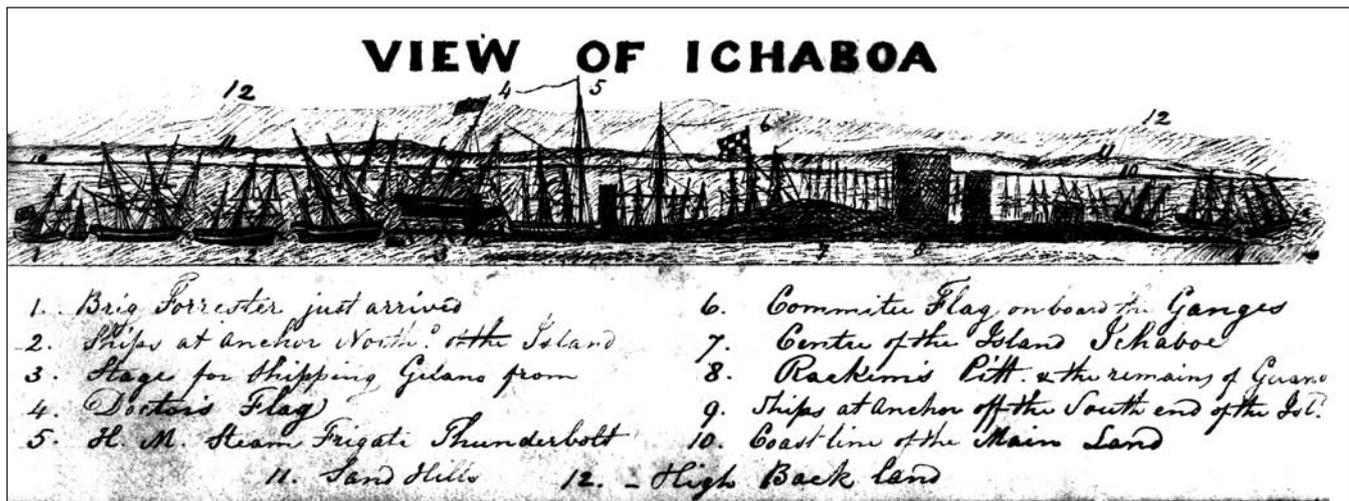


Figure 3: Sketch showing ships riding at anchor while collecting guano at Ichabo Island, viewed from the south-west (cf. the photograph in Fig. 2). From the log of the American brig Forrester, January 1845 no. 508, Mystic Seaport Museum, Judy Beisler Photo no. 93-5-60, Mystic Seaport, Mystic, Connecticut.

No. 3: Stages with crossed spars reaching out from the island to a ship.

No. 5: HMS Thunderbolt, Commander Broke, R.N., sent to preserve order on the island.

No. 8: Rackham's pit with a column of remaining guano indicating the previous height of the deposit.

As described in eighteenth-century accounts (e.g. Thompson's 1786 account reproduced in Kinahan 1990), and during the time of the guano trade in the *Nautical Magazine* (1845:649), these nomads on the coast carried water in ostrich eggshells, lived off seafood, wore skin cloaks and rubbed themselves with grease and ochre. Their weapons were bows, arrows and spears tipped with antelope horn or metal. For shelters at night, they would pile bushes in a rough semi-circle about two feet (0.6 m) high, scoop out the sand and make a fire at the entrance. Called 'Hottentots' by the sailors in mockery of their click language, they stayed on at the coast in the hope of meeting vessels and gaining something to their advantage but were extremely wary of the seamen and kept their women and children out of sight. According to the documents, their benefits were slight; handouts of tobacco, clothing, food, water and trifles. Commander Broke of HMS *Thunderbolt* had the vessel's engineers sink wells into the sand on the mainland in 1844 to procure subsurface water for them, but although abundant, it was very brackish. When asked where good water could be found, they always pointed to the south-east, indicating it was at a great distance (*Nautical Magazine* 1845:648). One young man, christened 'Peasesoup' by the seamen, was taken on board to see the Captain's cabin but "in their constant intercourse with the crews of vessels over two years" (*Nautical Magazine* 1845:649) the local people apparently made little progress in acquiring English. T.E. Eden (1846:43, 44) in his account of a voyage to investigate the mineral wealth of the guano islands and coast describes an encounter with a young man at Hottentot Bay who had come to trade the skin of a wild cat, for which he was given two needles, and to beg. He knew the English words "bacca, water, trouser, jacket", amongst others, wore copper earrings, carried a pipe and leather bag and "imitated accurately and gracefully the steps of the Highland Fling". In later decades, in more defined relations of exchange, provisions, clothing, blankets and tobacco were bartered for ostrich feathers, skins, cattle and labour (*Proceedings* 1885:31 C. no. 2).

Relations between the larger merchant houses, whose agents claimed exclusivity of stages and pits, and private adventurers were characterized by a rivalry that filtered down to the diggers in the pits. More than once during the course of 1844, the Royal Navy was brought in to restore order, the most effective measure being to clear the island of men at nightfall

and ensure they returned to their ships to be subject to the usual discipline on board.

On Friday last the 3rd inst. Rackham's pit was broken into by the crews of several ships & the Marines of the *Thunderbolt* had to be landed to make them desist [sic] & preserve order, which is not an easy matter amongst 5 or 6,000 Men at work on the Island, some of them the greatest Blackguards unhung. No Master of a Ship can go on the Island with any sort of a decent Coat on without being insulted or Penguined. One master of a ship (since dead) nearly lost his life having had to jump into the Sea from the end of a Stage to escape being battered to death with Penguins (Forrester 1845).

The lack of formal sovereignty over the island had the advantages of there being no control over trade, nor charges, but also brought severe disadvantages, including no harbour facilities in the desperately unsafe anchorage and no provision of services, fresh water, or any other kind of resources. The merchant or private shipowner had to bear the high risks of damage and loss, including, most commonly, of anchors, boats, masts and spars but also of the ship itself; the costs of labour; of transporting fresh water and food supplies; of planks, spars, and rope to construct stages by which to load, and of wheelbarrows, picks, shovels and bags for digging and collecting the guano. In June 1844, Captain Toby of the London barque *Frederick Huth* bemoaned the fact that "750 gunny bags were not enough" (quoted in Craig 1964:33). Craig (1964:55) gives a detailed example of the expenditure and profit on a private speculation for the owner of a barque of 300 tons register, worth £2,700, with 14 crew, sailing from London to Ichabo in ballast on a six month voyage: 2 months outward bound, 6 weeks loading, 2 months homeward bound, and two weeks discharging. The expenditure, including London dock and piloting charges, wages, victualling, insurance and depreciation on the vessel, and hire of a stage at Ichabo for £100, was £1,053 16s 0d. The income from 420 tons of guano, sold at auction for £7 per ton was £2,940 0s 0d (more than the vessel itself was worth), giving a profit of £1,886 4s 0d.

Although most vessels with a full cargo of guano would have departed Ichabo direct for their home ports in Britain, a

proportion sailed on to Table Bay, the port for Cape Town, South Africa. The Port Captain archives for Table Bay list the date of arrival of ships, with name and captain, cargo, place of departure and original port of registry. These registers provide a sample of the volume of shipping involved in the trade: no vessels are recorded from the southwest African coast for the years 1841, 1842 and 1843. In 1844, 20 ships are recorded from Ichabo, half with cargoes of guano and most registered at British ports, except for one French ship which was in ballast, and HMS *Thunderbolt*, Commander Broke, who was sent to keep order at the island. Over 100 ships put into Table Bay between February and October 1845, all but three in ballast, including the *Forrester* whose captain provided the observations on Ichabo cited in the endnotes. The registers indicate that although these ships were unable to load a cargo of guano, many continued sailing in ballast from Ichabo to nearby Angra Pequena (currently Lüderitz) and Possession Island, looking for other sources of this commodity (Port Captain 1841–1849).

The initial exploratory voyages set out at the end of 1842, returning to Britain with guano in July 1843; Craig (1964:35) records the number of ships pouring into the inadequate anchorage at Ichabo during the course of the year 1844: 46 in May; 100 in July; 300 in September, increasing to the greatest number of 460 that December. By February 1845, fifteen vessels were loading scrapings from the island, and by August, eleven were rolling at anchor, with no prospect of a cargo. The greatest volume of shipping to ply the Namib coast ceased after less than two years. From the little island of approximately 550 by 200 metres, 284,752 tons of guano was removed (*Accounts and Papers* 1851 cited in Craig 1964:54). At the average cost of £7 per ton, the total average value of the trade would have been £1,993,264: nearly two million pounds sterling.

Using an inflation calculator, it is possible to calculate the approximate value of the guano trade in today's terms (Bank of England 2009): £1 in 1845 would be equivalent to £91.12 in 2008. £2 million in 1845 would be equivalent to £182.24 million in 2008, and this would equate to AU\$ 369,597 million or N\$ 2.37 billion (A. Edmunds, in litt. 21 July 2009). By comparison, Namibia's total diamond sales for 2008 were N\$5.4 billion (R. Sherbourne pers. comm.), approximately double the total value of guano harvested from Ichabo in 1844–1845.

Sustainability of the guano trade

The fabulous profits which had attracted the rush of merchants and private adventurers from Britain inspired various entrepreneurs to examine the coast for other commercial opportunities (e.g. Eden 1846; Messem 1855) and shipping traffic regularly plying the coast increased (Port Captain 1841–1849).

Ichabo Island had been swept clean by mid-1845, but the birds did come back. In 1847, the Liverpool firm of Gibson, Linton & Co. installed a supervisor on the island to protect the birds during the breeding season, with the long-term aim of allowing guano deposits to recover. Captain John Spence joined Gibson, Linton & Co. in 1849, becoming responsible for the whole coast and island on behalf of the firm. However, there was not yet enough guano to sustain trade, and the firm was forced subsequently to sell its rights and properties. For the next few years, rights to Ichabo were held by various British merchants, with some from Cape Town jockeying for a toehold. On the whole, the merchants respected each others' claims, but a conflict in 1861 led to the involvement of the Royal Navy, a flag-raising annexation ceremony on Ichabo and the recommendation to the British Home government that

dominion be extended over all the adjacent offshore islands (Cape of Good Hope 1861). By the late 1860s, the Cape Town based company De Pass, Spence & Co. were foremost in the coastal trade, with rights over all the offshore islands and some places on the mainland, including Sandwich Harbour and Hottentot Bay, close to Ichabo. At this time, De Pass, Spence & Co. shipped guano to Mauritius where it was used to fertilize the sugar-cane fields and fetched good prices (between £8 and £12 per ton) (Kinahan 1992:101), while fish, caught and dried at Sandwich Harbour was shipped there to feed the plantation workers (Kinahan 1991). From time to time, the company shipped oxen to the islands of St Helena and Ascension under government contract (*Proceedings* 1885:31 C. no. 2). Company interests extended to minerals and mining, and representatives went on several expeditions into the interior to investigate and negotiate mining rights from the local people, principally for copper. A manuscript map by Thomas Baines (1864) shows the route of an exploratory journey from Pomona Island, south of Angra Pequena (Lüderitz), to the copper mountain, Rapunberg, with a note to the effect that the Hottentots thought that they could find a through road of three days' journey to Hottentot Bay.

In 1883, the status of the coast changed when Imperial Germany extended protection over the whole of the coast and interior, necessarily excluding the British possessions of the offshore islands and the enclave of Walvis Bay. German occupation of the bay at Angra Pequena (Lüderitz) made subsequent collecting of the guano from the isles in the harbour mouth problematic; regular gun salutes and a greater human presence disturbed the birds and adversely affected the production of guano (Cape of Good Hope 1895:2). The animosity between De Pass and Spence, and the German Government gave rise to formal enquiries through select committees and an Anglo-German Joint Commission, and resulted in detailed minutes of evidence from interviews, some of these conducted on the coast. These provide a wealth of historical information useful to investigations into the material remains of nineteenth-century coastal activities.

The historical information evoked a number of expectations for archaeological survey. The landscape had been shaped by the guano mining; Ichabo Island, observed in the 1830s with a guano deposit approximately 8 m high, was reduced to bare rock marginally above sea level. The great number of ships crowded into a small and unsafe anchorage had resulted in many casualties and probably left much evidence of wrecks, jetties, stages, planks or spars close to the island, or washed up on the mainland. The dangerous, violent and unhealthy lifestyle for the diggers caused many deaths. From the historical lists of equipment and supplies, all of which had to be shipped in, the archaeology could include the remains of wheelbarrows, shovels, sacks, rope, barrels, bottles and casks, as well as evidence of exchange, specifically; provisions, blankets and tobacco pipes. As the historical documents indicate regular interaction with the local people, starting with charitable hand-outs and developing later into some exchange, with periodic violence, we expected to identify a pattern of shipping and guano digging activity with peripheral indigenous sites, showing some interaction between the two through evidence of cast-offs and trade goods. The documents also suggested that there would have been other exploratory mining operations in the area of the coast, and journeys into the interior with the local people.

Our aims, then, were to identify the archaeological character of guano mining using both material and historical information; to explore the archaeological implications of a short-lived, intense trade as opposed to the longer duration of contact as at Walvis Bay, and to attempt to mitigate the lack of coastal sites from the 1800–1850 period, using material, if recovered, to elaborate the imported ceramic sequence.

ARCHAEOLOGY OF THE GUANO TRADE

When De Pass, Spence and Company's lease of the offshore islands expired, the Government of the Cape Colony took over the islands. Throughout the twentieth century, access was restricted to protect the birds and modern guano operations carried out through a monopoly administered by the government's Department of Agriculture (Rand 1950). Recently, they have been declared the "Namibia Islands' Marine Protected Area" (*New Era* 9 July 2009; NACOMA 2009). As the island is scraped clean regularly and maintained specifically for breeding seabirds, little material evidence of the historic guano rush would remain *in situ* there. However, the mainland is close by and documents record frequent visits to it during the time of the guano rush, as described above. Douglas Bay provides a landing place on the mainland to the immediate south of Ichabo, where the 'Hottentot' village was recorded on a contemporary map, and Hottentot Bay is within walking distance north along the coast. Potable artesian water is available in the near vicinity.

Hottentot Bay

Isolated rocky headlands are a feature of the Namib coast, and at Hottentot Bay the headland forms a spacious and well-sheltered anchorage, with good holding ground of mud and clay for ships at anchor, unlike Ichabo. Although accessible by sea, Hottentot Bay is difficult to reach by land, dunefields stretching 60 kilometres south to the rocky environs of Lüderitz, 400 kilometres northwards to Walvis Bay and at least 100 kilometres inland. Between these high dunes flanking Hottentot Bay and the open coastline lies a vast saltpan, where Eden (1846:36) noted that the presence of dead molluscs was suggestive of recent changes in the configuration of the coastline.

Relict shorelines and related evidence of a rapid rise in sea level during the mid-Holocene has been documented at several places along the west coast of southern Africa (Deacon & Lancaster 1988:113). On the Namibian coast, this phenomenon is represented by traces of sub-tidal lagoon environments which now lie marginally above mean sea level (Compton 2006). One of the best documented examples is Anichab Pan at Hottentot Bay, where lagoon sediments contain well preserved mid-Holocene mollusc assemblages (Compton 2007).

There is also direct evidence of the mid-Holocene high-stand on the Hottentot Bay headland itself, in the form of shell breccias situated at more than 2 m above mean sea level. These deposits show that the headland was cut off from the mainland by the sea at the time of the maximum high-stand, estimated at 6,600 BP (Compton 2007:59). Table 1 presents radiocarbon dates for three samples collected at Hottentot Bay. The shell breccia from the headland is dated to about 6,300 BP, and a sample of compacted guano obtained from a test pit near the highest point of the headland yielded a similar date, confirming that the headland was colonized by seabirds at this time. The lagoon shell sample in Table 1 represents the extinction of the tidal lagoon at about 5,600 BP, when sea-level returned to normal. This date agrees approximately with results reported by Compton (2007:62), indicating that the headland at Hottentot Bay provided a suitable seabird roost for less than one thousand years.

Table 1: Radiocarbon dates from Hottentot Bay.

Sample No.	Material	Elevation	C ¹⁴ Age BP	Calibrated Date
Pta-9100	Shell breccia	+2.1masl	6390±60	4736 BC
GrA-24384	Guano	+7.0masl	6310±45	4658 BC
Pta-9079	Lagoon shell	+0.5masl	5600±80	3900 BC

Much of Ichabo Island lies within the range of the mid-Holocene high-stand. Consequently, guano deposits on the island were probably washed away and accumulation would have resumed when sea-level returned to normal. Whereas guano accumulation ceased when the Hottentot Bay headland was no longer an island, accumulation continued on Ichabo where seabirds were safe.

Guano diggings

During the initial search for the island of Ichabo, vessels had put in at various offshore islands to load guano. Once they had seen the high quality Ichabo guano, however, they would dump any previous cargo into the sea. After the Ichabo guano had been removed, the guano from other sources became a more attractive proposition (Craig 1964:32). The nesting behaviour of seabirds was evidently well-known to the guano prospectors, as was the geological history of the headland at Hottentot Bay and they explored its western, seaward side for ancient guano:

The peninsula forming Hottentot Bay must have been an island at one time, and the deposits there may have been on the place for hundreds of years ... You can see the formation of the beach and shells ... I was the first to find it out. [The birds] have never returned to the mainland on account of the jackals and other things destroying them (*Proceedings* 1885:19 Capt. John Spence examined, Qs 199–202).

The inset map in Figure 1 shows the location of diggings (Site 3) concentrated on the western, seaward side of the bay and the north-western point. The diggings consist of numerous small excavations with adjacent spoil heaps in fairly dense clusters. During their cross-examination by the Anglo-German Commission, both Captain Spence and his coastal supervisor, Mr John Gove independently remarked on the need to remove five or six feet of sand (c. 2 m) to get to the guano on the point at Hottentot Bay (*Proceedings* 1885:20, Q208 and 55, Q661). Spence's and Gove's remarks account for the trenches and spoil heaps left on the point; the sand would have been shovelled aside, and the guano underneath dug out and then bagged. Indeed, in many places just under the surface sand are the remains of coarsely woven jute bags, probably the 'gunny bags' used during the guano rush.

Captain Spence's estimate of the average annual quantity of guano collected from Hottentot Bay was between 150 and 300 tons (*Proceedings* 1885:21, Q225). Mr Gove observed that Hottentot Bay guano was "perished, it has lost its smell" (*Proceedings* 1885:55 Q 653). Spence explained that there was a limited market for the guano from Hottentot Bay because of its inferior quality, describing it as being mixed with phosphates; they could get a better price for guano high in phosphates by mixing it one to one with good guano, which has a higher percentage of ammonia. This they did in the hold of the ship, loading around 30 tons of inferior guano, and then bag for bag, good guano to inferior. After being stored in the hold, the inferior guano became permeated with ammonia and fetched a better price.

We get from 16s. to 17s. for every per centage [sic] of ammonia and 2s. 6d. to 3s. 6d. for every per centage [sic] of phosphates, and all the other articles in it are of no value (*Proceedings* 1885:22, Q243).

Samples of guano taken from a test pit in undisturbed ground near the historical diggings (at a depth of 0.4 m) were analysed, together with a sample of modern guano from a commercial guano platform. The ancient guano was in hardened off-white lumps, while the modern sample was brown, light and powdery in texture, and included a small

proportion of feathers. Table 2 presents the results. The analysis bears out Captain Spence's comments; the mobile nitrogen, ammonium and potassium have dropped to a negligible amount in the ancient guano, while the phosphorus has remained remarkably stable. The Hottentot Bay sample contains a high proportion of sand, also noted by Spence and Gove at the time.

Table 2: Constituent analysis of modern and ancient guano samples.

Constituent	Modern guano	Ancient guano
Organic matter % m/m	38.0	1.1
Sand % m/m	7.8	80.0
Potassium % m/m	2.1	0.05
Phosphorus % m/m	2.9	2.7
Moisture % m/m	24.0	6.6
Dry matter % m/m	76.0	93.0
Kjeldahl nitrogen % m/m	6.7	0.07
Ammonium as N	0.0028	0.00018

% m/m = percentage mass by mass, or percentage constituents in milligrams of the element per 100 g of sample

Material remains

Hottentot Bay has the singular distinction, on a coast known since the discovery of diamonds as the *Sperrgebiet*, or Forbidden Territory, of having an unbroken documentary record of title holders to property within the bay. This record starts with the Liverpool firm of Gibson, Linton & Co. in 1847, is rapidly succeeded by two other British merchants and then in c. 1851 by the company A. & E. De Pass, which became De Pass, Spence & Co. and then, after Captain Spence was declared insolvent, Daniel De Pass & Co. Mineral rights were granted in 1911, when the country was a German colony. Daniel De Pass died in 1921, leaving a considerable estate. In 1946 the property was sold to the Table Mountain Canning Company to carry out fish canning and sealing. Assets were transferred in 1990 to Seaflower Lobster Corporation Ltd. for the canning of crayfish. As the property lies within the boundaries of Diamond Area 1, the area also has been subject to diamond prospecting. In 2002, economic operations had ceased, and Seaflower sold the property to Hottentot Bay Investments cc (Kinahan & Kinahan 2002:24–29).

A systematic ground survey of the Hottentot Bay property (160 ha) and its immediate surrounds recorded a total of 72 archaeological and historical sites (Kinahan & Kinahan 2002). Pre-contact sites were few in number, as were those dating to the early nineteenth century (Table 3). A distinct peak in the number of sites occurred in the mid to late nineteenth century, followed by very few sites of early twentieth century date, and a second peak in the mid to late twentieth century. The first peak corresponds with the intense commercial activity spurred by the guano rush as discussed above, and the second to when the Table Mountain Cannery and Penguin Mining (Pty) Ltd companies were successively established at the bay (Kinahan & Kinahan 2002:29). Sequencing the sites according to these broad categories was based on a number of criteria; the nineteenth-century sites were identified primarily by the presence or absence of trade goods and the dates that could be ascribed to these.

The mid to late nineteenth-century sites were concentrated on the central area of the headland and probably related to onshore activity at the anchorage. These sites have been disturbed by the subsequent economic operations, which were established in the same area.

The inset map in Figure 1 shows the localities of sites with strong indications of nineteenth-century guano digging and related activities. Site 1 is a remnant midden with glass,

Table 3: Number of sites at Hottentot Bay and their place in the sequence.

Sequence	No. of sites	Percentage
Pre-contact	3	4
Early 19th C	4	5
Mid to late 19th C	13	18
Early to mid 20th C	2	3
Mid to late 20th C	38	53
Unknown	12	17
TOTAL	72	100

porcelain and other artefacts, while Site 2 is a relatively undisturbed open scatter of surface artefact material located near the shore at the extremity of the northern headland. In addition to these, are the remains of diggings discussed above (Site 3) and exploratory mine shafts (Site 4). The three shafts are located on the southern part of the headland, apparently sunk to explore mineralization on the margins of a large hydrothermal quartz vein. They are about 3.5 m in diameter, the deepest being less than 5 m, and were probably dug with limited use of explosives. Waste rock from the shafts has been neatly piled alongside. In one instance, the rock was packed to form a curving dry stone wall (Figure 4), while in another there is a concentration of crushed quartz adjacent to the waste rock dump. There are no indications of ore production at the sites. Their size, round perimeter, absence of mechanical drill scars, and the manner in which waste rock is packed resembles shafts of similar age elsewhere in Namibia. It is likely that these related to the copper mining interests of De Pass, Spence & Co. recorded in the contemporary documents.



Figure 4: One of the Site 4 mine shafts, showing the quartz vein and curving drystone wall constructed from waste rock.

Site 5 is the wreck of a small wooden vessel. Submerged in the sand, the oak ribs of its hull are visible only at low tide and indicate dimensions of approximately 26 m from stem to stern and 7 m in the beam. The stump of a pine mast is visible 9.6 m behind the bows (Figure 5). Quoting Lloyds as the source, von Schumann (1996:3) describes it as the *Kent*, a three-masted sailing ship of 244 tons, lost on 5 July 1850 in a north-west gale en route to Cape Town from Liverpool. The passengers and crew were saved by Captain Spence of de Pass, Spence & Co. The masts and some upper deck beams were purportedly used in the construction of the jetty used for loading at the crayfish factory. Radiocarbon dating of a sample of wood from the hull gave a calibrated date of 1820 AD (Pta-2682) (A. Fuls, *in litt*, 22 July 2003). Eden (1846:38) observed a wreck close to the landing place on the beach during his



Figure 5: Ribs and mast of the wreck (Site 5) emerging from the shore at Hottentot Bay.

investigation of the bay, a few years earlier than the loss of the *Kent*, so more than one wreck may be involved.

The wreck described above was the only nineteenth-century one recorded during the survey, in spite of the great many shipping losses at or near Ichabo Island during the height of the guano rush. Von Schumann (1996:5) names a number of these vessels from the casualty lists at Lloyds of London, but on three separate occasions, when the Namibia Underwater Federation visited Douglas Bay on the mainland opposite Ichabo, the sea was too rough for diving. Von Schumann reports that prospectors diving for diamonds have found at least three anchors around the island. There are probably many more, as the holding for anchors on the rocky bottom was bad, causing the anchors to drag and putting too much strain on the chains, so that a large number of anchors and chains were lost (*Nautical Magazine* 1845:646). The hazardous coastal conditions work against the recovery of lagan, but in the section on Douglas Bay below, we discuss further evidence of flotsam and jetsam observed on the mainland coast.

Two limited excavations at Hottentot Bay, on the remnant midden and at the site on the headland, recovered material for analysis. The midden (Figure 1, Site 1), disturbed by building operations and encroached upon by vehicle tracks, is still visible over an area of roughly 20 x 30 m and consists of low heaps of material amongst hummock dunes between the cannery on the seafront and its labour compound inland. Two single metre strips were excavated at right angles to one another, each running out from the same small hummock dune. Strip 1 was five metres in length (see Figure 6) and Strip 2 four metres, positioned across the side of a cinder heap with bone. Adjacent to a second cinder heap were several jute bags clogged with surface sand.

Strip 1 was primarily sandy, with a lens of blackened sand and charcoal under the surface, below a large number of brown mussel *Perna perna* shells. The deposit was superficial, the subsurface sand being rusty in colour in some places, and containing metal fragments and cinders to a depth of no more than 0.2 m. Cinders covered the whole of Strip 2, the limited deposit also being mixed with cinders in a matrix of ashy, blackened or rusty coloured sand, and a small amount of white mussel *Donax serra*, and brown mussel shell. The deepest extent of the deposit contained an area of burnt sand and hard, shiny charcoal overlying clean beach sand.

Material recovered from the midden included textiles, gunflints, rope, wood, cork, imported ceramics, glass, iron,

copper, bronze, brass, lead and bone. Wooden artefacts included large bucket and barrel base fragments, barrel staves and scraps and shavings of pine timber. Ceramics included fragments of nineteenth-century bisque pipe stems, stoneware bottles that would have contained alcohol, and refined earthenware crockery decorated with blue and white Willow pattern. Copper sheeting, wire, nails and tacks dominated the metal artefacts recovered, with four worn brass buttons and a fragment of a thimble. Textiles consisted of large fragments of coarsely woven jute sacking, canvas and cloth in black and navy blue, some repaired with brown thread. Bottle glass included neck, body and base sherds from olive green wine, beer and case bottles, and a fragmented German *schnapps* bottle embossed with the proprietor's name, J.A. Gilka of



Figure 6: Excavated strip at Site 1, nineteenth-century midden, Hottentot Bay. Sand-blasted remains of the labour compound for the Table Mountain Cannery are in the background.

Schützen Str No. 9, Berlin. A single glass bead was found below the surface near a hearth. It is a transparent amber-coloured (Munsell colour code 10YR 5/8), faceted drawn bead 12 mm in length, 7 mm in diameter; teardrop-shaped, with four separate bands of octagonal facets along its length. This large fancy bead contrasts with the small uniform glass beads on eighteenth-century indigenous sites, being more like the larger, more varied beads of the late nineteenth to early twentieth century coastal sites (Kinahan 2000: 61,65).

The recovered materials accord with what might be expected of a seaman's working assemblage: navy blue garments, brass buttons, crockery, stoneware bottles, bisque pipes, canvas, sacks, wooden barrels and buckets, and evidence of carpentry and general maintenance. Although the midden has been disturbed by the building and operation of the crayfish cannery as well as other commercial activities during the second half of the twentieth century, most of its contents dated to the previous century. Unfortunately, there were no artefacts that allowed dating to a more specific period within this century.

The open scatter of surface material (Figure 1, Site 2) lies within approximately one hectare on the south-western side of the headland, c. 22 m above sea level, near the shore below the guano diggings on the weathered rocky outcrops (see Figure 7). A double parallel line of stones ran down the windward side of the site towards the sea. The number of jagged bottle bases strewn over the area was noteworthy.

An excavated strip of 5 x 2 m yielded a large amount of material. The shallow deposit lay on hard beach sand and contained lenses of fishbone, bovid bone, brown mussel shell and penguin eggshell; canvas, woollen cloth in an ashy medium with charcoal, cinders, and wood shavings and chips.

The small and medium bovid bone recovered showed that the occupants of the site had butchered young oxen and possibly a sheep, saw marks being clearly visible on pelvic bones, vertebrae and a scapula.

Nine kilograms of bottle glass in total were recovered from the 8 m² excavation. An average weight of 660 g per bottle (calculated from a sample of three complete bottles) gave a minimum number of 14 bottles represented in this small area. However, more accurate estimates of minimum numbers made from bottle bases yielded 25 olive green bottles, most having a kickup showing a pontil mark. The pronounced kickups, intended to collect sediment, suggest these were wine, or possibly rum bottles. The stretch marks and bubbles within the glass indicated the bottles to have been hand-blown and turned. Most of the bottle necks had a



Figure 7: Site 2, Guano diggers' camp on the Hottentot Bay headland, showing the large number of bottle bases strewn on the surface, the sea and rocky outcrops above, where nineteenth-century guano diggings are still discernible.

thickened, hand-turned rim with collar. Six light green bottles, of which two had faceted sides, were next in number, followed by three case bottles, the seal of one showing the gin manufacturer to be Simon Rhyndende & Zonen, Schiedam, of post-1835 date (Sydow 1973). Two medicine bottles were represented by transparent blue body sherds.

Thirty-three violet or green-tinted flat sherds of glass were probably from window panes. The lines of stones mentioned previously could have been foundations of a small building that may have had windows. During the questioning of the Anglo-German Joint Commission of 1885, Captain Spence mentioned that the establishment at Hottentot Bay consisted of a wooden house, with 5 or 6 men staying there as a rule (Proceedings 1885: 21, Qs 226 & 227). The men did not live there permanently, as they moved to work on the other islands as required. When the Commissioners visited the bay in person, they referred to the accommodation as "that small wooden shed" at which they pointed in the course of making sure that that was where the men lived (Proceedings 1885: 55, Q663).

The archaeology indicates that the guano operations at Hottentot Bay were on a modest scale at the time, and the way of life crude. Considering the stone features, glass window pane fragments, evidence of wood-working, food remains and number of bottles from alcoholic drinks, Site 2 was most likely where the guano diggers' shed stood, and the place where earlier guano diggers might have camped.

Most of the mass-produced imported ceramics recovered from the guano diggers' camp were refined earthenware likely to be from the Staffordshire potteries in England. Limited varieties were found during the excavation: the almost complete circular foot from the base of a whiteware bowl; fragments from a Willow pattern plate and cup; a sherd decorated with a flow blue pattern, and fragments from three separate small annular ware bowls with blue and black bands on white (see Figure 8).

This assortment of crockery consists of items that also occur in the assemblages recovered from sites in the vicinity of Walvis Bay and Sandwich Harbour, but the latter are much more varied, 21 sites having 83 different patterns and combinations of colours in five different types of ceramics (Kinahan 2000:78–80). In the analysis of these assemblages, seriation, piecemeal dating by association and correspondence analysis set up a high resolution sequence for contact sites between 1750 and 1915 but with a gap for the period between 1800 and 1850.

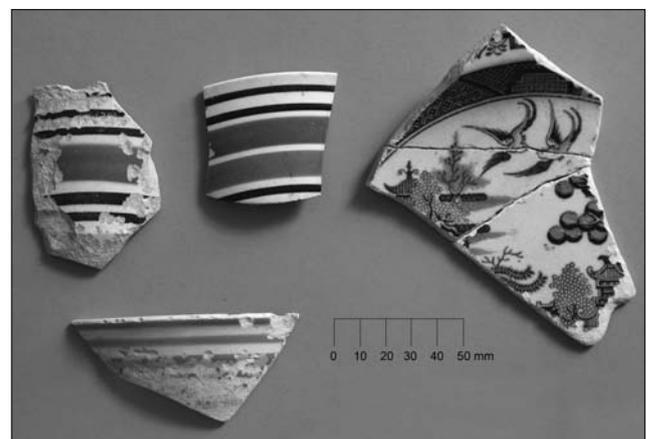


Figure 8: Sandblasted earthenware sherds from Hottentot Bay guano diggers' camp. Left: three annularware sherds: (2 sherds, above) narrow black stripes with broad blue band(s), and (1 sherd, below) narrow blue stripes above sandblasted band. Right: Willow pattern transfer plate.

Sponge-printed ware, developed in Scotland between 1835–1845 (Kelly 1993), is diagnostic of sites dating to the second half of the nineteenth century. The Hottentot Bay sites, although sporadically occupied into the 1880s, have yielded a ceramic assemblage that probably is representative of an earlier period, perhaps the two decades of the 1840s and 1850s, as this assemblage is not as complex as those of the second half of the century, and does not contain the diagnostic Scottish sponged ware, even though documentary evidence tells us that many of the ships trading guano during 1843–1845 sailed from Glasgow.

Manufacturing dates for nineteenth-century ceramic innovations lend contextual support for this. For example, transfer-printing earthenware in blue was introduced in British potteries during the 1780s; from 1815 onwards, Staffordshire potteries began exporting Willow pattern crockery in vast amounts and it occurs on most nineteenth-century sites in Namibia. Colours other than cobalt blue were produced only after the 1820s (Klose and Malan 1993:8). Other colours, primarily green, sepia and mulberry, occur on sites at Sandwich Harbour dated to the second half of the nineteenth century. There are none of these colours on transfer ware from the guano-collecting sites. However, one example of flow blue earthenware, which became popular during the 1840–1880 period, occurs on the guano diggers' camp.

Annular ware, with its slipped decoration in the form of bands of various widths and colours was manufactured from the 1790s to approximately the late middle nineteenth century (Klose and Malan 1993: 9) and is also diagnostic of sites dating to the second half of the nineteenth century. However, the very restricted range of colours, decoration and ceramic types on the guano collecting sites at Hottentot Bay suggests that they might date to the 1840–1860 period, before there was sustained settler occupation on the coast. The occurrence of ceramic types on contact sites is affected not only by what is made available through manufacturing, but also by the scale and duration of settlement; the preferred assemblage of crockery selected by both the guano diggers and, secondarily, by the indigenous people. There was no permanent presence at Hottentot Bay, the diggers moving from one locale to another as needed, while, by contrast, people were permanently stationed at Possession Island, for example, in the second half of the nineteenth century. Characterizing a ceramic assemblage for these early decades of commercial activity is beset by the difficulty that no sites dated unambiguously from the early half of the nineteenth century and that the guano trade did extend into the latter part of the century and beyond.

Douglas Bay

A brief visit to Douglas Bay on the mainland opposite Ichabo Island yielded as many as thirty grave cairns in the first line of hummock dunes behind the beach, some of them having been bulldozed by recent diamond mining activities. Corpses buried in the guano deposits on Ichabo inevitably turned up in later stages of the digging, and eventually had to be taken to the mainland for permanent burial. Eden (1846:34) noted the graves of several mariners marked by rough wooden boards on Ichabo and commented that the usual epithet of “rest in peace” could hardly be applied to them, as they were moved as the guano was required. He also noted the burial ground on the mainland for “the remains of other seamen” (Eden 1846: 34). One grave had a carved oak board to form a rounded memorial column with a similar, smaller board at the foot of the grave, but the inscription had long since been obscured by weathering (see Figure 9). Lawrence Green, a writer who popularized the history of the guano islands and southwest African coast, records the mummification of bodies on Ichabo



Figure 9: Carved wooden boards on a grave at Douglas Bay.

and describes the headstone on the grave of John Gove, the coastal supervisor quoted above (Green 1950:91). He also describes the burning of masts and ships' timbers by the guano men for fuel, on a coast devoid of firewood. Von Schumann (1996:5) mentions that a cannon presently in the Lüderitz museum, was retrieved from one of the Douglas Bay graves. Evidently, a great deal of historically interesting material has been lost in spite of strict controls over access to the area.

However, scattered along the beach lay whale-bone ribs, among other jetsam. Chunks of whale bone occurred near a heap of nineteenth-century glass bottles on the flanks of a knoll. There were also several shell middens with associated seal, bird, and large bovid bone, either antelope or cattle, suggesting the presence of people. Pathways with the tracks of animals – jackal, hyena, gemsbok *Oryx gazella* and springbok *Antidorcas marsupialis* – converged and diverged among the profuse scrubby saltbush, indicating the presence of springs in the vicinity. We observed no indigenous pottery to confirm the historical record of indigenous people frequenting this strip of coast but the remains of an indigenous village occur to the north at Anichab, probably the village described and mapped on the contemporary documents mentioned above. Further investigation of these remains could cast light on the scale of trade and interaction with the guano diggers.

Possession Island

Survey and collection undertaken at Possession Island (27°10' S; 15°12' E) by the Namibia Underwater Federation provides a useful counterpart to our observations from Hottentot and Douglas Bays. At the height of the guano rush, guano from Possession was held to be inferior to Ichabo guano, but when the latter had been used up, guano of variable quality became acceptable. Most of the thirty graves in the Possession Island cemetery have boards, or wooden crosses, at the head, one board being carved in exactly the same fashion as that described above from Douglas Bay and illustrated in Fig. 9, also with no legible inscription (Reiner et al. 2001: 21).

The ceramics presented in the Underwater Federation report include a coarse porcelain jar, stoneware, transfer ware, sponged ware, and hand-painted and sponged ware. The sponged ware, and hand-painted and sponged ware sherds illustrated in the report exactly match those from the two 1850–1870s commercial sites at Sandwich Harbour, but are not present at Hottentot Bay. The authors mention that Willow pattern predominated (Reiner et al. 2001:34). The assemblage of glass bottles from Possession, represented primarily by bottle bases, is similar to that from Hottentot Bay, consisting of case gin bottles, wine bottles and medicine bottles, as well

as soda bottles. A single 7 mm diameter oblate blue glass bead was also recovered. The similarities in the assemblages link the nineteenth-century sites on Possession Island with the sites at Hottentot Bay and the commercial sites at Sandwich Harbour, confirming the general character of the ceramic assemblage; however, subtle differences in quantity and variation point to possible differences in age and function.

Analysis of the ceramic types from Walvis Bay and Sandwich Harbour concluded that although the assemblages from indigenous, commercial and colonial sites of the nineteenth century were similar, combinations and proportions of types could be useful in distinguishing indigenous from settler sites (Kinahan 2000:92). On indigenous sites there was a greater proportion of small sponged and annular bowls, suggesting that indigenous people preferred this particular form. Sponged ware and annular ware were manufactured specifically for the underclass market (Hall et al. 1990:82; Symonds 1999), and these bowls may have been available for trade when the locals had hides, sheep or cattle for exchange. The bowls would have been as suitable for the eating habits of peasant people as for seamen living in rough conditions on the coast and offshore isles. The Hottentot Bay sites, lacking the sponged ware bowls so characteristic of the later nineteenth-century sites, probably represent the years of the guano rush and perhaps the decade after, before relations of exchange and longer-term commercial interests were established. The presence of single glass beads at Hottentot Bay and at Possession Island seems to indicate that trade with the local people was minimal. The guano-collecting site assemblages, when compared with other comparable nineteenth-century assemblages, exemplify an extraordinarily limited sliver of time that would be difficult, if not impossible to perceive outside the context of a large body of complementary evidence and the isolated and strictly guarded territory of the diamond area.

Awasi Mountains

Although there are no known routes across the waterless Namib erg from the southern Namib coast to the inland plains, the isolated Awasi Mountains situated c. 100 km northeast of Douglas Bay are rich with archaeological sites. Trial excavations at two small rock shelters with shallow accumulations of deposit yielded material that indicated a strong link with the coast. The occurrence of marine shell (*Patella argenvillei*) and diverse items of European origin probably represent trading contact with, or charity from, the vessels plying the coast during the height of the guano rush, the goods having moved along local exchange networks from the coast to the interior. The material included bottle glass, scrap iron, copper wire, a barrel stave, two sherds of annular ware and a decorated bisque pipe bowl. Indigenous material such as pottery, bone, a copper bead of indigenous manufacture, !nara melon *Acanthosicyos horrida* seed cases and other organic material made up the bulk of the deposit. Four glass beads, one with blue stripes on white on a pale blue core, a transparent blue drawn cylinder and two small oblate drawn beads in blue and turquoise are types that occur in the Walvis Bay and Sandwich Harbour bead assemblages. The occurrence of this coastal material so far inland suggests that people did have viable routes through the Namib and that they could retreat from contact with outsiders but remain on the periphery if expedient.

CONCLUSIONS

The archaeological investigation of nineteenth-century sites associated with guano collecting resulted in the recognition of landscape archaeological evidence: guano mining irrevocably

altered the appearance of Ichabo island and left traces of trenches and spoil heaps on the parts of the Hottentot Bay headland that were suitable nesting areas for seabirds during the mid-Holocene high-stand. Documentary accounts of the guano trade added detail to the description of sites and their assemblages. Historical remarks, such as Captain Spence's information on the low quality of Hottentot Bay guano, corroborated by laboratory analysis, were found to be significant.

The examination of imported ceramic material led to the conclusion that Willow pattern transfer ware occurring together with small annular ware bowls may represent the time period during and just after the guano rush, before commercial rights were claimed by British and Cape Town merchants on the southern Namib coast. The paucity of indigenous pottery, glass beads and imported ceramics such as small sponged ware bowls known to have been favoured by local pastoralists in the later nineteenth-century suggest that contact between them and the guano men was limited, and sometimes hostile and fearful, as the documents describe. However, as local people were attracted to this area during the exploitation of the guano, it is likely that the lack of early nineteenth-century sites around Walvis Bay reflects the change of focus to Angra Pequena, Ichabo and the offshore islands. When commercial operations diversified and moved to Sandwich Harbour in the 1850s, contact with the local people there became significant and highly visible in the archaeological record. Whether people from the vicinity of Walvis Bay came down to Douglas Bay during the guano rush could be tested through further investigation, especially of idiosyncratic artefacts specific to the Walvis Bay region, such as indigenous pottery styles, or particular glass bead types. Although there are no known routes to the interior with water and grazing running from the coast across the dune belt, there are several springs along the shoreline that make it possible to journey south from Walvis Bay to Angra Pequena. The occurrence of coastal material inland at the Awasi Mountains suggests that indigenous people were able to retreat inland. For a more detailed study, there are suitable sites for further analysis at Douglas Bay on the coast and in the Awasi Mountains.

ENDNOTES

1. From a poem published in the *Nautical Magazine* (1845:664).
2. *Emeline* (Schooner) of Mystic Seaport, U.S.A. (1844).
3. *Forrester* (Brig) of Mystic Seaport, U.S.A. (1845).

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