

# Dr. George Murray Levick (1876–1956): unpublished notes on the sexual habits of the Adélie penguin

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**ABSTRACT.** A previously unpublished four-page pamphlet by Dr. George Murray Levick R.N. (1876–1956) on the ‘Sexual habits of the Adélie penguin’ was recently rediscovered at the Natural History Museum (NHM) at Tring. It was printed in 1915 but declined for publication with the official expedition reports. The account, based upon Levick’s detailed field observations at Cape Adare (71°18’S, 170°09’E) during the course of the British Antarctic (*Terra Nova*) Expedition 1910, commented on frequency of sexual activity, autoerotic behaviour, and seemingly aberrant behaviour of young unpaired males and females including necrophilia, sexual coercion, sexual and physical abuse of chicks, non-procreative sex and homosexual behaviour. His observations were however accurate, valid and, with the benefit of hindsight, deserving of publication. Here we publish the pamphlet in its entirety, reinterpret selected observations and comment on its significance as a forgotten work by the pioneer of research on Adélie penguin *Pygoscelis adeliae* (Hombron and Jacquinot 1841) biology.

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## Introduction

Dr. George Murray Levick, Surgeon R.N. (1876–1956), published two important accounts of the Adélie penguin *Pygoscelis adeliae* (Hombron and Jacquinot 1841) during his lifetime. As surgeon and officer on the British Antarctic (*Terra Nova*) Expedition, 1910, his position gave him considerable opportunity to study Adélie penguins at the four Victoria Land colonies (known in Levick’s day and up to the 1960s as ‘rookeries’) that he visited: firstly, Cape Royds (77°34’S, 166°11’E) in January 1911, then extensive studies at Cape Adare (71°18’S, 170°09’E) from mid February 1911 to early January 1912, which included a short visit to Duke of York Island (71°37’S, 170°02’E) in October 1911, and lastly brief observations at Evans Cove on Inexpressible Island (74°53’S, 165°45’E) in February 1912.

Levick was one of the six members of the ‘Northern Party’ led by Lieutenant Victor L.A. Campbell, R.N. (1875–1956). Originally named the ‘Eastern Party’, they were initially charged with scientifically researching and exploring King Edward VII Land, a large, ice-covered peninsula that forms the north-western extremity of Marie Byrd Land and, projecting into the ocean between Sulzberger Bay and the northeast corner of the Ross Ice Shelf, the eastern boundary of the Ross Sea. After finding Roald Amundsen’s South Pole expedition (1910–1912) encamped at the natural ice harbour at the Bay of Whales, Campbell’s party was hastily re-named the ‘Northern Party’, with the equally scientific aim of exploring the coast westward of Cape North (Lambert 2004; Hooper 2010). This was undoubtedly one of the most important endeavours of the entire British Antarctic Expedition and

included a wide range of investigations by Campbell (surveying and magnetic observations), Levick (photographer and zoologist) and Raymond E. Priestley (1886–1974) (geology, microbiology and meteorology). They were ably assisted by their three ‘adaptable helpers’: Petty Officer George P. Abbott, R.N. (d. 1926), Petty Officer Frank V. Browning, R.N., and Seaman Harry Dickason, R.N. (1885–1943).

The Northern Party arrived at Ridley Beach, Cape Adare, Victoria Land (the north westernmost point of the Ross Sea), on 13 February 1911. They remained to study the area for 11 months through the following winter and summer, until they were retrieved by *Terra Nova* on 3 January 1912. Following a ten-day sledging trip from 4–14 October 1911, Levick spent much of the twelve weeks that preceded their departure from Cape Adare in the midst of the Adélie penguin colony, now known to be the largest in the world for this species, taking photographs and detailed notes. These notes, his photographs (NHMUK DF211/93) and nine Adélie penguin skins (NHMUK 1916.6.20.38–45, 1916.6.20.125) collected by Levick in November and December 1911, remain an important source of information regarding the colony at Cape Adare in the period. Levick wrote a detailed two volume daily account of his zoological observations at Cape Adare now held in a private collection. Vol. I: ‘Zoological notes from Cape Adare’ covers the period from their arrival at Ridley Beach until 9 December 1911 whilst Vol. II: ‘Zoological notes from Cape Adare’ covers 12 December–31 December 1911 (Levick 1911). Both these unpublished volumes (hereafter referred to as notebooks) measure 26 cm × 21 cm and comprise in

total 125 pages of tightly written script, the majority of which is devoted to observations at the Adélie colony at Cape Adare from the arrival of the first penguin on 13 October to the last entry on 31 December 1911. The notebooks contain his day to day scientific observations on all matters zoological and are rich in detail. Many observations are purely scientific in their focus, but even his peripheral remarks are informative. For example, in describing the size of the colony, Levick wrote on 22 October 1911:

it would be difficult to estimate the number that poured into the rookery today, imagine a backwoodsman arriving suddenly in the midst of 20 square miles of Hampstead Heath on a bank holiday or of Epsom Downs on Derby Day would be comparatively placid with these little pilgrims [sic] (Levick 1911).

This aside is perhaps more telling than it might seem on face value. A fair has been held on Hampstead Heath since the late 19th century, traditionally over Easter and other bank holidays. It was extremely popular at the time: 30,000–50,000 people often attended a bank holiday fair. Yet in 1910, a few months before *Terra Nova* left for the Antarctic on 15 June, attendance records had been famously broken on Easter Monday when an estimated 200,000 people visited the fair (Elrington 1989). The most recent published estimates of the Cape Adare colony being 272,338 pairs in 1988, decreasing to 169,200 pairs in 1990 (Woehler and Croxall 1997).

The notebooks were used as the basis for the accounts Levick published on his return. *Antarctic penguins – a study of their social habits* (Levick 1914) was a behavioural account, intended for a general audience. It deals mostly with the Adélie penguin, with short accounts of McCormick's skua *Megalestris maccormicki* (= *Stercorarius maccormicki* Saunders, 1893) and emperor penguin *Aptenodytes forsteri* G.R. Gray, 1844 at the end. The book was well-received and the American ornithologist, Witmer Stone's, review illustrates how widely accepted the anthropomorphised view of Adélie penguins was:

the book is unique, and will appeal to all ornithologists, whether their specialty be, habits, behaviour, oölogy or photography – as well as to the public at large for whom these strange, erect, man-like little birds have a strange fascination (Stone 1915).

Levick's second publication, 'Natural history of the Adélie penguin' (1915), was a more scientific account, produced for the expedition's official reports. Like its predecessor, it contained copious notes on Adélie social behaviour. Both these accounts made repeated, ill-defined reference to the behaviour of non-breeding wanderers, young inexperienced breeders and experienced unpaired males (all nebulously termed 'Hooligan Cocks' by Levick):

Whilst the chicks are small the two parents manage to keep them fed without much difficulty; but as one of them has always to remain at the nest to keep the chicks warm, guard them from skuas and hooligan cocks, and prevent them from straying, only one is free to go for food' (Levick 1914: 96).

Twice already I have mentioned that strayed chicks fall a prey to 'hooligan' cocks. These hang about the rookery often in little bands. At the beginning of the season there are very few of them, but later they increase greatly, do much damage, and cause a great deal of annoyance to the peaceful inhabitants. The few to be found at first probably are cocks who have not succeeded in finding mates, and consequently are 'at a loose end.' Later on, as their numbers are so greatly increased, they must be widowers, whose mates have lost their lives in one way or another.

Many of the colonies, especially those nearer the water, are plagued by little knots of 'hooligans' who hang about their outskirts, and should a chick go astray it stands a good chance of losing its life at their hands. The crimes which they commit are such as to find no place in this book, but it is interesting indeed to note that, when nature intends them to find employment, these birds, like men, degenerate in idleness (Levick 1914: 97–98).

As time went on, and the proportion of unmated to mated birds became smaller and smaller, the cocks watched each other more jealously, and began to go about in little batches in consequence, squabbling and fighting continually and hindering each other in the quest for mates (Levick 1915: 60)

Levick never elaborated further on this issue in print and never again published an ornithological text. He did maintain an interest in ornithology, exploring and collecting throughout his life. It is also clear that he kept up his links with the staff at the Natural History Museum (NHM); as the founder and president of the Public Schools Exploring Society he arranged for Charles Darwin's great grandson, Richard Darwin Keynes, to have taxidermy lessons on birds at the NHM in the 1930s in preparation for expeditions to Lapland and Newfoundland (Levick 1936).

It was not until the latter half of the 20th century that the breeding biology of the Adélie penguin would be described in more detail, for example by Sladen (1958) and Taylor (1962). However, a complete, but previously unpublished printed paper by Levick, entitled 'The sexual habits of the Adélie penguin', was recently rediscovered in the reprints section of the Bird Group at the NHM. Printed in February 1915, it was excised from the final published version of 'Natural history of the Adélie penguin' (1915), probably due to what was, for the times, challenging and graphic content. The account is extremely interesting and, in his own words, reveals the behaviour that Levick alluded to but never described in his other publications. The then Keeper of Zoology at the NHM, Sidney Frederick Harmer (1862–1950), wrote to the then curator of birds, William Robert Ogilvie-Grant (1863–1924), on 6 February 1915 stating:

Sexual habits. We will have this cut out and some copies printed for our own use. How many should we want?' (NHMUK DF200/62/7)

The immediate answer, circled for clarity, was for '100'. Consequently one hundred four-page pamphlets (typescript 23cm x 31cm, folded sheet giving 4 pages) were apparently printed; each with the bold header '**Not for Publication**'. Of these, almost all the original copies have seemingly been lost, or destroyed, as only two have currently been found. Another of the 98 original copies may come to light in future as some were certainly distributed, for example Lionel Walter Rothschild's (1868–1937) personal copy of the *British Antarctic ('Terra Nova') Expedition, 1910. Natural History Report – ZOOLOGY. Vol. I*, in the Ornithology Library, NHM, includes a copy of 'Sexual habits' inserted between pages 84–85.

As far as we have been able to establish, the observations in the pamphlet have never been referred to in any subsequent work on Adélie penguins. The single remaining unbound pamphlet is now preserved in the Ornithology Library at the NHM (MSS. LEVICK) and is reproduced in its entirety as Appendix 1.

The pamphlet concentrated on observations of sexual behaviours in Adélie penguins at Cape Adare in 1911 and comments on frequency of sexual activity, autoerotic behaviour, and most notably, seemingly aberrant behaviour of young unpaired males and females including necrophilia, sexual coercion, sexual and physical abuse of chicks, non-procreative sex and homosexual behaviour. It is clear that Harmer was not the only person concerned about the wider availability of such information; Levick himself was equally cautious. References to these observations in the notebooks have often been coded by his rewriting certain entries on these behaviours using the Greek alphabet and then pasting this new text over the original entry (Fig. 1), whilst some entries were written directly in the Greek alphabet. Such coded entries are found in his notebooks on 17 October, 25 October, 10 November and the 5 December 1911. These correspond to the events described in his 'Sexual Habits' pamphlet (Appendix 1), for example on 10 November 1911, Levick wrote in his notebook:

Θις αφτερνοον ι σαυ α μοστ εχτραορδιαρι  
σιτε. α πενγγυιν υας ακτυαλλι ενγαγεδ ιν  
σοδομι υπον θε βοδυ οφ α δεαδ υιατε θροατεδ  
βιρδ οφ ιτς ους σπεσιεζ. Θε ακτ οσυρεδ α  
φυλλ μινυτε, θε ποσιτιον τακεν υπ βυ θε κοχ  
διφφερινγ ιν νο ρεσπεκτ φρομ θατ οφ ορδιναρι  
κοπυλατιον, ανδ θε υολε ακτ υας γονε θρου,  
δουν το θε φιναλ δεπρεσσιον οφ θε χλοακα

[This afternoon I saw a most extraordinary site [sic]. A Penguin was actually engaged in sodomy upon the body of a dead white throated bird of its own species. The act occurred a full minute, the position taken up by the cock differing in no respect from that of ordinary copulation, and the whole act was gone through down to the final depression of the cloaca]

However, not every entry on sexual behaviour in the notebooks is coded, for example on 17 December 1911 he wrote 'copulation is still of common occurrence and

frequently takes place on nests with two chicks hatched out'. Use of the Greek alphabet to encode entries is inconsistently applied but the reasoning behind this is unclear. For example, whilst his 10 November observation in the notebook was encoded, a situation he witnessed 26 days later (6 December), which he clearly found equally shocking, was openly recorded in English in the notebook:

I saw another act of astonishing depravity today. A hen which had been in some way badly injured in the hindquarters was crawling painfully along on her belly. I was just wondering whether I ought to kill her or not, when a cock noticed her in passing, and went up to her. After a short inspection he deliberately raped her, she being quite unable to resist him.

This observation, lacking date and the emotive term 'raped' (though clearly implied), is reproduced almost verbatim in 'Sexual habits' (Appendix 1). His full account of the incident in his notebook clearly shocked him and forced him to conclude the entry with: 'There seems to be no crime too low for these Penguins'.

Levick's observations of sexual behaviour of the Adélie penguins at Cape Adare are unusual in their focus. He made no in depth attempt to interpret or explain them; indeed he largely dismisses them as 'depraved'. This is understandable in the context of the age, and the subsequent decision not to include them in the main scientific publication suggests an inability of the science of the period to either acknowledge or interpret the behaviour. However, the very fact that Levick recorded the behaviour and submitted an account of it for publication is interesting; his position and training as a medical surgeon, and his under-employment in that role, may have permitted him to record objectively behaviours that others may not have wished or indeed had time to reveal.

Zoologists are certainly now more free to publish on these allegedly unusual behaviours than in Levick's time, for example same-sex sexual behaviour has now been widely documented in animals (Bagemihl 1999; Bailey and Zuk 2009; Poiani 2010).

All the 'sexual habits' Levick notes in the pamphlet (Appendix 1) are explicable in the context of a modern understanding of behaviour. Although Levick included the coded 10 November entry from his notebook in the 'Sexual habits' pamphlet, his later reaction to having seen a live Adélie interacting sexually with a dead conspecific remained one of unmitigated revulsion rather than objective analysis. His write up in the pamphlet (Appendix 1) continued to interpret the behaviour as depraved, that is immoral or corrupt, rather than attempting any form of behavioural analysis. Yet the behaviour is clearly not analogous to necrophilia in the human context, that is a paraphilia characterised by a sexual attraction to corpses. For example, writing about a field observation of similar conspecific behaviour in the 13-striped ground squirrel *Citellus tridecemlineatus* [= *Ictidomys tridecemlineatus* (Mitchill, 1821)], Dickerman (1960) termed the behaviour 'Davian behaviour complex' and speculated that

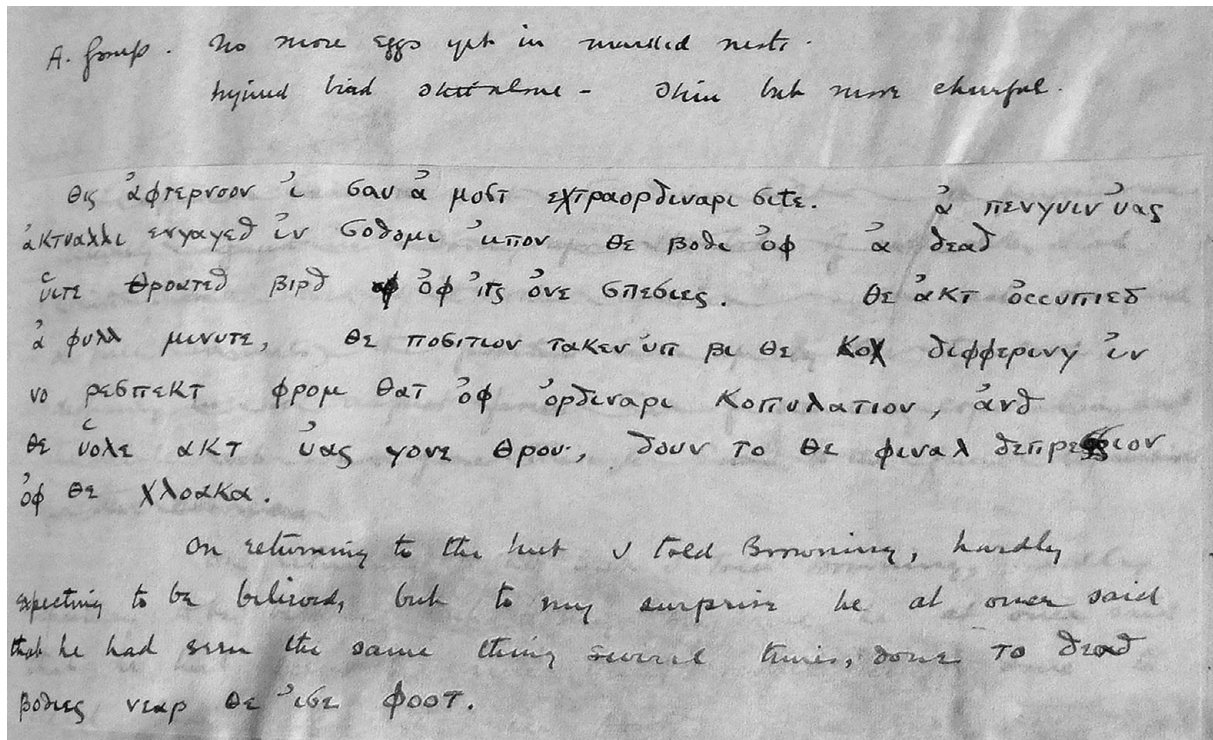


Fig. 1. Detail of entry from Vol. I of G.M. Levick's 'Zoological notes from Cape Adare' on 10 November 1911 showing coded reference in the Greek alphabet.

the dead female's positioning released the copulatory drive in the male, which at that point in the breeding season had a low stimulus threshold for the act. Such behaviour in birds has since been noted in European swallow *Hirundo r. rustica* Linnaeus, 1758 (Libois 1984), mallard *Anas p. platyrhynchos* Linnaeus, 1758 (Lehner 1988; Weston 1988; Moeliker 2001), sand martin *Riparia r. riparia* (Linnaeus, 1758) (Dale 2001), grey-backed sparrow-lark *Eremopterix verticalis* (Smith, 1836) and Stark's lark *Calandrella starki* [= *Eremalauda starki* (Shelly, 1902)] (Ryan 2008).

It was the very predictability of many of these sexual behaviours, interpreted by Levick as depraved, that allowed Ainley (1974a, 1974b, 1978) to study non-breeding individuals of Adélie penguin at the Cape Crozier colony 1968–1976. After witnessing similar behaviour to that noted by Levick, Ainley devised a manipulative experiment to record the behaviour of lone males when a dead penguin, frozen into the position assumed by females during copulation, was placed in a nest. The releasing display on the part of a female who is receptive to copulation is to lie in the nest in a submissive posture (feathers sleeked, eyes not widely opened). Ainley (1978) found that breeding males, prior to pairing, or older non-breeders acted directly on the dead penguin model; either copulating with it or attempting to expel it from the nest. Younger non-breeding males were likely to display but otherwise act less directly, whereas older males at this point in the breeding season appear to find any bird in such a position, be it a chick, injured, of the same sex or, as in this case, dead, irresistible. The behaviour

is so fixed that when, in the course of the experiment mentioned, the dead penguin model became damaged by repeat deployments, it was found that just the frozen head of the penguin, with self-adhesive white 'O's' for eye rings, propped upright on wire with a large rock for a body, was sufficient stimulus for males to copulate and deposit sperm on the rock. The amount and viability of that semen was related by Ainley to the penguin's age in order to assess the progression of physiological maturity (not achieved in males until age 4 years, or later).

Levick was the pioneer of research on Adélie penguin biology and his observations were accurate, valid and, with the benefit of hindsight, deserving of publication. We have since reinterpreted the behaviours that he noticed, but all those researchers who have come after him owe him appreciation for making them. He remains the only person to have published on the colony at Cape Adare, the largest of all the Adélie penguin colonies. Had he had a longer study period, easier conditions in which to work and the benefits of studying banded birds of known age, he might have been afforded the opportunity of interpreting his observations in more depth. Nevertheless, it seems appropriate that nearly a century later, his observations, as he intended them to be read, should be fully available to the scientific community

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### References

- Ainley, D.G. 1974a. Development of reproductive maturity in Adélie penguins. In: Stonehouse, B. (editor). *The biology of penguins*. London: Macmillan: 139–157.
- Ainley, D.G. 1974b. Displays of Adélie penguins: a re-interpretation. In: Stonehouse, B (editor). *The biology of penguins*. London: Macmillan: 503–534.
- Ainley, D.G. 1978. Activity patterns and social behavior of non-breeding Adélie penguins. *Condor* 80:138–146.
- Bagemihl, B. 1999. *Biological exuberance*. New York: St. Martin's Press.
- Bailey, N.W., and M. Zuk. 2009. Same-sex sexual behavior and evolution. *Trends in Ecology and Evolution* 24(8): 439.
- Dale, S. 2001. Necrophilic behaviour, corpses as nuclei of resting flock formation and road kills of sand martins *Riparia riparia*. *Ardea* 89(3): 545–547.
- Dickerman, R. 1960. 'Davian behavior complex' in ground squirrels. *Journal of Mammology* 41(3): 403–404.
- Elrington, C.R. (editor). 1989. Hampstead: Hampstead Heath. In: *A History of the County of Middlesex*: Vol. 9. Hampstead: Paddington. London, Institute of Historical Research: Oxford University Press: 75–81.
- Hooper, M. 2010. *The longest winter: Scott's other heroes*. London: John Murray.
- Lambert, K. 2004. *The longest winter: the incredible survival of Captain Scott's lost party*. Washington: Smithsonian Books.
- Lehner, P.N. 1988. Avian davian behavior. *The Wilson Bulletin* (Wilson Ornithological Society) 100(2): 293–294.
- Levick, G.M. 1911. *Zoological notes from Cape Adare*. Unpublished handwritten manuscript 2 vols. (Private Collection).
- Levick, G.M. 1914. *Antarctic penguins – a study of their social habits*. London: William Heinemann.
- Levick, G.M. 1915. Natural history of the Adélie penguin. In: *British Antarctic ('Terra Nova') Expedition, 1910. Natural history report – zoology*. London: British Museum, Natural History: 55–84.
- Levick, G.M. 1936. Letter to N.B. Kinnear, 24 December 1936. London: Public Schools Exploring Society Manuscript Collection. Tring: Natural History Museum.
- Libois, R.M. 1984. Observation d'une hirondelle (*Hirundo rustica*) necrophile. *Aves* 21(1): 57.
- Moeliker, C.W. 2001. The first case homosexual necrophilia in the mallard. *Anas platyrhynchos*. *Deinsea* 8: 243–247.
- Poiani, A. 2010. Animal homosexuality: a biosocial perspective. Cambridge: Cambridge University Press.
- Ryan, P. 2008. Dead sexy: road mortality and necrophilia in Namib larks. *Africa Birds and Birding* 13(2):15.
- Sladen, W.J.L. 1958. The Pygoscelid penguins. I–Methods of study. II–The Adélie penguin. London: HMSO (Falkland Islands Dependencies Survey scientific reports 17. plates I–XII): 97.
- Stone, W. 1915. Levick's *Antarctic penguins*. *Auk* 32: 372–373.
- Taylor, R.H. 1962. The Adélie penguin, *Pygoscelis adeliae*, at Cape Royds. *Ibis* 104:176–204.
- Weston, M. 1988. Unusual behaviour in Mallards. *Vogeljaar* 36(6): 259.
- Woehler, E. J. and J.P. Croxall. 1997. The status and trends of Antarctic and sub-Antarctic seabirds. *Marine Ornithology* 25: 43–66.

Appendix 1. 'Sexual habits of the Adélie penguin' by G.M. Levick.

**[Not for Publication.]**  
BRITISH MUSEUM (NATURAL HISTORY).

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## THE SEXUAL HABITS OF THE ADÉLIE PENGUIN.

BY STAFF-SURGEON G. MURRAY LEVICK, R.N.

[The following account is based on observations made by Dr. Levick at Cape Adare during the course of the British Antarctic (*Terra Nova*) Expedition, 1910. It was printed in February 1915, but it has not been published.]

ON their arrival at the rookery pairing takes place among the penguins, in the manner I have described elsewhere.

Mated couples copulate very frequently; sometimes more than once a day, not only before the eggs have been laid, but for long after, and I have seen a cock copulating with a hen as she sat on her two eggs on the nest, and later, after the chicks were well grown.

It is evident that in a vast rookery such as that, at Cape Adare, when comparatively few unmated birds are left, many of these, scattered in that great crowd, may seek one another for many days, and that some, perhaps, never meet at all.

Owing, no doubt, to the fact that the season had arrived when their sexual functions were at the height of their activity, and in part to the sights and sounds which surrounded them constantly, cocks were often seen whose passions seemed to have passed beyond their control. Sometimes we saw these birds, after walking some distance, apparently in the vain search for hens, stand motionless and rigid upon the ground, then stiffening themselves, assume the attitude and go through the motions characteristic of the sexual act, in some cases actually ejecting their semen on to the ground.

This, however, was the least depraved of the acts which we saw. Strewn about all Antarctic rookeries are the dead bodies of many hundreds of penguins, from the adult to the newly-hatched chick, which have succumbed for various reasons during previous years.

Owing to the low temperature prevailing, these bodies are preserved in good condition for a long time, several years passing in many cases before they lose their fresh appearance, whilst many of those that have died the year before are still preserved in good plumage.

On November 10th, i.e. when the season was already a month advanced, I saw a cock engaged in the sexual act upon the dead body of a white-throated Adélie of the previous year. This took somewhat over a minute, the position taken up by the cock differing in no way from that of normal copulation, and the whole act was gone through, down to the final depression of the cloaca and emission of semen.

On returning to the hut I told one of my companions what I had seen, and to my surprise he at once said that he had on several occasions seen the same thing done to dead bodies along the ice-foot. Later on, this sight was by no means uncommon.

As the season advanced, the number of unmated cocks increased to a great extent, partly from the reasons already given, partly owing to the large number of homes now being broken up owing to accidental destruction of the eggs, depredations of Skuas, etc., and also in a large measure to the ravages of the Sea-leopards gathered in the sea in the vicinity of the rookery. These unmated cocks congregate in little "hooligan" bands of half a dozen or more, and hang about the outskirts of the knolls, whose inhabitants they annoy by their constant acts of depravity.

I have said that cramp or some sort of paralysis occasionally attacks the penguins after they have been in the sea.

One day I was watching a hen painfully dragging herself across the rookery on her belly, using her flippers for propulsion as her legs trailed uselessly behind her.

As I was just wondering whether I ought to kill her or not, a cock, seeing her pass, ran out from the outskirts of a neighbouring knoll and went up to her. After a short inspection he deliberately copulated with her, she being, of course, quite unable to resist him. He had hardly left her before another cock ran up, and, without any hesitation, tried to mount her. He fell off at first, and then, desisting, stole two stones from neighbouring nests, dropped them one after the other in front of her, after which he mounted and performed the sexual act.

When he had gone, the poor hen struggled on about twenty yards, and then another cock ran up to her, and was just going to do the same thing when a fourth came up and fought him, driving him away, and afterwards did as the others had done.

After this, the hen, who now seemed much more lively, struggled on, and had gone about ten yards further, when no less than three more cocks gave chase, all trying to climb on to her at once, but this ended in a short fight, after which they went their several ways.

The hen lay still, doubtless being much in need of rest and as the poor thing evidently knew her way, and was making in a straight line, I left her, deciding that she might recover if she reached her own nest.

Commander Campbell, whom I called up, witnessed the above scene with me.

Later on, I went out and found the hen again. She was much better, and able to stand up and hobble about on her legs. Her back, I am sorry to say, bore signs of further indignities, though she was for the time in peace.

When the chicks are young, the parents take great pains to keep them on their own nests, though occasionally they stray and lose their lives as a result. Very often they suffer indignity and death at the hands of the hooligan cocks, the waste of life resulting from this being very considerable. Frequently we saw strayed chicks sexually misused by these hooligans, some of them being crushed to such an extent that they died in consequence.

On one occasion one of the two chicks which were with their mother on a nest strayed away a short distance, and was at once caught by a hooligan cock, who misused it before the very eyes of its parent. The latter kept to her nest and the other chick

whilst this took place, and when the strayed chick escaped from the cock and ran back to her, she would have nothing to do with it., pecking it whenever it attempted to return to the nest. Eventually it abandoned the attempt, and tried to get itself adopted by several other parents, none of which would have it, and it was so severely pecked that I was obliged at length to kill it to put it out of its pain.

The hooligan cocks seemed always to be on the watch for these strayed chicks, and as some of the colonies constantly had a little knot of these hanging about their outskirts, a chick, once it had lost itself, was almost certain to come to a speedy end in this way, should it not first be carried off by a Skua.

Later in the season, as I have said, a large number of homes were broken up owing to the death of one or other of their occupants. On the southern edge of the rookery, close to the ice-foot and away from the nests, was a stretch of basaltic shingle. This became the haunt of a number of desolate mates, a large group of whom were always to be seen there, standing or squatting on the stones.

Many of the hens made scoops in the shingle and lay in them, and though cocks repeatedly had sexual intercourse with them, no second attempt was made to form a home, and no nests appeared on the site of the scoops.

Here on one occasion I saw what I took to be a cock copulating with a hen. When he had finished, however, and got off, the apparent hen turned out to be a cock, and the act was again performed with their positions reversed, the original "hen" climbing on to the back of the original cock, whereupon the nature of their proceeding was disclosed.