

HISTORY, EXPLORATION, SETTLEMENT AND PAST USE OF THE SUB-ANTARCTIC

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(with six plates)

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Human impacts on the sub-Antarctic islands stem from sealing and whaling, alien species of plants and animals resulting from human incursions (both temporary and permanent), shipwrecks, settlements and weather stations arising from the Second World War, collecting by scientific expeditions, scientific stations and tourism. Many of these factors remain as important issues for the health and maintenance of the sub-Antarctic.

Key Words: human-impact, sub-Antarctic, sealing, whaling, alien species, tourism, weather stations, scientific incursions, shipwrecks.

INTRODUCTION

The definition of the sub-Antarctic islands used here is that of Clark & Dingwall (1985) with one exception. The Falkland Islands are excluded since their extensive development makes it difficult to include them in a general discussion. Heard Island and the McDonald Islands are considered as one entity and Marion and Prince Edward islands as another. This has resulted in 19 islands or island groups.

This paper considers the broad topic of human impact, a big task considering that entire books have been written about individual islands. Comments on human impacts are restricted to the post-European discovery period, but recent evidence from Auckland and Snares islands suggest the possibility of pre-European settlement and activity there (Anderson 2005).

Some claim oral traditions of early Polynesian voyaging to other New Zealand sub-Antarctic islands, but there is no record of any of these traditions in the works of any of the early New Zealand ethnographers — such as Herries, Beattie, Peter Buck or Elston Best (Buck 1954).

European discovery of these islands spans 327 years from 1505 (Gough Island) to 1833 (Heard and McDonald islands). This period corresponded with a significant increase in human activity in the Southern Ocean, much in the early years centred on the search for *Terra Australis Incognita*, the fabled southern land that was supposedly balancing the globe. On more than one occasion these sub-Antarctic islands were thought to be part of that great continent (Headland 1984). Twelve of the 19 islands were discovered in the last 61 years of that period (1772–1833).

If there is one common thread or theme that unites all these islands it was, or is, sealing. Sealing first began in the Southern Hemisphere in the Falkland Islands much earlier in about 1766 (Headland 1984) spreading quickly to the islands off the west coast of South America and from there to the islands being considered. None of the islands or island groups under consideration escaped the impact of sealers.

Three species of fur seal (Antarctic Fur Seal, *Arctocephalus gazelle* (Peters, 1875), Sub-Antarctic Fur Seal, *A. tropicalis* (J.E. Gray, 1872) and New Zealand Fur Seal, *A. forsteri* (Lesson, 1828)) were hunted. Their skins were fetching high prices in China because at this time it was only the Cantonese that knew the furriers' craft of removing

the coarse guard from seal skins to leave the soft inner fur (Busch 1985). The demand for seal skins intensified the search of new rookeries and new islands. Campbell, Macquarie, the South Orkney and South Shetland islands were all discovered by sealers.

The impact of sealing on the seal population was immediate and obvious; entire populations were almost exterminated, killings were indiscriminate — young, old, male and female were killed: The rivalry between gangs meant there was no hope of any conservation measures; any animals left behind by one gang would be slaughtered by the next, or possibly poached by a neighbouring gang. It was a scorched earth or scorched rookery policy (Grady 1986).

Hookers Sea Lions (*Phocarcos hookeri* (Grey, 1844)) were also targeted, although this industry was restricted to Auckland and Campbell islands and the Snares where the animals breed. Sealers were landed on all the islands to be left there for weeks, sometime months, and there are numerous accounts of gangs being marooned for years. Many of them died on the islands either from injury or illness (Grady 1986).

In addition to the basic rations, animals were sometimes landed to provide extra food. Pigs (*Sus scrofa* Linnaeus, 1758) were a popular choice, as they appear to have been easy to keep alive on board the ship. European rabbits (*Oryctolagus cuniculus* (Linnaeus, 1758)) and goats (*Capra hircus* Linnaeus, 1758) were also landed. Pigs and rabbits provided multiple offspring; goats would have provided both meat and milk. Some of these populations survived and established viable populations (Ross 1847). Others soon died out because of the severe climate or through having eaten out all suitable food.

Those populations of introduced animals that did establish had a major impact on the island ecosystems (Micol & Jouventin 2002). For these islands, which had evolved in the absence of browsing animals there was no time to adapt or to change, the impact was immediate (Hooker 1847). Time has lost much of the detail, but there is strong evidence that ships' cats (*Felis catus* Linnaeus, 1758) were probably taken ashore as pets for sealers, as cats were reported ashore soon after discovery of a number of these islands (Johnstone 1985). Whenever they arrived, either with the first or with later sealing gangs, is academic although they certainly had a profound impact, especially on the bird life (Fraser 1986).

Rats (*Rattus rattus* Linnaeus, 1758) and mice (*Mus musculus* Linnaeus, 1758) had a similar effect. The arrival of these onto some of the islands can be dated with, or soon after, the arrival of sealers (Cumpston 1968). For other islands it is not so clear. Some introductions may have resulted from shipwrecks; others may have come with stores unloaded for sealers. However they arrived, based on observations made in 1964 when rats got ashore on Big South Cape Island off the west coast of Stewart Island, the destruction would have been overwhelming (Bell 1978). The availability of food on these islands would have meant that numbers mushroomed and entire species were wiped out. A parakeet and a flightless rail became extinct on Macquarie Island, and sub-fossil bones have now confirmed that a parakeet species that was never reported or recorded was lost from Campbell Island (Holdaway 2005). A flightless duck and storm petrel were lost from Amsterdam Island (Shirihai 2002). Further work from sub-fossil bones from other islands will undoubtedly reveal other extinctions.

The impact from these “first settlers” was not limited to their deliberate or accidental introductions. The sealers supplemented their rations with wildlife from the islands. Those species taken for food included various species of albatross (Cumpston 1968). Eggs, young and adults were taken. Penguin eggs were collected in their thousands (Cumpston 1968). Waterfowl and other species were shot both for food and undoubtedly for sport.

Fur seals became scarce and harder to find, and sealers turned their attention to “oiling” or the extraction of oil from Southern Elephant Seals (*Mirounga leonine* (Linnaeus, 1758)). Because of limitations on the processing of oil, this industry lasted or persisted longer than the taking of fur seals (Cumpston 1968). The animals were killed, the blubber cut off and transported to the try-pots, then rendered down before storing the oil in barrels. It is claimed that a good “fur sealer” could kill and skin 60 animals an hour whereas the processing of elephant seals’ blubber severely limited the number of animals that could be killed at any one time (Cumpston 1968).

Elephant Seal “oiling” was also an industry that required a certain amount of infrastructure and a reasonable amount of capital so relied on individuals or companies to invest a significant amount of money.

As Elephant Seal numbers declined, “oiling” companies looked for other ways to utilise their investment in plant and equipment. On a number of the islands penguins, mainly King Penguins (*Aptenodytes patagonicus* Miller, 1778) but also Royal Penguins (*Eudyptes schlegeli* Finsch, 1876) from Macquarie Island, were processed (pl. 1). Penguin oil was in demand but it was much harder in the very primitive conditions to produce a premium product. Even small amounts of blood mixed with oil meant the product fermented and was unusable (Cumpston 1968).

Whales, which often came close inshore at some islands during migration, were also targeted for their oil (pls 2, 3). Where Southern Right Whales (*Eubalaena australis* (Desmoulins, 1822)) bred in the sheltered harbours, whalers established themselves on shore and hunted using longboats (Grady 1986). This form of whaling was later referred to as “Bay Whaling”. Where breeding animals were targeted entire populations were wiped out quickly. As the resources “dried up” or ran out, these “semi-permanent” settlers left the islands in search of their next El Dorado (Grady 1986).

The islands would never be the same; not one of them

was spared the impact from the sealing and oiling era. Those at higher latitude like Heard, Bouvetøya, South Orkneys, South Shetlands and South Sandwich islands fared better than others on account of their extreme weather. Rats, mice and other introduced mammals could not survive in these harsh climates.

After the nomadic and opportunistic sealers and oilers came what are here termed the “Hopeful Immigrants”. Six of these islands or island groups have had permanent settlement at some stage since their discovery. Today, Tristan da Cunha is the only one with a permanent population — about 80 families live on the island. St Paul Island had two periods of permanent occupation from 1843 to 1932. At the peak there were approximately 150 people living on the island employed in the fishing industry (Clark & Dingwall 1985).

The Auckland Islands were settled by two groups of people. Maoris who had migrated from the North Island of New Zealand to the Chatham Islands in 1830s then migrated on to the Auckland Islands in 1845; they were eking out a subsistence living when immigrants of the Enderby Settlement arrived direct from England to establish a colony around farming, whaling and ship repair (Fotheringham 1995). Sadly for the immigrants, the soil and weather were unsuitable for farming, the “Bay Whalers” had killed out the whales, and there was virtually no ship-based whaling left in the Southern Ocean — consequently there were no ships to repair. The Enderby Settlement folded after just three years; many of the Maoris who had become integrated into the colony left at the same time; others chose to remain. The last of these departed in 1855 (Dingwall *et al.* 1999).

Campbell Island was advertised as a pastoral run in 1895 and it was stocked with sheep and cattle. The lease changed hands and stock numbers were increased. At its peak the island carried 4,000 head of stock. Isolation, falling wool prices and increased shipping costs in the 1930s meant it was no longer economical and it was abandoned in 1932 (Kerr 1978).

When Kerguelen Island was finally annexed by the French in 1893 a 50-year sealing/whaling and farming licence was issued. This station operated from 1908 to 1925. Stock were introduced to this island and neighbouring Amsterdam Island but were abandoned on Amsterdam as it proved too difficult to work (Clark & Dingwall 1985).

South Georgia Island was first settled in 1904 when a permanent whaling station was established at Grytviken (pl. 4). Another five whaling stations were to be built on the island. Leith Harbour Station was the last to close — in December 1965 (Headland 1984).

Permanent settlement of these islands only compounded the impact that had begun with the sealers. Stock, including cattle, sheep, reindeer and rabbits were introduced. The husbandry of this stock meant managing the environment. In many instances fires were deliberately lit to modify or attempt to improve the pasture (Kerr & Judd 1978). A number of introduced plants now occur on many of these islands (Clark & Dingwall 1985). It is impossible to list them all here but three (*Poa annua* L., *Stellaria media* (L.) Vill. (or chickweed) and *Sonchus oleraceus* L. (or soft thistle)) are widespread. How they arrived, or when, at individual islands can only be speculated — but as soils became disturbed seeds from these and other species became established.

Forest once covered 27% of Amsterdam Island but large fires, some of them lasting months, reduced this to just 5% (Shirihai 2002). Fires killed ground-nesting birds especially

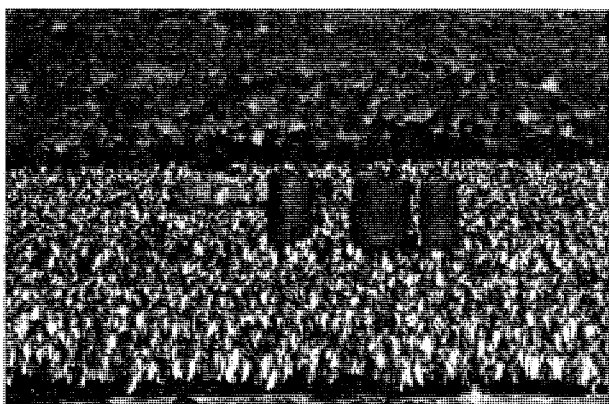


PLATE 1
Digesters, Lusitania Bay, Macquarie Island

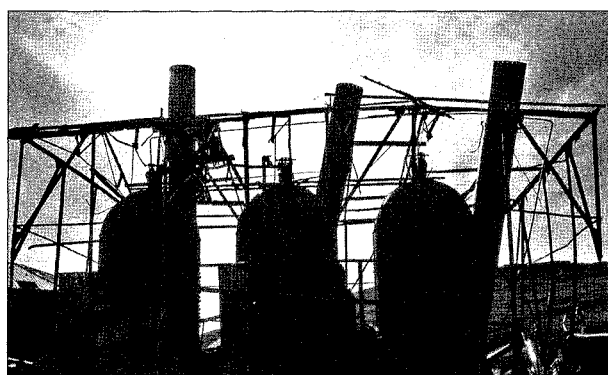


PLATE 2
Whaling Station, Port Jeanne d'Arc, Grand Terre, Îles Kerguelen

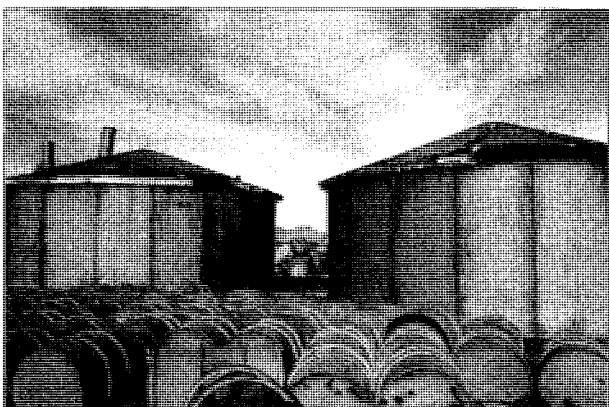


PLATE 3
Whaling Station, Port Jeanne d'Arc, Grand Terre, Îles Kerguelen

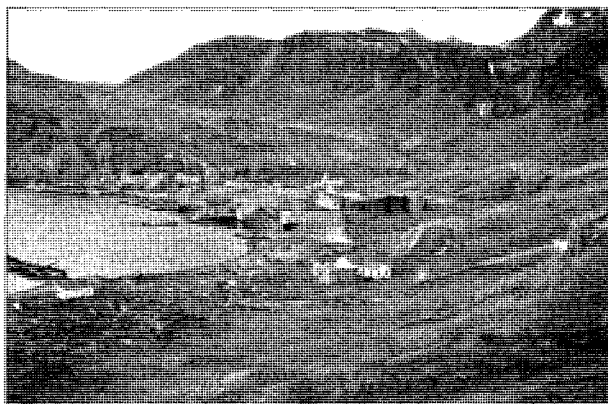


PLATE 4
Grytviken Whaling Station, South Georgia

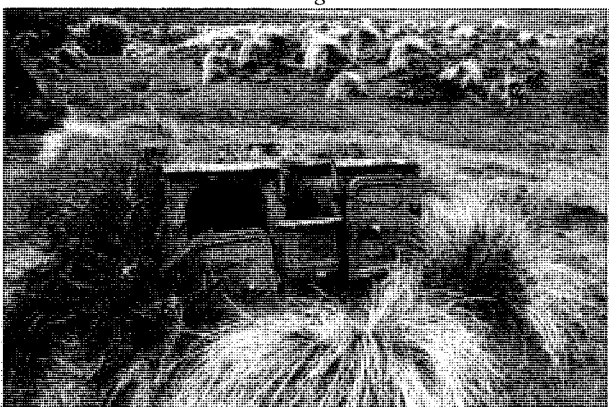


PLATE 5
Stove, Homestead Cove, Campbell Island



PLATE 6
Plough, Homestead Cove, Campbell Island

albatrosses and giant petrels. Fire also removed important ground cover, allowing skuas and other predators access to seabird burrows — increasing predation on those species that had survived the arrival of the cats and rats (Clark & Dingwall 1985).

Cultivated grasses were introduced and stock was controlled by fencing. This often resulted in overgrazing of some areas and trampling of fragile areas where seabirds had previously nested (Dingwall & Gregory 2004). Settlers brought domestic pets, including dogs (*Canis familiaris* Linnaeus, 1878) and cats, and descendants of these would have added to the gene pool of those abandoned earlier. Rats and mice often accompanied these settlers either on ships

or in their equipment. Where the species already existed on these islands they added to the existing gene pool, or otherwise established new populations (Taylor 1968).

In most instances these permanent settlements did not last long and were abandoned, South Georgia being the exception. Often the last settlers to leave simply shut the door and walked away, leaving behind vast amounts of machinery and equipment (Headland 1984) (pls 5, 6). In contrast, the settlers at the Auckland Islands took everything with them — it was sold in Sydney to try and pay off some of the debts of the settlement. On all the islands, the bulk of what was left behind by these settlers will simply rust or rot away — or occasionally be restored as a reminder of a bygone era.

These “Hopeful Immigrants” weren’t the last of the settlers. Another five groups have impacted and continue to impact islands in some way or another.

More than 50 ships were wrecked on these islands. Some of the survivors spent months or even years on the islands before being rescued, many of them surviving on what food they could catch. Penguin eggs, albatross and albatross eggs were taken. Governments placed castaway depots on some of these islands, regularly re-supplied them with food, and in many instances liberated stock and planted seeds as food for potential castaways (Fraser 1986).

The Second World War highlighted the strategic importance of these isolated islands. Weather stations were established on some; others were occupied to prevent them falling into the hands of the enemy and coast watchers were placed on others. Wherever permanent populations were established there was an impact (McEwen 2006).

Numerous scientific expeditions have called at all these islands at various times. Some visits have lasted a few hours, others months. Some of the earliest expeditions predate sealing (Cumpston 1968). The impacts of these expeditions cannot be ignored but they are harder to measure. However, there was a period when “collecting” museum specimens was acceptable and profitable. Significant sums of money were paid for the right species. Collecting probably contributed to the extinction of the Auckland Island Merganser (Williams & Weller 1974). Today the impact of scientific expeditions may not be as dramatic as collecting a species to extinction. It might be a subtle transfer of minute organisms or seeds from one island to another or from the port of departure.

Of the 19 islands or island groups under consideration excluding Tristan da Cunha, nine have permanent scientific stations. The largest is the French base at Kerguelen Island with a summer population of around 120 people. All the others with the exception of the Bounties have some form of scientific camp or hut which is visited periodically, mostly on an annual basis.

Tourism is not a new phenomenon in the sub-Antarctic islands. There has always been a strong interest in the islands. Because it is hard to define when a person is a tourist and when they are not, it is impossible to say when tourism started, or who started it. The New Zealand government steamer was carrying tourists as early as the 1890s (Richardson 1890). However, the modern era is generally accepted as starting in the late 1960s with Lars-Eric Lindblad (Fraser 1986). As almost all sub-Antarctic tourism has been ship-based it is difficult to quantify its impact apart from noting that it would certainly have had some impact.

None of the sub-Antarctic islands or the island groups considered here has had continuous human occupation from discovery to the present day. All, without exception, show some impacts of human presence. Only now is the story of their discovery and of the impact of people upon these islands being researched and told.

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