

Field and Technical Report

CATTLE PATHS AND THE CHOREOGRAPHY OF LATE PRE-COLONIAL CONTACT AND TRADE ON THE NAMIB DESERT COAST

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ABSTRACT

Cattle paths preserved in hardened lagoon sediment at Walvis Bay provide important new evidence of late pre-colonial trade practices on the Namib Desert coast. The paths show that cattle were assembled some distance from the pastoral villages where trade negotiations took place. Cattle were brought to such assembly points from grazing camps one or two day's journey inland, and then herded to a landing place favoured by visiting ships during the 18th and 19th centuries. This interpretation agrees with an array of both archaeological and contemporary documentary evidence that – initially – Namib Desert pastoralists were cautious traders, and sought to minimise direct contact with merchant seamen.

INTRODUCTION

On the southwestern coast of Africa, trading contact between indigenous nomadic pastoralists and European merchant vessels became increasingly common towards the end of the 17th century. The exchange of cattle for manufactured trade goods brought Khoe-speaking pastoralists into intricate relationships that were to their ultimate disadvantage, leading within less than 200 years to the establishment of colonial settlement and the collapse of indigenous pastoralism. Although this course of events is well documented in contemporary records (*cf.* Elphick 1985), there is remarkably little archaeological evidence to reflect more directly on trading strategies employed by local herd-owners. Archaeologists are therefore unable for the most part, to provide an independent account of this opening chapter in the colonial history of southern Africa.

Here, I present some unusual evidence for what might be termed a choreography of the cattle trade at Walvis Bay, on the Namib Desert coast. This paper describes a series of clearly defined cattle paths preserved in hardened lagoon sediment, apparently leading to the anchorage at Walvis Bay: not from the pastoral encampment sites located deep in the shifting dunes, but from secluded watering points some distance away and closer to the shoreline. I suggest that the cattle paths indicate a staging post in a series of points linking the encampment sites where trade negotiations were concluded, with grazing camps located one or two day's journey inland, and ultimately with the assembly point from where the cattle were delivered to the ships. This evidence helps to explain contemporary observations that there were no cattle to be seen at the encampment sites visited by some early traders.

ARCHAEOLOGICAL EVIDENCE OF THE TRADE IN CATTLE

From the 17th century, the Cape of Good Hope became an important victualling station for shipping to and from the

Dutch possessions in the East, and as maritime trade intensified other such footholds were established by competing European powers. However, as a consequence of modern growth and development, most archaeological traces of early interaction and trade at these centres have been erased. A notable exception is Walvis Bay on the Namib Desert coast, where a combination of natural conditions and historical circumstances have ensured the survival of a uniquely detailed archaeological record, including pastoral encampments with an array of livestock remains, trade goods and related assemblages (Kinahan 2001).

Of interest here is one particular component of the archaeological record at Walvis Bay: the occurrence of numerous well-preserved tracks in the silts of the !Khuseb River and in supra-tidal lagoon sediments. These tracks include an array of wildlife such as elephant, giraffe and other species (Kinahan *et al.* 1991) that existed in the area at the same time as nomadic pastoralist communities involved in the early stages of contact with European traders. Remnant surfaces close to the shoreline have high concentrations of human footprints, accompanied by tracks of cattle, small stock and dogs (Kinahan 1996; Morse *et al.* 2013). These tracks, together with the evidence from a large number of settlement sites, and 18th century eyewitness accounts, reveal important details of trading contact with the ≠Aonin, a Khoe-speaking pastoral group inhabiting the area around Walvis Bay (Budack 1977).

The earliest detailed account of cattle trading at Walvis Bay is that by Captain Thompson of H.M.S *Nautilus* in 1786 (J.H.A. Kinahan 1990) who carried out his negotiations at a small village located some 8 km (5 miles) inland. Apart from a stray heifer and a calf, which he purchased, Thompson saw no cattle at the village itself, and neither did Captain Alexander of H.M.S *Star*, when he called in 1795. From these accounts it is clear that the ≠Aonin were unwilling to allow the visitors to see the location or extent of their herds, and Thompson relates that his attempt to reconnoitre the interior in 1786 was not welcomed (J.H.A. Kinahan 1990: 44). Alexander's map (Hydrographic Office 1796), reproduced in Figure 1, indicates the route to the village; later maps such as that of Captain Owen in 1825 (Owen 1833; Hydrographic Office 1878; J.H.A. Kinahan 1992) show the position of the village itself, as well as that of nearby waterholes, suggesting that local resistance was duly overcome.

Unlike other trading entrepôts on the southwestern coast of Africa, Walvis Bay was slow to develop and expand. The 19th century settlement became a British enclave, isolated within the territory of German South West Africa and separately administered throughout most of the period of South African rule (Wilken & Fox 1978; Berat 1990), ending with Namibian independence in 1990. Its expansion slowed by

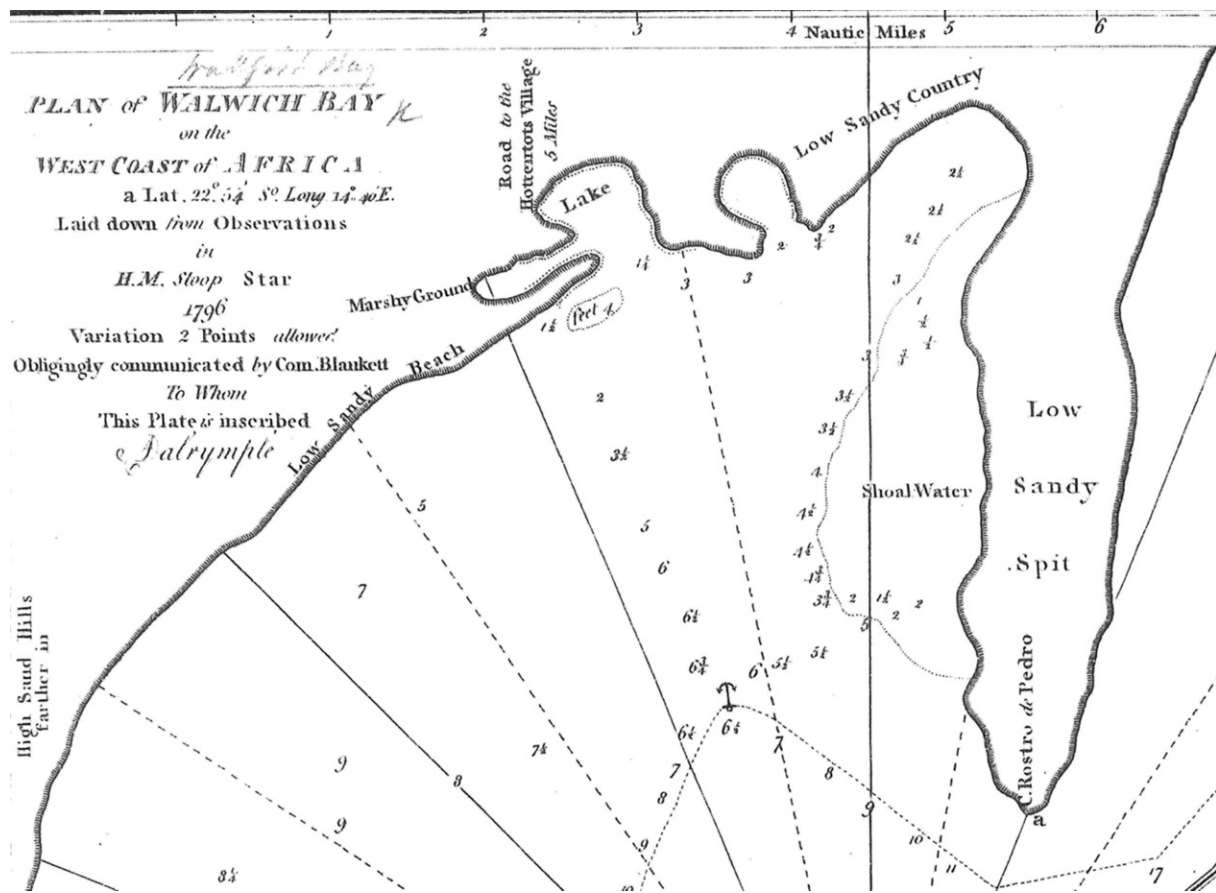


FIG. 1. Walvis Bay as mapped by H.M.S. Star in 1796 (extract from Admiralty Chart 630). The map is in reverse orientation, with north at the bottom margin. Pelican Point is shown as 'C. Rostro de Pedro'. Note the anchorage to the left of the point, and the 'Road to the Hottentots Village 5 miles' (left of centre at the top margin of the map), skirting the 'Marshy ground' and 'Lake' which refer to the present Walvis Bay lagoon. Map courtesy of Royal Navy Hydrographic Office.

political circumstances, Walvis Bay was also limited by uncertain water supplies (Stengel 1964) and encroachment by mobile dunes forming the northern edge of the Namib Sand Sea (Lancaster 1989). The Walvis Bay dune-fields and their archaeological sites therefore remained intact and largely undisturbed at the time of the first detailed archaeological survey in the mid-1980s (Kinahan 2001). Currently, however, the sites in the dune-field area are under increased pressure from uncontrolled tourism and potential industrial development (e.g. Kinahan 2011).

From the archaeological evidence it appears that the *!Aonin* had relatively permanent encampments at Walvis Bay at the time of contact. This tendency may have been intensified by the possibilities of trade with vessels calling at the bay, and evidence presented elsewhere (Kinahan 2001) suggests that when Captain Thompson arrived there was a single large encampment located at a waterhole known as *!Khîsa-//gubus*, so named for the fine glittering dust suspended in the air when cattle arrive to drink (Budack 1977). Alexander's chart of 1796 (Fig. 1) indicates five miles to the "Hottentot village" which, if correctly identified as *!Khîsa-//gubus*, would be easily reached by following the shore of the lagoon before turning directly east into the dunes, a distance of about 8 km (5 miles). Investigations at the site established a *terminus post quem* based on about 1400 glass trade beads and a single Dutch copper *duit* from the late 18th century (J.H.A. Kinahan 2000). No other sites of similar size were found among the 58 contact period sites recorded within the dune-fields, and only one of closely comparable age: the cattle-post at Khaeros, located some 30 km southeast of *!Khîsa-//gubus* on the south side of the *!Khuiseb*

River (Kinahan *et al.* 1991). The location of these two sites in relation to the anchorage used at Walvis Bay is shown in Figure 2, together with the position of the cattle paths described in the next section of this paper. The position of Pelican Point has changed in the last three centuries, and with it the configuration of both bay and lagoon (CSIR 1984: fig. 28). Figure 2 shows that Pelican Point now lies approximately 2.7 km northeast of the navigation beacon determined by Owen in 1825. However, on the basis of bearing and distance as given by Owen, the bathymetric setting of the anchorage appears little changed in the only suitably deep water immediately north of a sandy shoal that appears on both Owen's chart and current satellite imagery. One relatively fixed point on this landscape is the site of a 'factory' (the historical landing place shown in Fig. 2) indicated by Owen and occasionally used in the early 19th century. This is probably the landing place first described by Duminy in 1793 as a small rocky islet covered with mussels (Duminy 1938, cited in Vigne 1991).

FORMATION AND CHARACTERISTICS OF THE CATTLE PATHS AT WALVIS BAY

The unusual conditions favouring the preservation of human and animal tracks in recent sediments of the *!Khuiseb* River delta are the result of a prevailing wind regime which transports dune sand from the southwest (Ward & von Brunn 1985), and occasional northwesterly winds which drive tidal surges into the entrance of the lagoon to create areas of impoundment between the mobile dunes. Repeated surges replenish this ponded seawater which is also subject to high rates of evaporation, thus producing a saturated saline solution

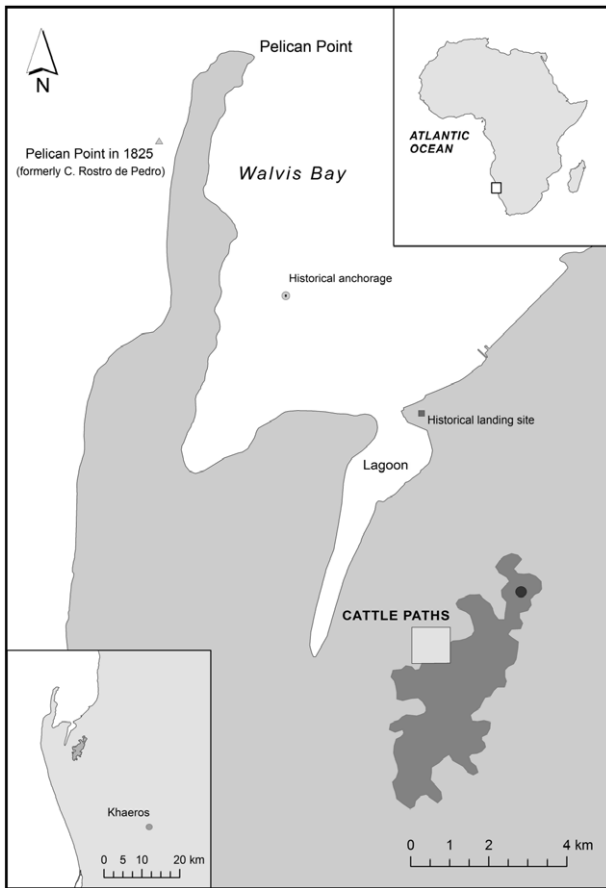


FIG. 2. The site of the suspected cattle paths, shown in relation to features extracted from historical maps of Walvis Bay and key archaeological sites: the irregular area adjacent to the cattle paths site encloses the main distribution of contact era archaeological sites, with the 18th century pastoral encampment site of #Khisa-//gubus shown as a solid circle. The contemporaneous site of Khaeros is shown in the inset map.

containing gypsum, anhydrite and a range of related minerals. The mud formed in this way is dimensionally stable and is therefore capable of retaining faithful impressions, even of relatively light, medium-sized birds walking across the surface, provided it has not set. Morse and colleagues (2013) have remarked on the effect of variation in moisture content on the load-bearing qualities of these lagoon sediments, such that some areas of the deposits are softer than others. Usually, shallow sediments close to the margins of the ponded areas harden first, but the strength of the lagoon sediments eventually becomes quite uniform over large areas. Being subject to damp coastal atmospheric conditions, the sediments continue to absorb and expel small amounts of moisture even when set, although the surfaces and the impressions on them do not dissolve when wet, and may even remain intact when submerged (*cf.* Roberts *et al.* 1996). In addition to the process of cementation increasing the strength of these surfaces, the coastal conditions would contribute to a degree of case-hardening on exposed areas, further increasing their durability (*cf.* Conca & Rossman 1982), often resulting in the formation of a siliceous rind, or varnish (*cf.* Larsen & Chilingar 1983). The present study intends only to demonstrate that certain new features observed on the Walvis Bay sediment surfaces are in fact cattle paths, although this is somewhat complicated by the fact that in contrast to single human or animal tracks, which are easily identified, the paths contain almost no clearly defined individual tracks.

The paths in question lie just over 2 km due east from the

high-water shoreline of the Walvis Bay lagoon (Fig. 3). Due to historical progradation of the !Khuiseb River delta, these sites may have once been closer to the shoreline, but if the argument as to their formation through evaporation of ponded seawater is accepted, there would necessarily have been a dune barrier between the sites and the open lagoon. The relatively hard and therefore impermeable nature of these surfaces also acts as an effective aquiclude, with the result that floodwaters of the !Khuiseb River are able to flow beneath the dunes, emerging as weak, slightly saline seepages. Waterholes such as at #Khisa-//gubus are also fed by floodwaters percolating through the dunes, although the aquiclude is in that instance silt deposited by earlier flood events and the water is therefore fresh rather than saline. There are some traces of human occupation at the saline waterholes near the paths, but these small sites which comprise surface scatters of marine shell, fish bones and some European items such as bottle glass and glass trade beads, probably indicate the presence of groups minding the cattle. The main pastoralist encampment at #Khisa-//gubus lies 2.5 km northeast of the cattle paths, in a far more secluded position nearly 4 km from the nearest point on the lagoon shoreline.

Hardened sediment surfaces bearing human and animal tracks vary in extent from less than 25 m² up to 150 m², although these are often part of far larger surfaces of at least 1 km² extent, with large areas deflated by wind erosion. This tends to undermine and collapse sediment exposures presenting a sheer face to the prevailing southwesterly wind. It is clear that the surviving surfaces represent only a small part of a rapidly disappearing sedimentary phenomenon. Where tracks do survive, they are found in great profusion, those of cattle, especially near to the seepages, suggesting a throng of milling beasts. Interspersed among the cattle tracks, which generally predominate, are the tracks of small stock, possibly including both sheep and goat, as well as dogs, and of course humans, together with elephant, giraffe and hyaena as the most easily recognised wild fauna. Crossing these surfaces are the narrow lineaments of the cattle paths, their smooth, shallow depressions becoming most clearly visible in low, raking light (Fig. 4).

Of the thirteen sections of suspected cattle path found, two were in excess of 35 m in length, the others being less than 15 m in length. A sample of 25 random width measurements yielded a mean of 305 mm (S.D. 29.8), nearly identical to that of modern cattle paths elsewhere in Namibia, both in terms of width, reflecting the single-file nose-to-tail movement of cattle, and the characteristically sinuous paths so produced. The paths had a mean depth of 37 mm (S.D. 10.2) below the surrounding surface, and tended to have a smooth appearance, in contrast to the roughly trampled area immediately outside the path. Repeated animal traffic, such as following a pathway, tends to collapse soil porosity, especially where particle size is predominantly that of fine silts, and this would accelerate compaction of the surface to the point where passing animals would leave little or no impression on the smooth-worn surface. The effect of this process, which does not occur under natural conditions of hardening due to exposure alone, should therefore be reflected by measureable differences in the shear strength of surfaces within and adjacent to the paths.

To test this expectation, a Pilcon™ hand vane tester was employed to measure the shear strength of the near-surface sediment within the paths and on adjacent surfaces. The instrument comprises a torque head with a direct-reading scale graduated in kilo Pascals (kPa), measuring pressure required to break the surface against a 19 mm stainless steel vane head. Five samples of the surface adjacent to the paths and without discernible tracks yielded a mean value of 83.8 kPa (S.D. 10.6). A



FIG. 3. The general setting of the cattle path sites among the dunes at Walvis Bay, with lagoon sediments in the middle distance and dockyard cranes visible on the horizon.

corresponding five samples taken from the central depression of the paths yielded a mean value of 126 kPa (S.D. 11.1). This difference in excess of 34% shear strength is most likely to have been caused by compaction under repeated animal traffic. As a comparison, shear strength values from three single elephant footprints on the same surfaces yielded a mean value of 114 kPa (S.D. 15.6). Given an average mass of an adult male elephant (*Loxodonta africana*) as 5500 to 6000 kg (Smithers 1986) – up to twenty times the slaughter weight of a one-year-old African Sanga bull (Strydom *et al.* 2001) the most plausible explanation for the path features is that they were produced by compaction resulting from repeated traffic, almost certainly of cattle.

From the cattle paths, the historical landing, or factory site indicated on Owen's 1825 map lies at a bearing of 357° (true). The paths themselves had an average bearing of 304° (S.D. 37.8°) ($n = 11$), indicating a general orientation towards the lagoon shoreline which would have provided the easiest route to the historical landing site. There were no paths indicating movement in the direction of ≠Khîsa-//gubus (bearing 55°, or 74° east of the greatest deviation from the direction of the landing site, and 109° east of the mean bearing on the cattle paths), which agrees with the historical record of no cattle at that site and favours the movement of trade animals from the cattle-post 30 km inland at Khaeros (Fig. 2, inset). Cattle could not have been sustained for more than a day or two at the site of the cattle paths, and ≠Khîsa-//gubus, too, is almost devoid of pasture. Thompson's surveyor, Popham, in 1786, considered that: "...so inhospitable and so barren a Country is not to be

equalled except in the Desarts [*sic*] of Arabia, at least from the appearance of the Shore..." (J.H.A. Kinahan 1990: 25). Prevented from exploring further inland, Thompson could not have known of the lush desert pastures in the dune valleys south of Khaeros, which produce up to six tonne of fodder per hectare (Nel & Opperman 1985: 124). The dominant grass in these dune valleys is *Stipagrostis ciliata* (Desf.) De Winter, a hardy and highly nutritious species (Müller 1984) sustained by sea fog and occasional light showers of rain (less than 100 mm per annum) (Mendelsohn *et al.* 2002).

There are no absolute dates for the hardened lagoon sediment surfaces at Walvis Bay, but the general age of the human and animal tracks found there can be assigned to a reasonably narrow period of time between the mid-18th and mid-19th centuries. A calibrated calendar age (one standard deviation) of AD 1400–1430 for a bulk sample of organic material from beneath the upper sediment surface, and a calendar age (two standard deviations) of AD 1460–1660 for a sub-sample of charcoal from the same context are reported by Morse and colleagues (2013). Although some contact did occur at or immediately following this time (*cf.* Moritz 1915), imported items such as glass trade beads indicate peak intensity between the mid-18th and mid-19th centuries (J.H.A. Kinahan 2000). Glass trade beads from Khaeros corroborate this, following a flood episode dated from river flotsam with a calendar age (two standard deviations) of AD 164–1663 (Kinahan *et al.* 1991). After the mid-19th century the cattle trade fell under the direct control of European entrepreneurs and the movement of cattle to the



FIG. 4. Hardened lagoon sediment exposure at Walvis Bay, showing hoof-prints of milling cattle in the foreground and on either side of suspected cattle path at centre of view.

coast was eclipsed by large-scale overland droving operations from central Namibia to the Cape Colony (Lau 1986, 1989). In 1897 the catastrophic *Rinderpest* epidemic effectively ended the cattle trade in Namibia (Schneider 1994: 149; Wallace 2011).

DISCUSSION

Early Dutch colonists at the Cape of Good Hope struggled to maintain secure supplies of cattle for the settlement and for victualling ships. The contemporary records are a litany of complaint about the scarcity and poor quality of animals made available for trade by pastoralists, who were above all reluctant to part with breeding stock (Elphick 1985). Thinking that more compliant herd-owners would be found further afield, colonists mounted expeditions to the interior, but the response was everywhere the same: European traders had encountered an indigenous value system that was discriminating, conservative and able to maintain control over the supply and trade value of livestock during the early contact period. A combination of factors, including disease, displacement from valuable pastures and outright conquest, brought about the eventual demise of the Cape Khoe (Smith 1990), relegating initial contact to the status of an historical footnote. Of the pastoral encampments at the Cape, and the not inconsiderable volume of trade goods passed in exchange for cattle, there is almost no archaeological trace.

In light of this picture from the largest, busiest and most important place of contact between indigenous pastoralists and early European traders and settlers, the abundant and

well-preserved archaeological evidence from Walvis Bay is of critical importance. The evidence from the cattle paths reported here is a small but vital clue to the strategy of trade during the early years of contact. From the cattle paths, the distribution of pastoral encampment sites in the dune-fields and further inland, the distribution of trade goods, and key contemporary records, it is possible to reconstruct this strategy as involving a series of loci where negotiations, decisions and movement of stock were carried out to the advantage of the herd-owners. This spatially differentiated dynamic constitutes a simple choreography, represented by a sequence of specified movements, in this case involving two separate groups of actors: the pastoralists and the traders. Sketching out this choreography introduces two further questions as to the pastoralist response; first, whether the proposed choreography can cast any light on the reported absence of not only cattle, but also of women from the pastoral encampments; and second, whether the presence of fixed encampments at Walvis Bay indicates a change in the social and economic organisation of pastoral communities in response to trading opportunities.

When the *Nautilus* visited Walvis Bay in 1786, Lieutenant Popham reported seeing “the tracks of natives and droves of cattle”, but the very next day, on reaching the “Hottentot village” Captain Thompson saw no cattle. He did, however, find “a great disproportion in the sexes, the whole village consisting of 8 women, 3 female children, 49 men & 25 boys, under 10 years of age” (J.H.A. Kinahan 1990: 40). From this and other accounts it appears that once barter was concluded, shore

parties could proceed no further and so retired to wait while the cattle were fetched. A graphic description is that of Gardner (1803, cited in J.H.A. Kinahan 1990), an American whaler: "...after a little time someone made a noise like the lowing of cattle, and then laid her head on her hand shutting her eyes imitating sleep, then pointing and following the sun 'til down, ... and when the sun arose the third day, the bullocks, sheep and goats would be there. True to the signs they came."

If a messenger were sent from ≠Khîsa-//gubus to Khaeros, a distance of 30 km as the crow flies, the cattle could be mustered and start for the landing within one day. The best route from Khaeros would skirt the high dunes and follow the course of the !Khuseb River where some water and grazing is available. The distance from Khaeros to the cattle path sites following this route is approximately 50 km. From the cattle path sites where the cattle were finally watered, they would have appeared at the landing place without the traders gaining any precise information as to where they were kept or how much stock the pastoralists really had. So effective was this strategy that even in 1823, Archbell remarked that "they have flocks and herds and, though we saw few of them, those only of the worst description" (Vigne 1991: 30). Later, the once hidden pastures in the dunes were to become a critical resource for European cattle traders (cf. Andersson 1856).

Although shore parties from visiting ships encountered a degree of resistance and were evidently unable to travel further inland, it would be incorrect to conclude that the high dune crests in themselves constituted a physical boundary or a border in any formal sense. The situation at Walvis Bay in fact illustrates the concept of temporal landscape as developed by Ingold (2011: 192), where a point on the landscape only forms a boundary, or an indicator of a boundary, in relation to the activities of those who recognise or experience it as a boundary. The high dune crests are therefore a socially constructed frontier, negotiated and made real through the continuous interaction of traders and pastoralists. The concrete evidence of this interaction at Walvis Bay provides the unusual opportunity of specifying a choreography of actions and movements on this landscape, where the dune crests or the pastoral encampment represent a threshold point in the theatre of contact and the eventual penetration of the indigenous economy. In the landscape setting at Walvis Bay, the choreography of contact described here represents a moment within a more protracted sequence of events.

The ≠Aonin women whose absence from the encampment sites was noted by Thompson and others were presumably hidden from sight during trade negotiations. Their probable whereabouts is indicated by well-preserved foot impressions in the sediments associated with the cattle paths reported in this paper. An earlier analysis of human skeletal material from the late pre-colonial period included foot impression measurements in an attempt to augment the relatively small sample of human remains from the Namib Desert (Kinahan 2013). The skeletons showed a marked sexual dimorphism, and in this as well as estimated living stature they indicated a population closely comparable to that of the wider coastal and interior region of southwestern Africa, including the Cape of Good Hope (Wilson & Lundy 1994; Sealy & Pfeiffer 2000). Although relatively indirect as a basis for the inference of stature, and therefore less accurate than skeletal measurement, the footprints from Walvis Bay provide an index of stature reliable enough to confirm the presence of individuals in the stature range of adult women. The evidence of women at the cattle path sites raises the possibility that they may have gathered there to stay out of sight from visiting traders, so adding a

further element to the choreography of the cattle trade as presented here. The need to adopt this precaution, and indeed the generally cautious choreography of the trade, is well supported by accounts of conflict from the earliest records of contact (cf. Moritz 1915) to the mid-19th century (Kinahan & Kinahan 2009).

There is abundant evidence of human occupation throughout the !Khuseb delta area over the last two millennia (Kinahan 2001), and clear indications of single, strategically situated and relatively fixed pastoral encampments associated with evidence of contact and trade. While the siting of encampments near the bay, in an area essentially devoid of pasture, combined with keeping stock elsewhere might appear to compromise herd management in the interests of trading opportunity, the archaeology of nomadic pastoralism in the Namib Desert indicates otherwise. The evidence suggests that herd production was based on family units which maintained relatively fixed dry season encampments linked with a network of grazing camps, or stock posts, situated on ephemeral pastures. For this reason, remains of livestock are uncommon on encampment sites, relatively few livestock having been kept there, and grazing camps, due to their opportunistic siting, are rarely found (Kinahan 1995). The evidence from ≠Khîsa-//gubus and from Khaeros conforms to this pattern, showing that the ≠Aonin response to contact, while opportunistic, cannot be described as haphazard or as representing a fundamental reorganisation of pastoral settlement with the advent of regular trade. Indeed, even the apparent secretiveness about the location of cattle herds – while deeply frustrating to European traders – was an intrinsic part of a pastoral economy in which stock-raiding was an endemic threat to livelihood.

CONCLUSIONS

The evidence from the Namib Desert coast shows that the trade in cattle was closely regulated by herd-owners who controlled access to the interior at Walvis Bay, thus denying traders the opportunity to establish the true extent of their wealth and the disposition of their herds. The strategy employed by ≠Aonin pastoralists at Walvis Bay is reconstructed here as a choreography in which trade animals were selected and delivered to the landing place without compromising the security of the herds. This evidence provides useful new insights into the social dynamic of contact, showing that herd-owners needed almost no adjustment to their established patterns of settlement in order to dominate trade at Walvis Bay, and that they were able to exploit the trader's ignorance of the terrain in order to maintain control over the supply of livestock to passing vessels. In this sense the evidence from the Namib Desert coast favours the view that – initially at least – traders were drawn into the indigenous economy and were for all practical purposes subject to the values, customs and preferences of pastoral society.

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