*South African Archaeological Bulletin* **46**: 92-106, 1991

# ANALYSIS OF FAUNAL REMAINS FROM OUDEPOST I, AN EARLY OUTPOST OF THE DUTCH EAST INDIA COMPANY, CAPE PROVINCE*

KATHRYN CRUZ-URIBE

*Department of Anthropology and Program in Quaternary Studies, Northern Arizona University, Box 15200, Flagstaff, AZ 86011, U S A*

and

CARMEL SCHRIRE

*Department of Anthropology, Douglass College, Rutgers University, New Brunswick, NJ 08903, U S A*

## ABSTRACT

*We present here an analysis of mammalian fauna from Oudepost I, an outpost of the Dutch East India Company, occupied from about 1669 to 1732. Remains from this predominantly colonial occupation derive from both wild and domestic species, including sheep, steenbok/grysbok, seals, and hares/rabbits. Body part frequencies are affected by pre- and post-depositional destruction (including trampling, leaching, cutting, and sawing), rather than by transportation considerations. The Oudepost sheep are larger and differ morphologically from prehistoric indigenous sheep, suggesting European or European/Khoikhoi breeds. A management system is inferred from the age distribution pattern. Many of the animals derive from wild species, indicating that although the garrison was provisioned, it relied heavily on hunting. The implications of this practice here, and elsewhere, are discussed in terms of the broader issue of colonial dispossession of indigenous pastoral foragers.*

* Received August 1990, revised April 1991

## Introduction

Early interactions between European colonists and the indigenous peoples of the Americas, Africa and Asia generated intense moral controversy between Sepulveda and Las Casas 400 years ago, and are still of interest today. Historians study the events and processes that contributed to the spread of mercantile capitalism world-wide (e.g. Boxer 1977; Wolf 1982; Curtin 1985; Crosby 1986), and some decipher the processes of ecological change and dispossession that resulted from the spread of endemic diseases (Krech 1981; Dobyns 1983). More recently, archaeologists have tried to infer historic ethnography from the combined messages that they read into residues and documentary sources (Deetz 1988; Leone & Potter 1988; Schrire 1988; Schuyler 1988). This paper analyses the dietary remains at an early contact site in order to see whether they reflect the process of colonial invasion and dispossession in South Africa.

Oudepost I, a small outpost of the Dutch East India Company, (VOC), was excavated between 1985-7 by a joint Rutgers University and University of Cape Town team under the directorship of Schrire. It was one of a string of outposts that farmed, fished, traded and defended the frontier they defined (see Sleigh 1987). The site (33.08S, 18.02E) lies about 120 km north of Cape Town on the shores of Langebaan Lagoon, an embayment of Saldanha Bay (Fig. 1). It was built by Company soldiers in 1669, and occupied by a small garrison of 4-10 men for about 50 years, with a break between 1673-84/6, until 1732, when it was relocated a short distance away at a better water source. Its initial purpose was to defend the bay against a French claim, but when this threat passed, Oudepost I continued as a provisioning station for ships on the Europe-Indies run, and as a minor trade post in the country of indigenous Khoikhoi pastoralist-foragers (Schrire 1988, 1990).

The archaeological residues at Oudepost I lie scattered in and around three stone walled structures (Fig. 1; see Schrire 1988, 1990; Schrire *et al.* 1990). The lodge is a

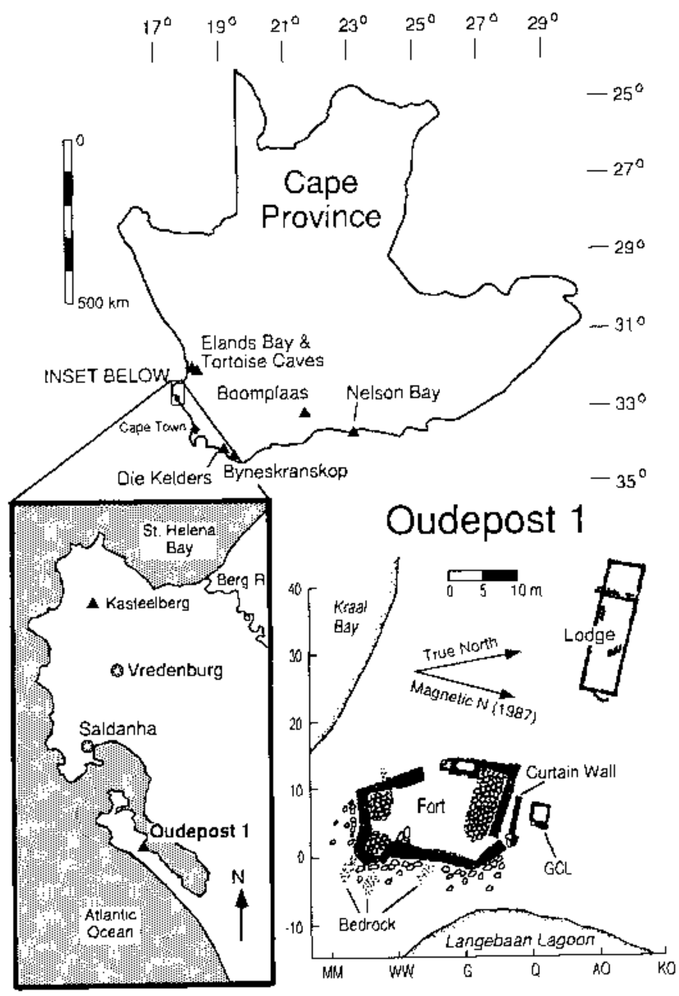


Fig. 1. Map showing location of Oudepost I and other sites mentioned in the text.

rectangular structure facing the beach, the fort or redoubt, an irregular shaped building with two paved areas, stands on the present high water mark, and a small structure called 'GCL' lies adjacent to the fort. Its function remains obscure, but it is virtually free of cultural and faunal materials (Schrire 1988). Most of our excavations were focused on these features, but in addition, material was recovered from 34 1 sq m test pits which were excavated in a 2 500 sq m area. During this operation, we unearthed a seventeenth century coffin burial lying about 0,7 m below the surface, whose relationship to the rest of the site is unknown. No refuse pits were found, but instead garbage was widely broadcast, especially in and around the living quarters where it was scuffed underfoot into the sandy floor of the lodge, thrown out of the front door, or over the low walls. Subsequent activity by Cape dune mole rats contributed towards a considerable degree of disturbance that is evident in the pattern found when refitting artefacts. Fortunately, a large collection of Dutch clay pipes allowed us to infer an occupational sequence that we integrated into the observed site stratigraphy (Schrire *et al.* 1990).

Documentary sources reveal that the main function of the post was to provision passing ships with water, vegetables, and meat (Schrire 1990). Mail was delivered to and from passing ships, and train oil, fish and penguin eggs were sometimes harvested and sent to the Cape. The post received quarterly rations from the company's headquarters in present-day Cape Town, including building materials, firearms, liquor, rice, meat, horse fodder, trade goods and household items. In addition, the men stationed at Oudepost had access to fish, birds and shellfish from the lagoon, as well as the resources of the open sea lying a mere 3 km across the vegetated dunes of the Churchaven Peninsula (see Robertshaw 1978:141). Seal rookeries were present on offshore islands, and a variety of mammals used the strandveld around the site and the granite hills of the peninsula. Although numerous aboriginal sites occur along this coast and inland, the clustering of all artefacts around the structures at Oudepost (Schrire & Deacon 1989), together with the absence of any indigenous midden at this site (Schrire *et al.* 1990), leads us to conclude that the archaeological association at Oudepost I reflects the presence of both parties here in colonial times. Artefacts are primarily of European or Asian origin, and include glass, porcelain, and stoneware, as well as fragments of metal, gunflints and shot, lying co-mingled with smaller quantities of Khoikhoi artefacts including stone and bone tools and native pottery (Schrire & Deacon 1989).

The faunal remains contain a mixture of wild and domesticated animals, including quantities of mammal, fish and bird bones. In contrast to the dense aboriginal shell middens in this region (Robertshaw 1978), shells are very rare here (Schrire 1988). The fish are under study by Carmel Schrire and Cedric Poggenpoel of the University of Cape Town (n.d.), while the birds are being investigated by Graham Avery of the South African Museum. In this report we present the results of the analysis of the mammal and tortoise remains, identified by Cruz-Uribe and R. G. Klein of the University of Chicago.

## Species Representation at Oudepost I

The historic fauna of the south-western Cape is well-known (Skead 1980). The ungulates were mainly small browsers/mixed feeders, such as the steenbok (*Raphicerus campestris*), grey duiker (*Sylvicapra grimmia*), and (less commonly) grysbok (*R. melanotis*). Larger ungulates were rarer, but included red hartebeest (*Alcelaphus buselaphus*), eland (*Taurotragus oryx*), black rhinoceros (*Diceros bicornis*), hippopotamus (*Hippopotamus amphibius*) and elephant (*Loxodonta africana*). Among the more prominent non-carnivorous mammals were Cape hare (*Lepus capensis*), scrub hare (*Lepus saxatilis*), Cape dune molerat (*Bathyergus suillus*), porcupine (*Hystrix africaeaustralis*), rock hyrax (*Procavia capensis*), and aardvark (*Orycteropus afer*). Small carnivores include black-backed jackal (*Canis mesomelas*), Cape fox (*Vulpes chama*), caracal (*Felis caracal*), wild cat (*Felis libyca*), honey badger (*Mellivora capensis*), striped polecat (*Ictonyx striatus*), genets (*Genetta tigrina* and/or *G. genetta*), Cape grey mongoose (*Galerella pulverulenta*), and Egyptian mongoose (*Herpestes ichneumon*). Large carnivores that were present include leopard (*Panthera pardus*), lion (*P. leo*) and brown hyena (*Hyaena brunnea*). Marine mammals, particularly the Cape fur seal (*Arctocephalus pusillus*), were also available at the coast, along with shellfish, sea birds and fish. Tortoises, especially the angulate tortoise (*Chersina angulata*) were also common.

The faunal list for Oudepost I includes most of these wild species, with the addition of several important domestic animals, including sheep (*Ovis aries*), cattle (*Bos taurus*), and pig (*Sus scrofa*). Indices of community structure can be calculated for the Oudepost sample and directly compared to those calculated for Pleistocene and other Holocene faunal assemblages from southern Africa (Cruz-Uribe 1988). Sample diversity, which takes into account both the variety of taxa and the relative frequency of each taxon, may be measured by the Shannon index of diversity (Odum 1971, 1975). Sample richness, which focuses on the variety component of assemblages, may be measured by a richness index such as d1 (Odum 1971). For the Oudepost sample, both diversity and richness are high. The Shannon diversity index for Oudepost I is 2,60; other hominid-collected samples from the Cape Ecozone have indices that range from 0,87 to 2,82. The richness index (d1) for Oudepost I is 4,68, which is near the high end of the range (3,16-5,86) for the Cape Ecozone (Cruz-Uribe 1988: table 2).

Tables 1 and 2 and Fig. 2 list the different mammalian species identified in the Oudepost I faunal sample. In Table 1, the numbers are presented in terms of the major spatial units: the lodge, the fort area (including material from the GCL structure), the test pits and the burial. Figure 2 presents this information graphically for the most common taxa. Table 2 presents the numbers in terms of

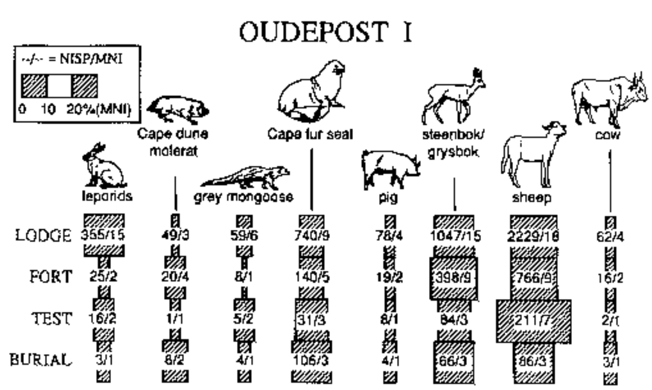


Fig. 2. The relative abundance of the most common taxa identified at Oudepost I. NISP = number of identified specimens; MNI = minimum number of individuals.

the three major chronological units: Unit II, Unit I and FT/X. Unit II, the oldest, is drawn from the lower lodge levels and certain areas within the fort. Unit I comes from the upper lodge and most of the fort, and the latest group, Unit X, lies outside the fort walls, mainly around GCL (see Schrire *et al.* 1990). Material from the test pits and from the human burial are excluded from this chronological scheme for obvious reasons. There is some

Table 1. The number of identified specimens/minimum number of individuals by which various taxa are represented in the Lodge, Fort, Test Squares, and Burial at Oudepost I. For the unit labelled "ALL," minimum numbers were calculated without regard to provenience; that is, as if any bone from a particular taxon could come from the same individual as any other bone of that taxon. The bottom line of the table lists the density/cubic meter for NISPs/MNIs. In addition to the taxa listed here, one human bone (*Homo sapiens*) and one whale bone fragment were recovered from the Lodge area, and an additional fragment of whale bone from the surface of the site.

| TAXON | LODGE | FORT | TEST | BURIAL | ALL |
|---|---|---|---|---|---|
| Leporid(s), Leporidae | 355/15 | 25/2 | 16/2 | 3/1 | 399/16 |
| Dune Molerat, *Bathyergus suillus* | 49/3 | 20/4 | 1/1 | 8/2 | 78/9 |
| Porcupine, *Hystrix africaeaustralis* | 14/1 | 5/1 | 2/1 | - | 21/2 |
| Dog/Jackal, *Canis* sp(p). | 17/2 | 2/1 | - | 2/1 | 21/3 |
| Cape Fox, *Vulpes chama* | 1/1 | - | - | - | 1/1 |
| Striped polecat, *Ictonyx striatus* | 8/2 | - | 1/1 | - | 9/2 |
| Honey badger, *Mellivora capensis* | 3/1 | - | - | - | 3/1 |
| Cape grey mongoose, *Galerella pulverulenta* | 59/6 | 8/1 | 5/2 | 4/1 | 76/8 |
| Egyptian mongoose, *Herpestes ichneumon* | - | 3/1 | - | - | 3/1 |
| Genet(s), *Genetta* sp(p). | 12/2 | 11/1 | - | - | 23/2 |
| Brown hyena, *Hyaena brunnea* | 5/1 | - | - | - | 5/1 |
| Domestic/wild cat, *Felis libyca/F. catus* | 43/2 | 12/2 | 3/1 | 1/1 | 59/2 |
| Caracal, *Felis caracal* | 2/1 | 2/1 | - | - | 4/1 |
| Leopard, *Panthera pardus* | 5/1 | 1/1 | - | - | 6/1 |
| Lion, *Panthera leo* | - | 2/1 | - | - | 2/1 |
| Aardvark, *Orycteropus afer* | 1/1 | - | - | - | 1/1 |
| Black rhinoceros, *Diceros bicornis* | - | 2/1 | - | 1/1 | 3/1 |
| Hippopotamus, *Hippopotamus amphibius* | - | 1/1 | - | - | 1/1 |
| Domestic pig, *Sus scrofa* | 78/4 | 19/2 | 8/1 | 4/1 | 109/6 |
| Grysbok, *Raphicerus melanotis* | 3/3 | - | - | - | 3/3 |
| Steenbok, *Raphicerus campestris* | 12/5 | 1/1 | 3/1 | 2/1 | 18/7 |
| Sheep, *Ovis aries* | 2229/18 | 766/9 | 211/7 | 86/3 | 3292/30 |
| cf. Grey duiker, cf. *Sylvicapra grimmia* | 7/1 | 2/1 | - | - | 9/1 |
| Alcelaphine, Alcelaphini gen. et sp. indet. | 1/1 | - | - | - | 1/1 |
| Cow, *Bos taurus* | 62/4 | 16/2 | 2/1 | 3/1 | 83/4 |
| Eland, *Taurotragus oryx* | 6/1 | 5/1 | 4/1 | - | 15/2 |
| Cape fur seal, *Arctocephalus pusillus* | 740/9 | 140/5 | 31/3 | 106/3 | 1017/16 |
| Bovidae--General | | | | | |
| Small | 1047/15 | 398/9 | 84/3 | 66/3 | 1595/25 |
| Large-Medium | 31/2 | 6/2 | - | 1/1 | 37/3 |
| Large | 284/4 | 124/2 | 37/2 | 10/1 | 455/5 |
| TOTAL MAMMAL | 4990/93 | 1549/48 | 399/24 | 292/19 | 7229/140 |
| Density/cu m | 59/1 | 24/1 | 12/1 | 58/4 | 38/1 |
| Angulate tortoise | 159/80 | 7/4 | 5/3 | 3/2 | 174/87 |

correlation between space and time at this site, with the earliest occupation being in the lower lodge levels and in parts of the fort, and the latest, outside the fort and around GCL. We have no absolute dates for the units, which, according to the pipe chronology and the evidence from artefact refitting, certainly overlap in time. These observations lead us to conclude that although the provenience of no single object may be trusted unless it lay beneath a paved floor, broad generalizations, based on the three major temporal units, may be drawn about changes over time (Schrire *et al.* 1990).

These tables present both the number of identified specimens (NISP) and the minimum number of individuals (MNI). MNIs were calculated using the computer programs described by Cruz-Uribe and Klein (1986) and the assumptions outlined in Klein and Cruz-Uribe (1984). Like most African faunal samples, Oudepost I contains some bones (primarily postcranial) that could not be precisely identified to species, due to both fragmentation and morphology. Thus for the bovids, counts are given both at the species level and also for general size classes. For example, based on dentitions, both steenbok and grysbok were definitely present. Their fragmentary bones and dentitions are not readily distinguishable, however, and thus Tables 1 and 2 also provide counts for a general 'small bovid' category. Similarly, among the large bovids, both domestic cattle and eland were identified on the basis of dentitions and distinctive phalanges. Other bones, all fragmentary, could not be distinguished and are lumped together in a general 'large bovid' category. The 'large-medium bovid' category includes both bones definitely identified as deriving from an alcelaphine antelope (probably red hartebeest), as well as those which could only be assigned to this general category (but which also almost certainly derive from red hartebeest). Among the carnivores, canid bones come from both jackals (*Canis mesomelas*) and domestic dogs (*Canis familiaris*). Similarly, small felid bones derive from both domestic (*Felis catus*) and wild (*Felis libyca*) cats. Dogs occur in prehistoric contexts such as Kasteelberg A and B (Klein & Cruz-Uribe 1989) and were noted in Khoikhoi camps by Da Gama in 1497 and others, long before Dutch settlement (Raven-Hart 1967:3, 17, 18). After 1652, both cats (Mentzel 1921:53), and dogs (Thom 1952:61), were intro-

Table 2. The number of identified specimens/minimum number of individuals by which various taxa are represented in the chronological units at Oudepost I. Latin names for the species in this table are listed in Table 1. The bottom line of the table lists the density/cu m for NISPs/MNIs.

| TAXON | UNIT II | UNIT I | UNIT X |
|---|---|---|---|
| Leporid(s) | 85/5 | 292/13 | 3/2 |
| Dune mole rat | 23/2 | 45/6 | 1/1 |
| Porcupine | 9/2 | 6/1 | 4/1 |
| Dog/jackal | 8/2 | 11/1 | - |
| Cape silver fox | 1/1 | - | - |
| Striped polecat | 6/1 | 2/1 | - |
| Honey badger | 2/1 | 1/1 | - |
| Cape grey mongoose | 33/4 | 31/3 | 3/1 |
| Egyptian mongoose | - | 3/1 | - |
| Genet(s) | 5/2 | 18/2 | - |
| Brown hyena | - | 5/1 | - |
| Domestic/wild cat | 20/2 | 31/2 | 4/1 |
| Caracal | - | 3/1 | - |
| Leopard | 4/1 | 2/1 | - |
| Lion | - | 2/1 | - |
| Aardvark | - | 1/1 | - |
| Black rhinoceros | - | 1/1 | 1/1 |
| Hippopotamus | - | - | 1/1 |
| Domestic pig | 15/3 | 76/3 | 6/1 |
| Grysbok | 1/1 | 2/2 | - |
| Steenbok | 4/2 | 8/4 | 1/1 |
| Sheep | 1430/12 | 1338/11 | 227/5 |
| cf. Grey duiker | 3/1 | 6/1 | - |
| Alcelaphine | - | 1/1 | - |
| Cow | 15/2 | 55/3 | 8/1 |
| Eland | 5/1 | 6/1 | - |
| Cape fur seal | 509/7 | 340/6 | 31/2 |
| Bovidae--General | | | |
| Small | 546/9 | 798/4 | 101/4 |
| Large-Medium | 15/1 | 17/2 | 4/2 |
| Large | 91/2 | 261/4 | 56/2 |
| TOTAL MAMMAL | 2805/58 | 3290/68 | 442/24 |
| Density/cu m | 52/2 | 61/2 | 11/1 |
| Angulate tortoise | 90/45 | 74/37 | 2/1 |

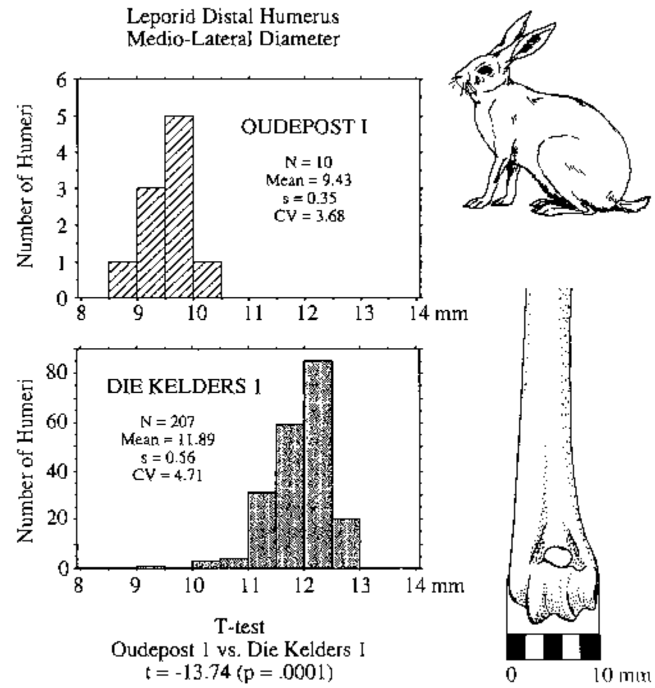


Fig. 3. Left: The mediolateral diameters of leporid distal humeri from Oudepost I and Middle Stone Age deposits at Die Kelders Cave 1. The Oudepost specimens are clearly smaller than the *Lepus capensis* sample from Die Kelders. Lower right: a leporid distal humerus illustrating the measurement.

duced to the Cape from Europe. Greyhounds (*withonden*) were imported for hunting (Jeffreys 1944:106) and an oblique reference suggests that hunting dogs were shipped to Oudepost itself in 1686 (Leibbrandt n.d.b.:590).

Among the most common animals at Oudepost are the leporids, which are also among the most problematical in terms of identification. At least two sizes are definitely present at Oudepost. The larger bones are identified as deriving from the Cape hare (*Lepus capensis*). The measurable specimens all come from the smaller, more common species. Figure 3 shows that the Oudepost leporid distal humeri are significantly smaller than definite *Lepus capensis* specimens from Middle Stone Age deposits at Die Kelders 1, on the southern Cape coast. Identification of these small Oudepost specimens as scrub hare (*Lepus saxatilis*) can be ruled out since this species is larger, not smaller, than *L. capensis* (Smithers 1983). Thus the measurable specimens may derive from the smaller wild species (*Pronolagus rupestris*) [Smith's red hare or rock rabbit], from introduced European rabbits (*Oryctolagus cuniculus*), or possibly both. European rabbits were introduced to Robben Island in Table Bay as early as 1654 (Raven-Hart 1971:26), where they became a pest twenty years later (Raven-Hart 1971:index; see Skead 1980:630-642). They were introduced to Dassen Island sometime between 1662 and 1668 (Skead 1980:636) and to the islands of Saldanha Bay around the late 1700s (Skead 1980:636-637). If some of the Oudepost specimens do derive from *Oryctolagus*, then they may have been obtained from these offshore islands. Moreover, although there were strict instructions not to introduce European rabbits to the mainland, they were transshipped on occasion from Robben Island to the Cape. At this point, pending further work with comparative *Oryctolagus* specimens, resolution of the identity of the Oudepost small leporids remains open.

All of the wild species identified in the Oudepost fauna might have been obtained relatively close to the site. Many still occur in the area today, and those that are locally extinct (including black rhinoceros, hippopotamus, lion, brown hyena and eland) were recorded in the area historically (Skead 1980). The colonists hunted most of these beasts for food, operating under licences issued by the Company (see Boeseken & Cairns 1989:14-16) and among the types of meat offered for sale at the Cape in 1665 we find hartebeest, eland, wild boar (?bushpig), rhinoceros and hippopotamus (Leibbrandt 1901:151). Bounties for killing hyenas, lions and leopards were offered by the Dutch East India Company from the early days of the colony (Skead 1980:84-86), and it is possible that some of the carnivores at Oudepost were killed for defence or reward. A case in point concerns a particularly wily lion that killed sheep there in 1672, escaped the trap guns, and then swam a good 500 m across the bay to Skaapeiland (Leibbrandt 1902:75).

In addition to dog, cat and possibly rabbit, four other domestic species were found at Oudepost I, namely sheep, cattle, pig and horse. Sheep and cattle were both kept by indigenous people prior to European colonization and sheep are much more common at Oudepost I than cattle. The sheep:cattle ratios for the various units recognized here (Tables 1, 2) range from 3:1 to 8:1, and are on average higher than the overall 2,3:1 ratios among historic Khoikhoi or the 4:1 ratio cited for the Cochoqua of Saldanha Bay (Elphick 1985:160). This reflects, in part, the relative scarcity of cattle, as opposed to sheep, in the Dutch-Khoikhoi trade (see, for example, Raidt 1973:15-57), but it also reflects the popularity of mutton. Although colonial sheep were farmed for leather and wool (Serton *et al.* 1971:203-5), they were raised primarily for their meat, whereas cows and oxen were used for milk and draught respectively. These constraints produced a colonial cuisine dominated by mutton stews, bredies and curries.

Sheep bones dominate the domesticated suite at Oudepost and will be discussed more fully later. The cattle bones from Oudepost I are relatively fragmentary, and morphological distinctions between indigenous and European breeds could not be made. In fact, with the exception of teeth and distinctive postcranial bones such as phalanges, it was not possible to distinguish between bones of cattle and eland. If our source is correct that imported cattle only reached the Cape in the late eighteenth century (Thom 1942:103-105), the Oudepost I specimens might be assumed to represent indigenous cattle.

Pig remains at Oudepost I derive from European domestic animals which were present from the inception of settlement in 1652 (Thom 1952:121, 123). Live pigs are not directly mentioned in the documents relating to Oudepost, though shipments of salted or smoked pork and bacon were sent to the post (VOC 4004). The cuts were not specified; some might have been boneless. Reference is made to the smoking of pigs' heads by European colonists (Mentzel 1944:213-214), but this was a delicacy that probably did not normally find its way to the rough tables of a frontier outpost. Consequently, the *Sus scrofa* teeth in the residues at Oudepost probably point to butchery of live pigs at the post, rather than to the importation of preserved heads. No horse bones were recovered in the Oudepost I residues, but documentary and archaeological sources attest to their presence at the post: fodder was despatched in the first list of provisions (VOC 4004), Mentzel notes that they were borrowed from local farmers (1921:77) and, finally, a lead spur was recovered in the archaeological residues.

The most striking feature of the Oudepost I mammalian fauna is the relative proportions of wild and domesticated forms. Table 3 shows that wild animals are more abundant than domesticates, based on MNIs, even when leporids are included as wild rather than domestic taxa. The Oudepost I proportions do not alter markedly when presumed carnivorous predators are excluded from the count (Table 3), suggesting further that inasmuch as the majority of our fauna are dietary residues, the garrison at Oudepost I ate a substantial proportion of wild animals. In addition to the mammals, tortoises, 20 identified species of fish (Schrire & Poggenpoel, n.d.) and 42 species of birds (G. Avery, pers. comm. 1989) must be included. This reflects a varied meat diet, but one that does not accord with documentary sources which portray the garrison dependent on sheep.

The Oudepost situation contrasts markedly with the mammal sample from the woodcutters' outpost at the Main House at Paradise in Newlands, Cape Town (Avery 1989). Here, domesticated species, specifically sheep, make up 91% of the mammals, and this is probably due to the fact that Paradise lay only a few kilometres from the Liesbeeck valley farms, whereas Oudepost was over 100 km from the Cape settlement, in an area that was still relatively wild. Closer scrutiny of the Oudepost documents does in fact reveal the importance of hunting there (Schrire 1990). First, given the fact that this post saw little action, the popularity of hunting is reflected in a constant demand for guns and gunflints, so much so that when the genuine article ran out, local stone was used to make flints (see Schrire & Deacon 1989). Turning next to meat, beef and pork were both sent to the post from the Cape, but an analysis of an eight year record from 1725-1732 (VOC 4098) suggests that Oudepost I received far less than other comparable stations: we conjecture from this an implicit recognition that the men at Oudepost I were already well supplied with wild meat. Finally, the presence of horses at Oudepost is thought to have facilitated both hunting, retrieval and transport of game. The fuller implications of this evidence will be discussed in our concluding remarks.

Table 3. The frequency of wild and domesticated taxa in the Oudepost I faunal sample. Given that the identity of the small Oudepost leporids is unclear, and may include domestic as well as wild specimens, two calculations are presented. In the upper part of the table, leporids are included as wild taxa, in the lower part they are included as domestic taxa. (But it must be noted that at least some of the specimens lumped as domestic definitely derive from wild hare.)

| Counts Including Leporids as 'Wild': | NISP | MNI |
|---|---|---|
| Wild taxa (including carnivores) | 3389 | 100 |
| Domestic taxa (pig, sheep, cow) | 3484 | 40 |
| TOTAL | 6873 | 140 |
| Wild taxa (excluding carnivores) | 3177 | 76 |
| Domestic taxa (pig, sheep, cow) | 3484 | 40 |
| TOTAL | 6661 | 116 |
| Counts Including Leporids as 'Domestic': | NISP | MNI |
| Wild taxa (including carnivores) | 2290 | 84 |
| Domestic taxa (pig, sheep, cow, leporid) | 3883 | 56 |
| TOTAL | 6873 | 140 |
| Wild taxa (excluding carnivores) | 2778 | 60 |
| Domestic taxa (pig, sheep, cow, leporid) | 3883 | 56 |
| TOTAL | 6661 | 116 |

## Species Distribution in Time and Space

The residues at Oudepost lay in concentrated scatters in and around the three structures (Fig. 1). The densities of MNIs are similar in most spatial and temporal units except for an increase in the burial area, but the NISP densities reveal that most of the faunal residues lay in and around the lodge (Tables 1, 2). This speaks to the butchery and preparation of food in and around the living quarters; high densities of this refuse outside the door of the lodge suggest that it was repeatedly thrown just outside the entrance. The paucity of gnaw marks argues against redistribution by scavenging carnivores such as dogs. Instead, rubbish probably rotted where it fell, making this foetid, fly-blown outpost a far cry from the popular renditions of immaculate Dutch homesteads.

Analysis of variation in the mammalian remains based on our spatial and temporal units (Tables 1, 2; Fig. 2) reveals no marked patterning. Domesticates (sheep, pig and cow) comprise a constant 25-29% of the total MNIs from the three chronological units (Table 2), and the rest of the species are distributed similarly throughout our analytical units.

## Domestic Sheep Remains: Morphology and Size

Sheep are the most common domesticates in the fauna, indicating that they dominated the stock trade here as elsewhere in the fledgling colony. Dutch breeding stock was introduced to the Cape as early as 1657 (Thom 1936:246) or 1658 (Thom 1954:326). Bengal sheep (Thom 1936:249) and Persian stock (Mentzel 1921:56, 1944:210) were also imported. These exotic sheep were cross-bred with the indigenous Khoikhoi flocks from the start, a fact repeatedly noted and legislated by the Company (see, for example, a record of 1677 in Moodie 1960:349-50). The Khoikhoi herds grew faster than the Dutch ones because, according to Europeans, native sheep had two annual lambings, unlike the Dutch sheep that bred only once a year (Mentzel 1921:56, 1944:212-213). This contrasts interestingly with the inference, based on dental eruption and wear, that prehistoric Khoikhoi sheep at Kasteelberg bred only once a year (Klein & Cruz-Uribe 1989).

Oudepost records note that the garrison obtained sheep from three sources, namely, local Khoikhoi herders, European farmers, and the Company's abattoir at their outpost at Groene Kloof (Mamre - about 75 km to the south-east near Cape Town), where wethers were fattened up before the slaughter (Mentzel 1944:212). They were driven to Oudepost and corralled there by Khoikhoi or European herders, before being meted out to passing ships. Given that specific breeds are occasionally noted - as in a reference to hybrid European-Khoikhoi sheep that were shipped from Dassen Island via Oudepost I in 1672-73 (Leibbrandt 1902:75) - we anticipated finding indigenous, imported and hybrid forms in the archaeological residues.

With this purpose in mind, we compared the Oudepost sheep with a number of samples from pre-contact sites. Two large samples come from the sites of Kasteelberg A and B which lie approximately 30 km north of Oudepost (Smith 1984a, 1984b, 1986, 1987a, 1987b; Klein & Cruz-Uribe 1989). These open-air middens accumulated between 1 860 and 300-400 years ago, and show such an extraordinary dominance of sheep and seal, that they are seen as seasonal stockposts/sealing stations. Other samples come from Die Kelders Cave on the south coast, dated between about 1500 and 2000 BP (Schweitzer 1974, 1979; Klein & Cruz-Uribe 1984) and from a 1 700 year-old layer of burnt dung at Boomplaas Cave A (Deacon *et al.* 1978; Klein 1978; Von den Driesch & Deacon 1985). The horncores from Oudepost I are substantially different than those from the prehistoric sites (Fig. 4), which leads us to conclude that the Oudepost I sheep were morphologically different.

Official records of 1682 note that hybrid sheep were larger and more nutritious than native ones (Moodie 1960:386). Where size is concerned, the Oudepost sheep resemble those from the Parade site in Cape Town which is thought to represent early colonial debris around the original Fort of Good Hope (Abrahams 1984, 1987), as

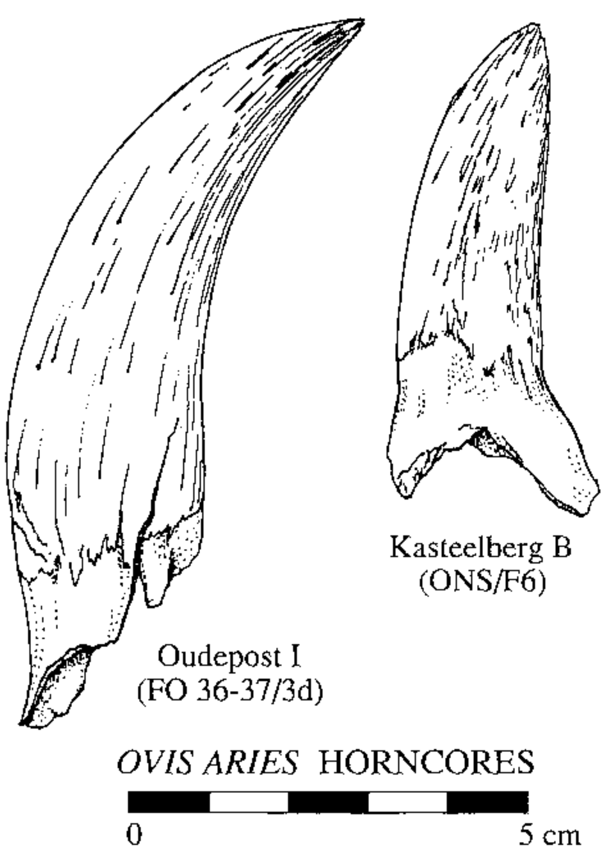


Fig. 4. Sheep (*Ovis aries*) horn cores from Oudepost I and Kasteelberg B.

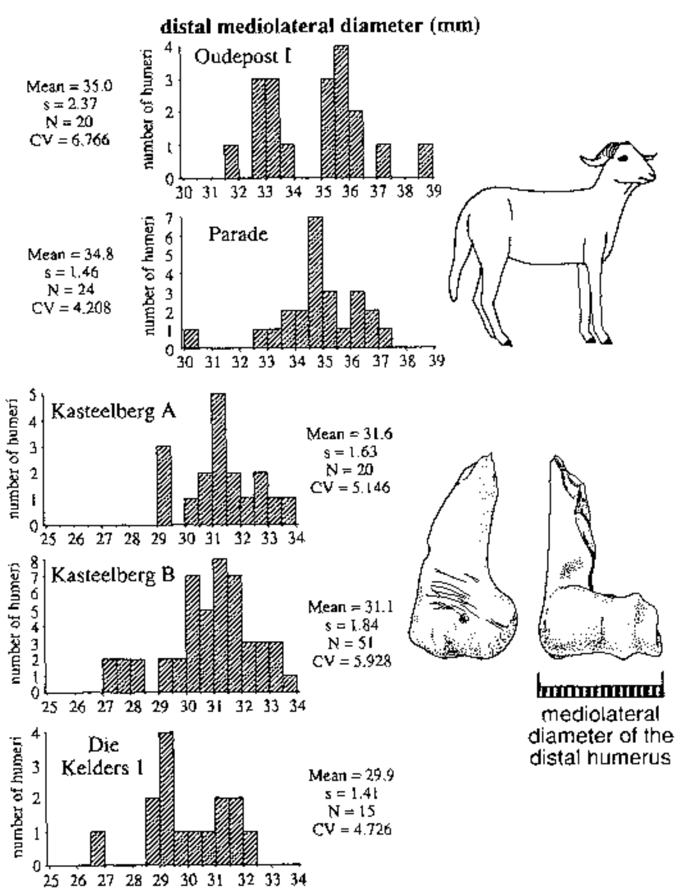


Fig. 5. The mediolateral diameters of sheep distal humeri from Oudepost I, the Parade, Kasteelberg A, Kasteelberg B, and Die Kelders. Lower right: a distal humerus from Kasteelberg B illustrating the measurement.

well as those from the Main House at Paradise, which date to the eighteenth century (Avery 1989). Using mediolateral diameter of the distal humerus as a proxy for individual size, we can show that both the Oudepost and Parade sheep are also significantly larger than any of the prehistoric sheep (Fig. 5). The same pattern prevails with other postcranial bones.

Differences between the colonial samples discussed above, probably reflect a varying mix of imported and/or hybrid breeds. Avery (1989) ascribes the Paradise sample according to its high morphological variation, as cross-bred Dutch-Khoikhoi sheep. Extreme morphological variability was not apparent in the Oudepost I sample, nor was the Oudepost coefficient of variation substantially higher than that found at other sites (Fig. 5). The actual frequency distributions of distal humerus size are more suggestive of possible hybridization of Khoikhoi and European sheep than is the coefficient. The distribution from Oudepost is clearly bimodal (Fig. 5). This might be due to a higher degree of sexual dimorphism here than is found at other sites (see Klein & Cruz-Uribe 1989) or, alternatively, sheep at other sites might have been less dimorphic from the start. Another possibility is that mainly ewes or mainly rams were killed at other sites, though we have no evidence for this practice in either traditional or colonial society at the Cape. What we do have is documentary evidence for the presence of different breeds of sheep at Oudepost, and consequently we interpret the bimodality here as pointing to the slaughter of varying breeds of Khoikhoi and European sheep.

## Sheep Age Distributions

Regardless of the breeds present at Oudepost I, the age and sex distributions of the sample allow us to infer something about the stock-keeping practices there. Assuming that the flocks were managed in a rational way, with most sheep being slaughtered for maximum meat yield in their second and third year, we would predict that the animals represented at Oudepost should be mostly young, with a second peak of old (past-prime) individuals (Payne 1973). Indeed, sources at the Cape note that the best tasting meat came from sheep slaughtered in their second year (Mentzel 1944:212). In addition to the age factor, more males might be expected to be slaughtered than females, because they do not produce milk, and only a few need be kept for breeding.

The most useful bones for determining sex are the frontlets, which carry the horns, and complete pelves, the form of which differs between males and females. Unfortunately, both elements are relatively fragile and not well-represented at Oudepost I. Age is generally easier to establish than sex, and is based on both teeth and postcranial bones. Fortunately, most of the Oudepost I sheep dentitions consist of relatively complete demi-mandibles and maxillae, rather than isolated teeth, and in order to avoid damaging the sample, age determinations were made by subjective evaluation of eruption and wear, rather than by crown height measurements. We used Silver's (1969) eruption figures for modern sheep, as well as his fusion dates for postcranial bones. Dentitions indicate that most individuals were relatively young (Table 4). More than half derive from individuals younger than 18-24 months, who still had their dP4s, and in which M3 was still unerupted. The dP4 erupts anywhere from birth to about 6 weeks of age, but most of the Oudepost dP4s were in medium to late wear, indicating individuals that were not newborn. For those individuals in which M3 was present, four individuals were about 18-24 months (M3 just erupting), while the rest (17) were prime adults in which M3 was in various stages of wear, ranging from early wear to very late wear. This may correspond to the older age peak predicted by the model, but without actual crown height measurements it is impossible to be more precise about the age of these older individuals. Finally, the fusion states of the postcranial bones are consistent with the dentitions (Table 5). More than 90% of the distal humeri and proximal radii were fused, indicating that most individuals were older than 10 months. For other postcranial bones, which fuse from 18-42 months, the percentages of fused bones are consistently lower.

The sheep from the Main House at Paradise (Avery 1989) show a similar age structure to those at Oudepost, with most of the individuals butchered between 6 and 24 months of age. Avery (1989) suggests that they were slaughtered for meat, because the majority of the bones represent parts left after the main meat-bearing limbs were removed. Both the Oudepost I and Paradise samples contrast markedly with the sheep from the Parade

Table 4. The ages of sheep (*Ovis aries*) dentitions from Oudepost, as estimated from eruption dates given by Silver (1969).

| DENTAL STATE | NUMBER OF DENTITIONS | INFERRED AGE |
|---|---|---|
| dP4 unerupted | 3 | birth to 6 weeks |
| dP4 erupted and in wear | 26 | 6 weeks to 21-24 months |
| M3 erupting | 4 | 18-24 months |
| M3 erupted and in wear | 17 | older than 18-24 months |

**BREAKDOWN OF M3 WEAR:**

| | |
|---|---|
| early wear | 8 |
| medium wear | 4 |
| late wear | 3 |
| very late wear | 2 |

Table 5. The fusion states of Oudepost sheep (*Ovis aries*) postcranial bones. Fusion dates are from Silver (1969).

| BONE | AGE AT FUSION | NUMBER FUSED | NUMBER UNFUSED |
|---|---|---|---|
| Distal humerus | 10 months | 32 | 2 |
| Proximal radius | 10 months | 51 | 2 |
| Distal tibia | 18-24 months | 23 | 20 |
| Proximal femur | 30-36 months | 7 | 27 |
| Distal radius | 36 months | 3 | 22 |
| Proximal tibia | 36-42 months | 3 | 8 |
| Distal femur | 36-42 months | 4 | 12 |
| Proximal humerus | 36-42 months | 9 | 13 |

(Abrahams 1984, 1987), which derive primarily from prime-age individuals older than 24 months, with only one individual represented by a deciduous dentition, versus 86 individuals with M3s that had already erupted and were in early or medium wear. Bone preservation at the Parade site is excellent, making it unlikely that the lack of dP4s is due to post-depositional destruction of these relatively fragile teeth. The absence of young sheep here may well reflect the lower status of the consumers that forced them to eat tough, old mutton, while the higher status folk ate choice young cuts and deposited the residues elsewhere.

Although Oudepost I has a preponderance of young sheep, prime adults are also represented (Table 4). In contrast to this, most of our prehistoric sites (Die Kelders, Kasteelberg B and Boomplaas), have very few adults and are dominated by young individuals (those with dP4 in early/medium wear and in which M3 is still unerupted). For example, at Boomplaas only 20% were estimated to be older than 18 months (Von den Driesch & Deacon 1985), and the percentage at Die Kelders is also very low (22%) (Schweitzer 1974; Klein & Cruz-Uribe 1984). The exception is Kasteelberg A which has a similar pattern to Oudepost (Klein & Cruz-Uribe 1989). Where seasonality is concerned, the mortality pattern at Kasteelberg A reflects a higher incidence of deliberate sheep slaughtering, versus many natural deaths of young lambs at Kasteelberg B (Klein & Cruz-Uribe 1989). The occupation at Kasteelberg A was less seasonally focused than at B, and extended into the part of the year when people would have relied more on sheep than on wild animals (especially seals). The Oudepost pattern is similar to that of Kasteelberg A, which confirms the documentary evidence that it was occupied all year round and, as such, strengthens our interpretation of the indigenous site usages.

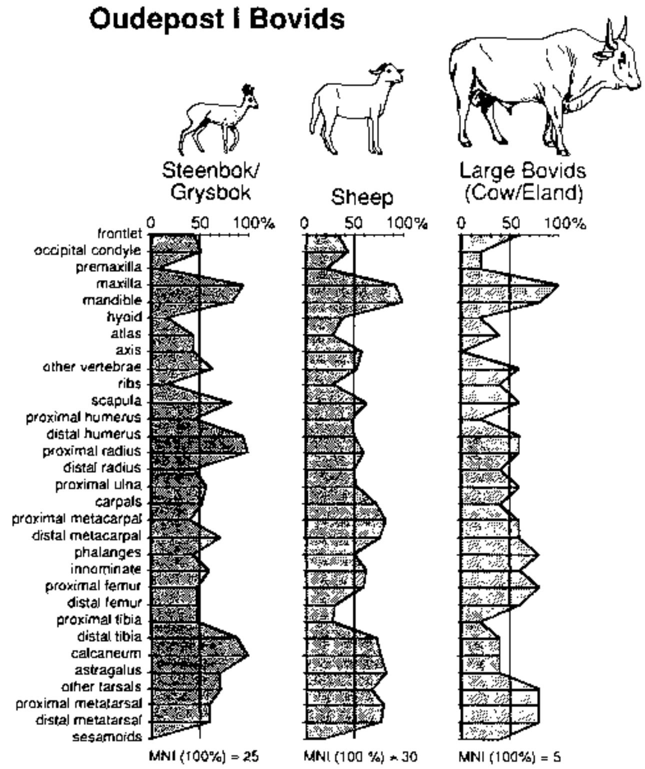


Fig. 6. Skeletal part representations of the Oudepost I bovids. Grey duiker and medium alcelaphine are excluded because they are represented by too few individuals to be meaningful. The abundance of each skeletal part is represented by the MNI (minimum number of individuals), expressed as a percentage of the maximum MNI for that taxon.

## Skeletal Element Representation

The sample from Oudepost I conforms to the general rule that the relative abundance of skeletal elements in archaeological sites differs from what would be expected if complete animals were represented. Two very important factors affecting skeletal element distributions are selective transport and selective destruction, whose relative significance is assessed by plotting skeletal part abundance against density and also against food utility (Grayson 1988). A positive correlation between abundance and density, suggests that differential destruction was a major cause of discrepancies among skeletal elements, whereas a positive correlation between relative abundance and food value indicates that transportation was an important factor.

This methodology has been applied successfully to the analysis of body part frequency distributions of sheep and large bovids from Kasteelberg A and B (Klein & Cruz-Uribe 1989) and may be fruitfully applied to Oudepost as well. Figure 6 presents the skeletal element distributions for the bovids at Oudepost I (see also Table 7). The only species common enough to apply the method to are sheep and steenbok/grysbok (*Raphicerus* spp.), a very small antelope (9-11 kg), that was probably available right at the site. Given the nature of activities at Oudepost, and the fact that *Raphicerus* are very small, we assume that transportation considerations were relatively unimportant, and that both sheep and antelope would be butchered on the spot. On the other hand, given that bones of both taxa are fragmentary and show evidence of butchery, we would expect a positive correlation with density.

Figure 7 presents the results of the analysis for Oudepost sheep and *Raphicerus*. Skeletal frequencies are represented by the minimum number of individuals for the relevant body parts, density by bulk density as presented in Lyman (1984, 1985), and food utility by the food utility index of Metcalfe and Jones (1988). The results confirm our *a priori* expectations. Both sheep and steenbok/grysbok show a significant positive correlation with density (Fig. 7, left), and neither show a positive correlation with utility (Fig. 7, right). For sheep, the transport result is a negative correlation which approaches statistical significance, and which is probably due to the tendency for bone density and food value themselves to be negatively correlated (Lyman 1985). On the whole, the results suggest that the animals came to the outpost alive, or as whole carcasses, and that selective destruction was subsequently important in shaping the body part distributions.

It is therefore likely that butchering (cutting, sawing, disarticulating), boiling and burning were all important pre-depositionally, whereas trampling, leaching and other post-depositional processes probably played a part later on. The virtual absence of gnaw marks on bones contrasts markedly with the high incidence of such marks on the Kasteelberg sample (Klein & Cruz-Uribe 1989) and suggests that carnivores were not important in affecting the body part frequencies and distribution patterns at Oudepost I. This might relate to cooking. Some bones are charred (Table 6), but given the wide broadcast of garbage at Oudepost, this might reflect chance incorporation in a fire every bit as much as culinary technique. Pots and skimmers were present at Oudepost suggesting that food was stewed or boiled. If meat were

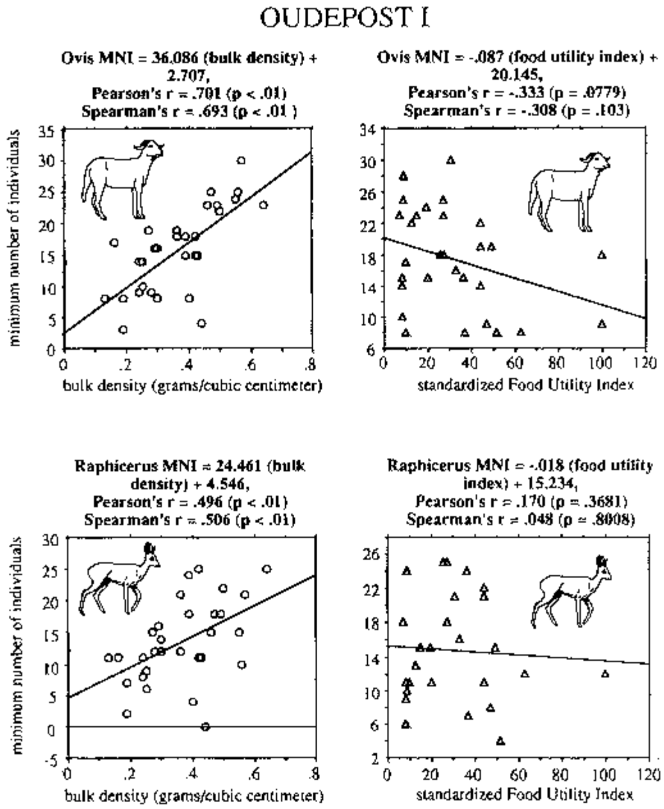


Fig. 7. Left: the relationship between the bulk density of various skeletal parts and their abundance (minimum number of individuals) for Oudepost I sheep (top) and steenbok/grysbok (bottom). Right: the relationship between food utility of various skeletal parts and their abundance for Oudepost I sheep (top) and steenbok/grysbok (bottom).

boiled down until the bones had no further nutritional value, this might account for the disinterest shown by carnivores in the discarded residues.

A marked feature of the Oudepost bones, as opposed to fauna from numerous indigenous sites in the vicinity (see Robertshaw 1978; Smith 1986; Klein & Cruz-Uribe 1989) is the numerous signs of butchery with metal tools (Table 6). A butcher's block was listed in the post's possessions in 1729 (Leibbrandt n.d.d.:121). We identified cut and saw marks on bones of both domestic and wild species. The gross morphology of these marks differs from that found on Stone Age bones. Marks include those made by sharp knives, as well as those left by heavier blades and axes such as the 'cooks' hatchets' listed in the supplies sent out to establish the post in 1669 (VOC 4004). Using axes to butcher meat here is perfectly consistent with the seventeenth and early eighteenth century method of cooking mixed dishes, where relatively large quarters of meat were stewed along with vegetables in a pottage (Deetz 1977:123-124). Sawn bones occur in Anglo-Saxon sites (Bourdillon & Coy 1980:97, 100; Crabtree 1985:96), but this method of producing small cuts was allegedly only introduced into colonial American cuisine in the late eighteenth century when its presence heralded a different, more individualistic way of eating and of living than had obtained since medieval times (Deetz 1977:124-125). It is instructive to find sawn bones in this early context, although given the post-depositional disturbances here, it also raises the possibility that the Oudepost sawn bones are not of colonial age, but rather are relics of modern barbecues. Three points contribute to the resolution of this matter. First, if sawn bones were recent inclusions, one might expect them to cluster in the later levels: instead, they occur throughout the deposit. Secondly, modern butchers do not market steenbok and grysbok, and although most cut and saw marks occur on bones of domesticated animals, wild grysbok and steenbok remains also carry these scars of butchery (Table 6), confirming that sawing was an early colonial practice. Finally, there is an intriguing, if elusive, piece of evidence from the analysis of a consignment of Cape beef that was recovered from the wreck of the Dutch East Indiaman *Vergulde Draeck*. This ship called at the Cape in March 1656, and loaded on board "seven cows, 10 sheep, and some vegetables" (Green 1977:45). Six weeks later, en route to the Indies, the ship was wrecked off the West Australian coast. Illustrations of the cattle bones in the wreck itself suggest that the *Vergulde Draeck* carried both sawn and chopped cuts (Green 1977:244-247). Further enquiries drew this reply from the author: "Almost all the vertebrae, on cursory examination, seem to be sawn, however, the bone in many cases is deteriorated and therefore difficult to tell" (Green *in litt.* to Schrire, 2 July 1987).

## Seals

Early European colonists were well aware of the economic potential of Cape fur seals, and killed them for oil, skins and meat. Some measure of the extent of European exploitation of seals may be found in the early historic records discussed by Skead (1980:661-68), and details are provided in the early diaries. For instance, a French expedition spent over six months sealing in Saldanha Bay and Dassen Island in 1655, and harvested 48 000 skins (Thom 1952:175) which were exported to Holland where they were used to make bandoliers, glove facings, hats and boots (ibid:177). The skin trade was halted by Holland in 1657, but sealing continued to produce train oil for local and export markets (see Schrire, 1984:19). The seal colonies closest to Oudepost I were on

Table 6. Frequency of cutting, sawing and burning damage on Oudepost I bones. Numbers are the number of identified specimens present in all the provenience units at the site.

| TAXON | TOTAL NISP | NUMBER CUT | NUMBER SAWN | NUMBER BURNT |
|---|---|---|---|---|
| Leporid(s) | 399 | 1 (0,25%) | 1 (0,25%) | 9 (2,26%) |
| Pig | 109 | 1 (0,92%) | 5 (4,59%) | 4 (3,67%) |
| Steenbok/grysbok | 1595 | 26 (1,6%) | 14 (0,88%) | 34 (2,13%) |
| Sheep | 3292 | 287 (8,7%) | 265 (8,05%) | 82 (2,49%) |
| cf. Grey duiker | 9 | 1 (11,11%) | 0 | 2 (22,22%) |
| Large-medium bovid | 37 | 0 | 2 (5,41%) | 1 (2,70%) |
| Large bovid | 455 | 37 (8,13%) | 40 (8,79%) | 11 (2,42%) |
| Seal | 1017 | 4 (0,39%) | 1 (0,10%) | 37 (3,64%) |

the islands in and around Saldanha Bay, which were exploited as early as 1623 (Skead 1980:668-69) and were still actively used by the men at the new Company's Post in 1772 (see Forbes 1986:58).

Turning now to the time and place of sealing, Cape fur seals are seasonal breeders, with most of the young born in a restricted period of about five weeks in November and December (Rand 1956; Smithers 1983; David 1989). When they are about 9 months old, the pups are abruptly weaned and leave their offshore rookeries to take to the sea. If they are not strong enough, they may wash up on the mainland shore, either as carcasses or weakened animals (see Klein & Cruz-Uribe 1989). Foragers along the shore would therefore have easy access to 9 month old pups, whereas those who reach the rookeries would be able to kill adults or babies.

Seals were a favored resource of the indigenous inhabitants of the Cape coasts. They are very common in Later Stone Age levels at Kasteelberg A and B, Elands Bay Cave, Die Kelders Cave and Nelson Bay Cave where their remains have been used to determine seasonality of occupation by measuring the breadth of the unfused distal humerus as a proxy for age, using the assumption that similar-sized humeri come from similar-aged animals (Klein & Cruz-Uribe 1989). In all the prehistoric sites mentioned above, the humerus measurements show a peak that corresponds to animals around 9 months old, reflecting the singular fact that aboriginal people, lacking boats, foraged for seals washed up on the beach around August and September (Fig. 8). In contrast to this, Oudepost seal measurements are not tightly clustered, and the incidence of fused humeri shows that Oudepost has proportionally more adult seals than in the prehistoric samples (Fig. 8). Seal bones are relatively common at Oudepost I when compared with other fauna there (Table 7), but they do not predominate as one might expect if this were a sealing station. The documentary evidence allows a fuller interpretation of these data. Sealing and the production of train oil at Saldanha Bay was generally the province of free traders (Leibbrandt n.d.a:264, 355-6, 379, n.d.b.:415). In 1684 the oil contract was removed and given to the postholder at Oudepost (Boeseken 1961:98-99). The post produced seal skins (Leibbrandt n.d b.:589, 590, 663) and train oil (Leibbrandt n.d.b.:589, 590, n.d.e.:118), and although the exact location of these operations was not specified, the garrison had a boat (Leibbrandt n.d.b.:663, n.d.d:121) with which they could easily reach the island rookeries. Putting all our evidence together, we conclude that the Oudepost garrison, unlike prehistoric people, had boats and guns, and probably made clubs, to help them harvest seals on the islands or the bay shore, and probably rendered them into oil on the spot so that the bones at Oudepost represent animals killed or scavenged for immediate consumption.

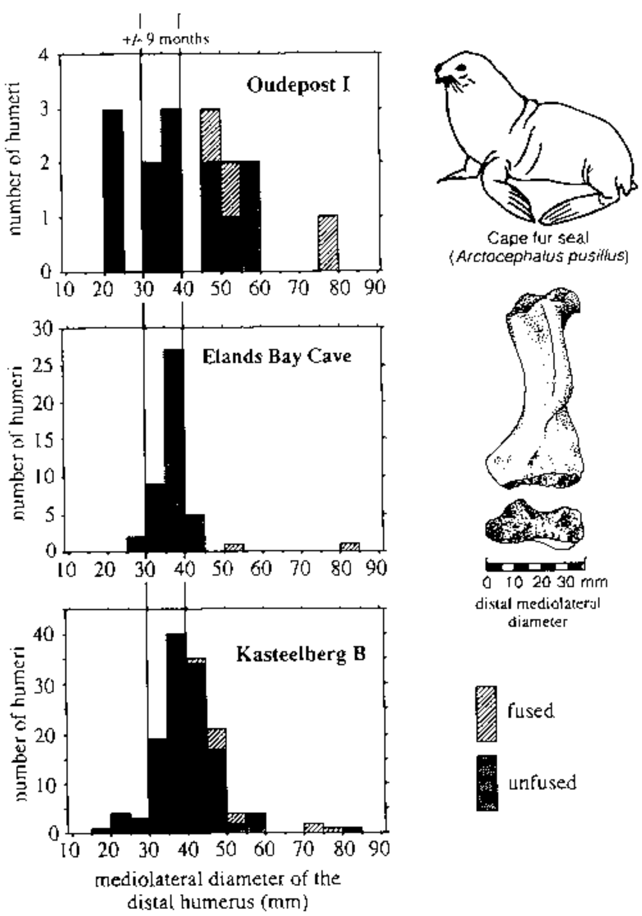


Fig. 8. The mediolateral diameters of Cape fur seal distal humeri from Oudepost I, Elands Bay Cave, and Kasteelberg B. The light bar running behind the histograms indicates the measurements of modern individuals about nine months old.

## Angulate Tortoises

Foods like shellfish and tortoises that feature so prominently in the indigenous diet were apparently far less important in the colonial diet. The scattering of shells in the Oudepost deposit contrasts markedly with the dense packing of shells in similarly sited indigenous middens. Likewise, tortoise remains are rare here. They concentrate in and around the lodge, but retain a constant density of 1 MNI per cu m throughout (Tables 1, 2). This contrasts markedly with the "abundant to superabundant" (Klein & Cruz-Uribe 1987:145) densities found in indigenous sites such as Byneskranskop with 49-304 MNIs per cu m (Schweitzer & Wilson 1982:119), and Die Kelders with 2,9-17,4 MNIs per cu m (Schweitzer 1979:201). This situation is reflected too in Fig. 9a, where tortoise abundance is expressed by the number of humeri (the most common tortoise bone), divided by the total number of bovid and seal bones (see Klein & Cruz-Uribe 1989). Figure 9 also shows that the Oudepost I ratio is lowest of all sites, being slightly below that of Kasteelberg A.

Tortoises from pastoralist sites (e.g. Kasteelberg A and B) are smaller on average than those from 'pre-pastoralist' Late Pleistocene/Holocene samples in the western Cape (Klein & Cruz-Uribe 1989; see Fig. 9). This may reflect pressure on the tortoise populations by increasing numbers of human predators, or progressive veld degradation due to climatic change or stock grazing. Interestingly, the Oudepost tortoises do not conform with this temporal trend, being significantly larger than those from indigenous pastoralist sites, and more comparable therefore to the pre-pastoralist (before 2000 BP) samples (Klein & Cruz-Uribe 1989). This reversal may lead one to argue that the large tortoises at Oudepost do not represent food at all, but rather animals that died naturally and whose bones were incorporated into the deposit by the action of dune molerats. This essentially attritional natural mortality pattern, where older and therefore larger tortoises predominate, would therefore make no comment on colonial diet. Two points are relevant here. First, if these tortoises represent a natural mortality pattern, they should be evenly distributed over the landscape. This is

Table 7. Skeletal element frequencies (number of identified specimens/minimum number of individuals) by which the most common large mammals at Oudepost 1 are represented. All provenience units included.

| BODY PART | STEENBOK/ GRYSBOK | SHEEP | LARGE BOVIDS | SEAL |
|---|---|---|---|---|
| Frontlet | 17/11 | 16/10 | 3/3 | 0/0 |
| Occipital condyle | 16/13 | 19/13 | 2/1 | 10/7 |
| Premaxilla | 3/2 | 9/6 | 1/1 | 0/0 |
| Maxilla | 97/24 | 128/28 | 22/5 | 72/8 |
| Mandible | 71/21 | 198/30 | 45/4 | 59/7 |
| Hyoid | 7/4 | 22/11 | 2/1 | 0/0 |
| Atlas | 13/11 | 14/8 | 3/2 | 11/7 |
| Axis | 12/11 | 25/17 | 0/0 | 2/2 |
| Cervical 3-7 | 36/7 | 71/8 | 10/2 | 10/3 |
| Thoracic | 107/8 | 214/9 | 16/2 | 14/2 |
| Lumbar | 122/16 | 220/16 | 23/3 | 62/6 |
| Sacral | 5/2 | 19/3 | 1/1 | 1/1 |
| Caudal | 2/1 | 67/14 | 8/3 | 1/1 |
| Sternebrae | 0/0 | 0/0 | 0/0 | 8/1 |
| Ribs | 92/4 | 492/8 | 80/2 | 38/3 |
| Scapula | 38/21 | 47/19 | 7/3 | 17/11 |
| Humerus - proximal | 24/11 | 32/14 | 1/1 | 30/11 |
| Humerus - distal | 49/24 | 44/15 | 4/3 | 34/14 |
| Radius - proximal | 50/25 | 59/18 | 6/3 | 12/4 |
| Radius - distal | 23/11 | 55/15 | 6/2 | 22/8 |
| Ulna - proximal | 36/14 | 54/16 | 6/3 | 14/5 |
| Carpals | 55/13 | 157/22 | 18/2 | 37/6 |
| Metacarpal - proximal | 24/10 | 84/25 | 6/3 | 59/6 |
| Metacarpal - distal | 45/18 | 92/23 | 4/3 | 61/5 |
| Phalanges | 202/11 | 395/15 | 84/4 | 238/5 |
| Innominate | 50/15 | 79/19 | 8/3 | 15/4 |
| Femur - proximal | 29/12 | 63/18 | 7/4 | 29/15 |
| Femur - distal | 33/12 | 33/9 | 6/3 | 28/16 |
| Tibia - proximal | 25/12 | 23/8 | 2/1 | 19/6 |
| Tibia - distal | 41/22 | 61/22 | 3/2 | 18/5 |
| Calcaneum | 44/25 | 54/23 | 6/2 | 11/7 |
| Astragalus | 39/18 | 28/25 | 3/2 | 12/9 |
| Other tarsals | 60/18 | 72/20 | 10/4 | 16/3 |
| Metatarsal - proximal | 64/15 | 113/24 | 10/4 | 92/10 |
| Metatarsal - distal | 37/15 | 80/23 | 7/4 | 74/6 |
| Sesamoids | 5/1 | 114/5 | 31/2 | 0/0 |
| Totals for bones | 1433/25 | 2989/25 | 388/4 | 894/16 |
| Totals for dentitions | 168/24 | 326/30 | 67/5 | 131/8 |
| Grand totals | 1601/25 | 3315/30 | 455/5 | 1025/16 |

not the case: although the MNIs are similar all over the site, the density of tortoise remains as reflected in the NISPs, coincides with other food debris, being concentrated in and around the lodge. Second, there is no doubt that the Dutch ate tortoises. The Cape literature includes a reference to Hottentot women who offered tortoises seductively to slaves in 1658 (Moodie 1960:128), and another to Thunberg who enjoyed broiled tortoises at a farmer's house near Cape Town in 1773 (Forbes 1986:180-1). An even more explicit reference runs as follows: "their Flesh is fine, and white as Snow, and of an excellent Taste. The Liver of the Land-Tortoise is very delicate Food . . . Eggs are found in the Land-Tortoise; which are of a delightful Taste, and are very delicate wholesome Food" (Kolben 1731:214). Finally, if these local sources do not suffice, there is a VOC despatch dated to 1696 from their settlement in Mauritius that is so explicit on this matter as to deserve an extensive quotation:

> Tortoises have been caught so extensively . . . that hardly a single one is found now . . . Lamotius allowed the ebony sawyers in the forest to go out in gangs to catch them . . . Often they . . . caught from 70 to 80. But the most wicked thing was that they did not use the meat, the best part of the creature, but left it rotting in the field; bringing home only the fat or grease in loads for five or six men to carry (Leibbrandt 1896:170).

We therefore conclude that the tortoise remains are an integral part of the colonial diet at Oudepost I. The fact that they do not conform with the trend towards smallness observed on pastoralist sites in the region may be because environmental degradation was not as marked here as it was further north, and/or that the consumers here ate fewer tortoises and, as a result, individual tortoise size was not depressed through over-exploitation.

## Discussion and Conclusions

Oudepost I was a point of contact between indigenous Khoikhoi people and European colonists. Interactions between these two groups ranged from peaceful cooperation, such as was found in the earliest days when the local Khoikhoi offered to kraal the Company's stock with their own against a French threat (Leibbrandt 1901:

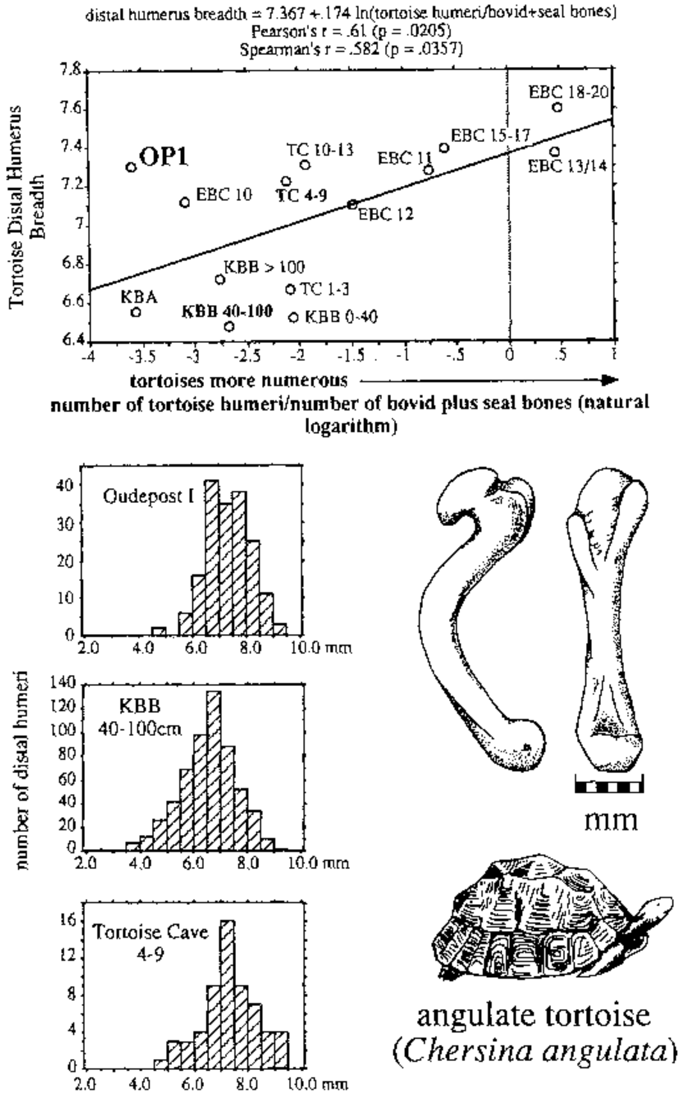


Fig. 9. Top: The relationship between tortoise distal humerus size ('breadth'), and tortoise abundance at the following sites in the western Cape: Elands Bay Cave (EBC), Tortoise Cave (TC), Kasteelberg A (KBA), Kasteelberg B (KBB) and Oudepost I (OP1). Tortoise abundance is expressed by the natural logarithm of the number of tortoise humeri divided by the number of bovid plus seal bones. Tortoises from the prehistoric post-2000 BP levels (KBA, KBB, TC 1-3) are clearly smaller than those from pre-2000 BP levels at Tortoise Cave and Elands Bay Cave. The Oudepost I tortoises are more comparable in size to the pre-2000 BP samples. Bottom: histograms illustrating the tortoise distal humerus measurements from Oudepost I, KBB 40-100 cm (post-2000 BP), and Tortoise Cave 4-9 (pre-2000 BP).

324; Raven-Hart 1971:100), to amiable labour relations, with the Company employing Khoikhoi men as herders (Leibbrandt n.d.c.:663), to a situation of "open war" (Leibbrandt n.d.a.:2) following the outbreak of the violence and hatred implicit in the Khoikhoi ransack of the post and murder of its soldiers in 1673 (Leibbrandt 1902:142-143).

It would be interesting to be able to distinguish colonial from indigenous components of the fauna, to identify who caught or ate which animal, but this type of identification is not explicit in the faunal remains as it is in other cultural material. Evidence of structures, artefacts and butchery practices, all suggests that this was primarily a colonial occupation and documentary evidence paints the garrison's daily activities as being dominated by farming and provisioning of ships. It comes as something of a surprise therefore to realize that the garrison at Oudepost I did not rely entirely on the stock trade, or on quarterly provisions from the Company, but instead they exploited a wide range of domestic and wild species. In much the same way, therefore, as certain metal artefacts give the impression of a 'frontier' way of life in their repeated reuse and repair (see Faulkner & Faulkner 1986:156-161), the preponderance of wild fauna at a Company outpost reveals a pattern of self-sufficiency throughout its occupancy in which the garrison was clearly not relying solely on the Company for meat supplies, but was provisioning itself by hunting, fishing and fowling.

These realizations show how archaeology can help to modify historical wisdom, but over and above such methodological insights is the real question behind all the labour, analysis and effort that goes into research such as this. To what extent did the colonial diet and resource management behaviour affect the indigenous people? Stone Age pastoralist foragers had prevailed for thousands of years in the western Cape, and a certain romanticism might delude us into thinking that it might have gone on forever, had not the colonial enterprise entered the picture. There is no way to confirm or deny this, but one thing is clear: when mercantile capitalism engulfed the Cape, guns, tobacco, beads, horses, knives, ropes, boats and arrack converted the world of the Khoikhoi into a mere outpost of Imperial Europe, and wood, game, sheep, cattle, pigs, wildfowl, fish and seals were all incorporated into the new economy as food, fuel and raw materials (see Robertson 1945:4).

Elphick (1985:217-219) argues that there was an inevitability to the outcome of Dutch settlement at the Cape, pointing to the intrinsic weaknesses in Khoikhoi society that made conquest a pushover. In a similar vein, one might blame the dodo of Mauritius for its extermination by European sailors because, not having read E. O. Wilson, or Robert Trivers, it was programmed to lay only one egg, in the open. Elphick's tone recalls modern arguments about environmental hazards, where the inevitable consequences of growth and progress override moral implications. When we look at the diet and behaviour of a tiny garrison of the Company, it seems that what made the Dutch domination inevitable was not so much the nature of Khoikhoi society, as the relentlessness with which the Dutch captured the former 'commons', with no thought whatever for the welfare or survival of the indigenous people.

The daily activities at Oudepost I may have been innocuous, but the relentless aspect of colonial existence emerges when we extrapolate the daily situation on Oudepost to dozens of outposts and frontier farms. Trekboers were in constant competition with indigenous people for land, veldkos, grazing, browse, water and meat (see Elphick & Shell 1979:158; Guelke 1979:52-54, 63). This is patent too, in numerous regulations that the Company promulgated about hunting. These appear in archival documents concerned with landholding, such as the *Oude Wild Schutte Boeken* and the *Plakkaatboeken* (Jeffreys 1944) that deal with more general laws. From the outset of Dutch settlement, these documents restricted hunting to designated hunters, and the sale of meat to designated vendors, forbade hunting during the mating season, and ruled that licenses had to be obtained in order to shoot big game such as hippo and rhino. Permits specified the type of game and fowl that might be shot, and noted too the number of hunting dogs present (Boeseken & Cairns 1989:14-16). One might be tempted to congratulate seventeenth century resource managers for their foresight here, except for two things. First, it was virtually impossible to enforce these laws on remote farms and outposts. The Castle was a long way from the frontier, and although word sometimes got back to the authorities that some burghers were considered to be 'too lazy' to work for a living, and lived instead by hunting buck, hares, partridges, geese and ducks without permission (Boeseken & Cairns 1989:15), for the most part, hunting was as much an integral part of daily subsistence on the frontier as it had been for the pastoral foragers whom the colonists dispossessed. Secondly, game depletion was monitored for the sake of the colonists, not the indigenes. One might argue quite plausibly that it would have been in the interest of the Company to forbid its people to hunt at all, in order to maintain the conditions needed to promote the stock trade. Any infringement on Khoisan land was hazardous to indigenous integrity, but this was never a priority in VOC rule. Tangible proof of this disregard emerges in the faunal lists at Oudepost I, whose dependence on hunting and foraging was probably typical of all outposts and frontier farms. We are looking here not only at bones, cut marks and minimum numbers, but at resource competition and depletion that lay at the heart of dispossession in colonial South Africa.

## Acknowledgements

The research at Oudepost was supported by grants to Carmel Schrire by the National Science Foundation (BNS 85-06990), the Mauerberger Foundation Fund (Cape Town), Rutgers Research Council, and the John Simon Guggenheim Foundation. We thank the Department of Archaeology, South African Museum, for the use of their facilities to study the Oudepost I bones. Richard Klein (University of Chicago) helped with the identification and recording of the sample, and also provided useful comments on the manuscript. We thank Graham Avery (South African Museum), Robert Blumenschine (Rutgers University), John Speth (University of Michigan) and Angela von den Driesch (University of Munich) for helpful comments. Gabeba Abrahams (Cultural History Museum, Cape Town) kindly allowed us access to the faunal sample from the Parade.

## References

Abrahams, G. 1984. The development of historical archaeology at the Cape, South Africa, Section II: archaeological inferences from clay tobacco pipes excavated from some historical sites in Cape Town. Bulletin of the South African Cultural History Museum 5:49-53.

Abrahams, G. 1987. Seventeenth and eighteenth century glass bottles excavated from Fort de Goede Hoop, Cape Town. Annals of the South African Cultural History Museum 1:1-38.

Avery, D. M. 1989. Remarks concerning vertebrate faunal remains from the Main House at Paradise. South African Archaeological Bulletin 44:114-116.

Boeseken, A.J. 1961. Resoluties van die Politieke Raad. Deel III: 1681-1707. Suid-Afrikaanse Argiefstukke, Kaap No. III. Cape Town: Nasionale Handelsdrukkery BPK.

Boeseken, A. & Cairns, M. 1989. The secluded valley. Tulbagh: 't Land van Waveren. Cape Town and Johannesburg: Perskor.

Bourdillon, J. & Coy, J. 1980. The animal bones. In: Holdsworth, P. (ed.) Excavations at Melbourne St, Southampton, 1971-76. C.B.A. Research Report 33:79-121.

Boxer, C.R. 1977. The Dutch seaborne empire 1600-1800. London: Hutchinson.

Crabtree, P. 1985. Worked bones from the faunal collection. In: West, S. (ed.) West Stow: The Anglo-Saxon village. East Anglian Archaeology 24:96.

Crosby, A. 1986. Ecological imperialism: the biological expansion of Europe 900-1900. Cambridge: Cambridge University Press.

Cruz-Uribe, K. 1988. The use and meaning of species diversity and richness in archaeological faunas. Journal of Archaeological Science 15:179-196.

Cruz-Uribe, K. & Klein R. G. 1986. Pascal programs for computing taxonomic abundance in samples of fossil mammals. Journal of Archaeological Science 13:171-187.

Curtin, P. D. 1985. Cross-cultural trade in world history. Cambridge: Cambridge University Press.

David, J. H. M. 1989. Seals. In: Payne, A.I. & Crawford, R.G.J. (eds) Oceans of life off southern Africa. Cape Town: Vlaeberg Publishers.

Deacon, H. J., Deacon, J., Brooker, M. & Wilson, M. L. 1978. The evidence for herding at Boomplaas Cave in the southern Cape, South Africa. South African Archaeological Bulletin 33:39-65.

Deetz, J. 1977. In small things forgotten: the archaeology of early American life. New York: Doubleday.

Deetz, J. 1988. History and archaeological theory: Walter Taylor revisted. American Antiquity 53:13-22.

Dobyns, H. 1982. Their numbers became thinned: native American population dynamics in Eastern North America. Knoxville: The University of Tennessee Press.

Elphick, R. 1985. Khoikhoi and the founding of white South Africa. Johannesburg: Ravan Press.

Elphick, R. & Shell, R. 1979. Intergroup relations: Khoikhoi, settlers, slaves and free blacks, 1652-1795. In: Elphick, R. & Giliomee, H. (eds) The shaping of South African society, 1652-1820: 116-169. Cape Town: Longman Penguin Southern Africa.

Faulkner, A. & Faulkner, G. F. 1987. The French at Pentagoet 1635-1674. An archaeological portrait of the Acadian frontier. Occasional Publications in Maine Archaeology 5. Augusta: The Maine Historical Preservation Commission and the New Brunswick Museum.

Forbes, V.S. (ed.) 1986. Carl Peter Thunberg: Travels at the Cape of Good Hope 1772-1775. Cape Town: Van Riebeeck Society, Second Series 17.

Green, J. N. 1977. The loss of the Verenigde Oostindische Compagnie Jacht VERGULDE DRAECK, Western Australia 1656. Oxford: British Archaeological Reports Supplementary Series 36(i).

Grayson, D. K. 1988. Danger Cave, Last Supper Cave, and Hanging Rock Shelter: the faunas. Anthropological Papers of the American Museum of Natural History 66:1-130.

Guelke, L. 1979. The white settlers, 1652-1780. In: Elphick, R. & Giliomee, H. (eds) The shaping of South African society, 1652-1820: 41-74. Cape Town: Longman Penguin Southern Africa.

Jeffreys, M. K. 1944. Kaapse Argiefstukke: Kaapse Plakkaatboek. Deel I (1652-1707). Cape Town: Cape Times.

Klein, R. G. 1978. A preliminary report on the larger mammals from the Boomplaas Stone Age cave site, Cango Valley, Oudtshoorn District, South Africa. South African Archaeological Bulletin 33:66-75.

Klein, R. G. & Cruz-Uribe, K. 1984. The analysis of animal bones from archaeological sites. Chicago: University of Chicago Press.

Klein, R.G. & Cruz-Uribe, K. 1987. Large mammal and tortoise bones from Elands Bay Cave and nearby sites, Western Cape Province, South Africa. In: Parkington, J. E. & Hall, M. (eds) Papers in the prehistory of the western Cape, South Africa: 132-163. Oxford: British Archaeological Reports International Series 332.

Klein, R. G. & Cruz-Uribe, K. 1989. Faunal evidence for prehistoric herder-forager activities at Kasteelberg, Vredenburg Peninsula, western Cape Province, South Africa. South African Archaeological Bulletin 44:82-97.

Kolben, P. 1731. The present state of the Cape of Good Hope Vol. II. London: W. Innys.

Krech, S. III (ed.) 1981. Indians, animals and the fur trade: a critique of Keepers of the game. Athens: Georgia University Press.

Leibbrandt, H. C. V. 1896. Precis of the archives of the Cape of Good Hope. Letters received, 1695-1708. Cape Town: W.A. Richards & Sons.

Leibbrandt, H. C. V. 1901. Precis of the archives of the Cape of Good Hope. Journal 1662-1670. Cape Town: W.A. Richards & Sons.

Leibbrandt, H. C. V. 1902. Precis of the Archives of the Cape of Good Hope. Journal 1671-4 and 1676. Cape Town: W. A. Richards and Sons.

Leibbrandt, H.C.V. n.d.a. Precis and translation of Journal, 1677-1683. Cape Archives Manuscript LM9.

Leibbrandt, H.C.V. n.d.b. Precis and translation of Journal 1684-1687. Cape Archives Manuscript LM10.

Leibbrandt, H.C.V. n.d.c. Precis and translation of Letters Received, 1717-1726. Cape Archives Manuscript LM 19.

Leibbrandt, H.C.V. n.d.d. Precis and translation of Letters Received, 1726-1732. Cape Archives Manuscript LM 20.

Leibbrandt, H.C.V. n.d.e. Precis and translation of Letters Despatched, 3rd January, 1707 to 31st December, 1720. Cape Archives Manuscript LM 21.

Leone, M. P. & Potter, P. B. (eds) 1988. The recovery of meaning: historical archaeology in the eastern United States. Washington D.C.: Smithsonian Institution Press.

Lyman, R. L. 1984. Bone density and differential survival in fossil classes. Journal of Anthropological Archaeology 3:259-299.

Lyman, R. L. 1985. Bone frequencies: differential transport, in situ destruction, and the MGUI. Journal of Archaeological Science 12:221-236.

Mentzel, O. F. 1921. A geographical and topographical description of the Cape of Good Hope, Part One. Cape Town: The Van Riebeeck Society 4.

Mentzel, O. F. 1944. A geographical and topographical description of the Cape of Good Hope, Part Three. Cape Town: The Van Riebeeck Society 25.

Metcalfe, D. & Jones, K. T. 1988. A reconsideration of animal body-part utility indices. American Antiquity 53:486-504.

Moodie, D. 1960. The Record. Part 1. 1649-1720. Amsterdam: A. A. Balkema. (Photostatic reprint of Moodie, D. 1938. The Record. Cape Town: A. S. Robertson).

Odum, E. P. 1971. Fundamentals of Ecology. Third edition. Philadelphia: W. P. Saunders.

Odum, E. P. 1975. Ecology: The link between the natural and social sciences. New York: Holt, Rinehart & Winston.

Payne, S. 1973. Kill-off patterns in sheep and goats: the mandibles from Asvan Kale. Anatolian Studies 23:282-303.

Rand, R. W. 1956. The Cape fur seal, *Arctocephalus pusillus* (Schreber). Division of Fisheries, South African Department of Commerce and Industries, Investigational Report No. 21.

Raidt, E. H. (ed.) 1973. Francois Valentyn: description of the Cape of Good Hope with the matters concerning it. Amsterdam 1726. Part II, Second Series No. 4. Cape Town: Van Riebeeck Society.

Raven-Hart, R. 1967. Before Van Riebeeck: callers at South Africa from 1488 to 1652. Cape Town: Struik.

Raven-Hart, R. 1971. Cape of Good Hope 1652-1702: the first fifty years of Dutch colonisation as seen by callers. Cape Town: Balkema.

Robertshaw, P. T. 1978. Archaeological investigations at Langebaan Lagoon, Cape Province. Palaeoecology of Africa 10:139-148.

Robertson, H. M. 1945. The economic development of the Cape under Van Riebeek, Part I. The South African Journal of Economics 13:17.

Rookmaker, L. C. 1988. The taxonomic importance of C. P. Thunberg's revision of South African mammals (1811). South African Journal of Science 84:159-161.

Schrire, C. 1984. Wild surmises on savage thoughts. In: Schrire, C. (ed.) Past and present in hunter gatherer studies: 1-25. Orlando: Academic Press.

Schrire, C. 1988. The historical archaeology of the impact of colonialism in 17th-century South Africa. Antiquity 62:214-225.

Schrire, C. 1990. Excavating archives at Oudepost I. Social Dynamics (in press).

Schrire, C. & Deacon, J. 1989. The indigenous artefacts from Oudepost I, a colonial outpost of the VOC at Saldanha Bay, Cape. South African Archaeological Bulletin 44:105-113.

Schrire, C., Deetz, J., Lubinsky, D. & Poggenpoel, C. 1990. The chronology of Oudepost I, Cape, as inferred from an analysis of clay pipes. Journal of Archaeological Science 17:269-300.

Schrire, C. & Poggenpoel, C. n.d. Colonial fishing practices at Oudepost I, a Dutch East India Company outpost, Saldanha Bay, Cape.

Schuyler, R. L. 1988. Archaeological remains, documents and anthropology: a call for a new culture history. Historical Archaeology 22:36-42.

Schweitzer, F. R. 1974. Archaeological evidence for sheep at the Cape. South African Archaeological Bulletin 29:75-82.

Schweitzer, F. R. 1979. Excavations at Die Kelders, Cape Province, South Africa: the Holocene deposits. Annals of the South African Museum 78:101-233.

Schweitzer, F. R. & Wilson, M. L. 1982. Byneskranskop 1: a late Quaternary living site in the southern Cape Province, South Africa. Annals of the South African Museum 88:1-203.

Serton, P., Raven-Hart, R., de Kock, W. J. & Raidt, E. H. (eds) 1971. Francois Valentyn : Description of the Cape of Good Hope with matters concerning it. Amsterdam 1726. Part I, Second Series No. 2. Cape Town: Van Riebeeck Society.

Silver, I. A. 1969. The ageing of domestic animals. In: Brothwell, D. & Higgs, E. (eds) Science in archaeology: 283-302. London: Thames and Hudson.

Skead, C. J. 1980. Historical mammal incidence in the

Cape Province. Volume 1. Cape Town: Department of Nature and Environmental Conservation of the Provincial Administration of the Cape of Good Hope.

Sleigh, D. 1987. Die buiteposte in die ekonomie van die Kaapse verversingstasie 1652-1795. Unpublished Ph.D. dissertation: University of Stellenbosch.

Smith, A. B. 1984a. Environmental limitations on prehistoric pastoralism in Africa. African Archaeological Review 2:99-111.

Smith, A. B. 1984b. Adaptive strategies of prehistoric pastoralism in the south-western Cape. In: Hall, M., Avery, G., Avery, D. M., Wilson, M. L. & Humphreys, A. J. B. (eds) Frontiers: Southern African archaeology today: 131-142. Oxford: British Archaeological Reports International Series 207.

Smith, A. B. 1986. Competition, conflict and clientship: Khoi and San relationships in the Western Cape. South African Archaeological Society Goodwin Series 5:36-41.

Smith, A. B. 1987a. The economics of prehistoric herding at the Cape. Cape Town: Unpublished Final Project Report to the Human Sciences Research Council.

Smith, A. B. 1987b. Seasonal exploitation of resources on the Vredenburg Peninsula after 2000 BP. In: Parkington, J. E. & Hall, M. (eds) Papers in the prehistory of the western Cape, South Africa: 393-402. Oxford: British Archaeological Reports International Series 332.

Smithers, R. H. N. 1983. The mammals of the southern African subregion. Pretoria: University of Pretoria.

Thom, H. B. 1936. Die geskiedenis van die skaapboerdery in Suid-Afrika. Amsterdam: Swets and Zeitlinger.

Thom, H. B. (ed.) 1942. Willem Stephanus van Ryneveld se aanmerkingen over de verbetering van het vee aan de Kaap de Goede Hoop. 1804. Cape Town: Van Riebeeck Society 23.

Thom, H. B. (ed.) 1952. Journal of Jan van Riebeeck. Volume I: 1651-1655. Cape Town, Amsterdam: Balkema.

Thom, H. B. (ed.) 1954. Journal of Jan van Riebeeck. Volume II: 1656-1658. Cape Town, Amsterdam: Balkema.

VOC 4004 Overgekomen brieven en papieren van Kaap de Goede Hoop 1669. Folie 558-652. Journal and ledger of the storehouse. Algemeen Rijksarchief.

VOC 4098 Register der brieven en papieren van de Caap overgekomen, 1726. 1725-1726. Eerste deel. Folie 309. Lijste van t'verstrekte vers vleesch aan Comps. passeerende schepen, Hospitalen etc. zedert Po. Februarie 1725 tot Ulto, January 1726. Algemeen Rijksarchief.

Von den Driesch, A. & Deacon, H. J. 1985. Sheep remains from Boomplaas Cave, South Africa. South African Archaeological Bulletin 40:39-44.

Wolf, E. R. 1982. Europe and the people without history. Berkeley: University of California Press.

# LINKED CITATIONS





**Analysis of Faunal Remains from Oudepost I, an Early Outpost of the Dutch East India Company, Cape Province**

Kathryn Cruz-Uribe; Carmel Schrire
*The South African Archaeological Bulletin*, Vol. 46, No. 154. (Dec., 1991), pp. 92-106.
Stable URL:
http://links.jstor.org/sici?sici=0038-1969%28199112%2946%3A154%3C92%3AAOFRFO%3E2.0.CO%3B2-C

---



## References

**History and Archaeological Theory: Walter Taylor Revisited**
James Deetz
*American Antiquity*, Vol. 53, No. 1. (Jan., 1988), pp. 13-22.
Stable URL:
http://links.jstor.org/sici?sici=0002-7316%28198801%2953%3A1%3C13%3AHAATWT%3E2.0.CO%3B2-T

**A Reconsideration of Animal Body-Part Utility Indices**
Duncan Metcalfe; Kevin T. Jones
*American Antiquity*, Vol. 53, No. 3. (Jul., 1988), pp. 486-504.
Stable URL:
http://links.jstor.org/sici?sici=0002-7316%28198807%2953%3A3%3C486%3AAROABU%3E2.0.CO%3B2-F

**Kill-off Patterns in Sheep and Goats: The Mandibles from A#van Kale**
Sebastian Payne
*Anatolian Studies*, Vol. 23, A#van 1968-1972: An Interim Report#. (1973), pp. 281-303.
Stable URL:
http://links.jstor.org/sici?sici=0066-1546%281973%2923%3C281%3AKPISAG%3E2.0.CO%3B2-B