

The Use of Dog Sledges during the British Search for the Missing Franklin Expedition in the North American Arctic Islands, 1848–59

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ABSTRACT. While the bulk of the searching parties sent out from the British ships deployed on the search for the missing Franklin expedition in the North American Arctic Islands over the period 1848–59 employed man-hauled sledges, dog sledges were also used quite extensively. The dog sledges were especially (but not exclusively) used as “couriers,” that is, for communication between the various wintering ships, where speed was the primary requirement. The total distance covered by dog sledges (excluding short hauls in the vicinity of the wintering ships) was, at a minimum, 11 576 km; this distance compares with the minimum 41 555 km covered by man-hauled sledges.

Key words: dog sledges, Franklin search expeditions, North American Arctic Islands

RÉSUMÉ. Bien que la plupart des équipes de recherche déployées par les navires britanniques à la recherche de l'expédition de Franklin disparue dans l'archipel Arctique nord-américain pendant la période de 1848–1859 se soient servi de traîneaux tirés par des humains, elles ont également employé des traîneaux à chiens à maintes reprises. Les traîneaux à chiens servaient plus particulièrement (mais non pas exclusivement) de « messagers » en ce sens qu'ils établissaient les liens de communication entre les divers navires en hivernage, la rapidité de transmission étant essentielle. La distance totale à avoir été parcourue par les traîneaux à chiens (ce qui ne comprend pas les courtes distances dans la région des navires en hivernage) s'est chiffrée, au minimum, à 11 576 kilomètres, comparativement à la distance minimale de 41 555 kilomètres parcourue par les traîneaux tirés par des humains.

Mots clés : traîneaux à chiens, expéditions de recherche de Franklin, archipel Arctique nord-américain

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INTRODUCTION

In the summer of 1845, John Franklin's expedition on board HMS *Erebus* and *Terror* in search of the Northwest Passage disappeared into what is now the Canadian Arctic Archipelago. Initially, little concern was felt in Britain when there was no word from the expedition, since it was provisioned for three years. But when nothing had yet been heard from it by 1847, serious concern began to be raised in Britain. A search expedition (that of Sir James Clark Ross on board HMS *Enterprise* and *Investigator*) was dispatched in 1848 to try to locate the missing expedition by following in its track through Baffin Bay and Lancaster Sound. This was the first of 20 expeditions (plus 11 supply expeditions and one relief expedition) dispatched to the Arctic (Ross, 2002), approaching either from the west or from the east, to search for the missing expedition. Many of them involved one or more winterings. Most were mounted by the Royal Navy, but some were privately financed, particularly by Franklin's widow, Lady Franklin, and at least two were dispatched by the government of the United States. Few clues as to the fate of the missing expedition were found until Sir Francis Leopold McClintock's expedition on board *Fox* discovered

the only document ever retrieved that casts some light on that fate, on the northwest coast of King William Island, and a trail of abandoned equipment and skeletons along the west and south coasts of that island. On the other hand, search parties from the various wintering ships explored and mapped most of the archipelago, including the “southern tier” of the Queen Elizabeth Islands.

Most of these search parties were teams of six or seven seamen, led by an officer, hauling heavy sledges that carried food, fuel, and camping equipment. Neither snowshoes nor skis were used. The British have been widely condemned for their inability to adopt Inuit travelling techniques such as the use of dog sledges. One author has suggested that the attitude of the British naval officers was that “it was a form of cheating to use animals for transport” and that “to the English there was something noble, something romantic, about strong young men marching in harness through the Arctic wastes, enduring incredible hardships with a smile on their lips and a song in their hearts” (Berton, 1988:187). In reality, however, the use of dogs for hauling the sledges, a quintessential Inuit technique, was quite widely adopted by the British search expeditions. Dog sledging routes documented in the literature are shown in Figure 1.

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FIG. 1. The southwestern part of the North American Arctic archipelago, showing the routes travelled by dog teams.

PRIOR EXAMPLES AND RECOMMENDATIONS

There was at least one precedent for a British expedition making use of dog sledges in the Arctic. Captain George F. Lyon of HMS *Hecla*, having been impressed by the efficiency of the dog teams driven by the Inuit during the second wintering of Sir William Edward Parry's expedition (1821–23) at Iglulik, bought a team of 11 dogs and learned to drive them (Lyon, 1824:332). In a letter to his mother dated 3 April 1822, Parry expressed great optimism as to the usefulness of these animals in Lyon's planned future trips (Parry, 1822). Experimenting with their abilities as draft animals, Lyon found that three of his dogs could pull him, on a sledge weighing 45 kg, over a distance of one mile in six minutes, while his lead dog alone could pull a load of 89 kg a distance of a mile in eight minutes (Lyon, 1824:335). On one occasion, he timed a team of seven of his dogs pulling a sledge-load of men; they covered a mile in

four and a half minutes. A team of nine of his dogs used for hauling stores from *Hecla* to *Fury*, lying a mile away, covered this distance, hauling 732 kg, in nine minutes. Lyon also reported that he often travelled from *Fury* to *Hecla* in pitch darkness and blinding snowdrift, relying entirely on his dogs' direction-finding abilities to reach his destination (Lyon, 1824:335).

Reports such as Lyon's, not to mention observations by Royal Navy officers of the impressive use of sledge dogs by the Inuit (e.g., Parry, 1824:290 and facing plate), were undoubtedly familiar to the officers engaged in the Franklin search and must have encouraged the more enterprising of them to try using dogs.

As early as the latter part of 1849, the Admiralty was receiving proposals as to how the search should be mounted, including suggestions for using dogs. Thus in December 1849, Captain Sir John Ross wrote: "The expedition should first touch at Lupley [sic; Lievely, Godhavn or

Qeqertarsuaq] and there procure two Danish interpreters... and also some sledge dogs" (Great Britain, 1850:115).

On 4 January 1850, Lieutenant Sherard Osborn wrote to the Lords Commissioners of the Admiralty, proposing that a party be sent overland to Cape Bathurst on the shores of Amundsen Gulf. Among other recommendations for this party, he wrote: "If possible a couple of dog sledges and two teams of dogs ought to be forwarded to Cape Bathurst during the summer of 1849 [sic], to be used at the discretion of the officer in command of the proposed party (Great Britain, 1850:132).

And on 28 February 1850, Mr. Thomas Ward of Hull, owner of the whaling ship *Truelove*, relayed to the Admiralty the suggestions of John Parker, captain of that vessel: "He advises that 12 dogs at least should be taken in each ship, and two sledges; the natives commonly run eight dogs in a sledge; but the extra number might be desirable, in case any should fall lame or die" (Great Britain, 1850:156).

SOURCES OF DOGS

No doubt influenced by suggestions from these and other experts, from the summer of 1850 onwards, many of the British search expeditions acquired dogs and sledges from one of the West Greenland settlements at which they invariably called on the way into the Arctic. Thus the expedition led by the Scottish whaling captain William Penny, on board HMS *Lady Franklin* and *Sophia*, called at Upernavik in the spring of 1850. Penny was fully aware of the value of dogs from his own extensive experience of observing and interacting with the Greenlanders and the Inuit of Baffin Island (Holland, 1970). He was able to persuade the Danish Assistant Governor, Carl Petersen, to join the expedition as interpreter and to bring his sledge and eight dogs with him. Petersen brought four on board with him at Upernavik, but they had to call at a neighbouring settlement to pick up another three that he had lent to a friend; the latter then sold Penny an eighth dog, to provide the four for each ship that Petersen had recommended (Sutherland, 1852, vol. 1:106, 121, 125). None of the other three expeditions searching for Franklin at the same time, namely the Royal Navy's expedition under Austin on board *Resolute*, *Assistance*, *Pioneer*, and *Intrepid*, De Haven's on board *Advance* and *Rescue*, or Sir John Ross's on board *Felix*, appear to have taken any sledge dogs.

In the following year, Captain William Kennedy, leader of a private expedition sponsored by Lady Franklin on board *Prince Albert*, was also able to buy six dogs and a sledge for £4 at Upernavik on 10 July 1851 (Kennedy, 1853:51; Bellot, 1855, vol. 1:184). The owners insisted on cash, and Kennedy had difficulty in raising this amount, presumably having expected to barter for the dogs.

A year later, another Royal Navy expedition, consisting of HMS *Resolute* and *Assistance*, the steam tenders *Pioneer* and *Intrepid*, and the depot ship *North Star*, was dispatched to the Arctic under Captain Sir Edward Belcher. On 9 June 1852 at Godhavn (now Qeqertarsuaq), eight dogs were

purchased, four each for *Resolute* and *Assistance* (McClintock, 1852–54; De Bray, 1992:23). Captain Belcher was not greatly impressed by the calibre of the dogs: "We did wrong in trusting to the Governor; he had some he wanted to get rid of" (Belcher, 1855, vol. 1:39). McDougall, *Resolute's* Master, reported that the total number of dogs purchased at Godhavn was 11 (McDougall, 1857:49). A bitch (named Bess) that M'Clure had obtained from the Inuit at one of *Investigator's* stops on the north coast of Alaska joined *Intrepid's* dog team at Dealy Island (McClintock, 1852–54: 30 November 1853). McCormick, surgeon on board *North Star*, stated that he bought three dogs for the expedition from the blacksmith at Godhavn, although it is not clear whether these were included in the dogs reported by Belcher or McDougall (McCormick, 1884, vol. 2:15). McCormick also bought two animals for himself, a dog that he named Erebus and a bitch he named Terror.

Captain Belcher bought a further three dogs from the Inughuit at Kap York:

In return for our presents, but more particularly in exchange for a boat-hook and a broken oar, we obtained three very fine and handsome native dogs, not differing a hair in marks or colours from each other, being of an iron-grey, whitish beneath, dark stripe on back and shoulders, and strongly resembling a very dark-coloured Arctic wolf. (Belcher, 1855, vol. 1:66)

On his way into the Arctic via Bering Strait in 1851, Captain Collinson of HMS *Enterprise* bought three dogs from the Yupik Eskimos in the vicinity of Bering Strait (Collinson, 1889). To add to this number, Lieutenant Charles Jago, third lieutenant on board *Enterprise*, purchased a team (number unspecified) from the Inuit of the Walker Bay area of western Victoria Island in the spring of 1852 (Barr, 2007).

Also in the west, Dr. John Rae obtained his dogs from the Satudene, the Indians of the Great Bear Lake area, who also supplied him with meat (caribou and muskoxen) and fish, both for the dogs and for himself and his men (Rich, 1953).

Later, on his way into the Arctic on board *Fox* in 1857, on the expedition that was to reveal more than any other about the fate of the Franklin expedition, Captain Francis Leopold McClintock acquired 30 dogs in West Greenland: 10 at Godhavn, 6 at Prøven, and 14 at Upernavik (McClintock, 1859). He later bought three dogs from the Inuit during his sledge trips: one on the west coast of Boothia Peninsula in February 1859 and two on eastern King William Island in May 1859 (McClintock, 1859).

Before leaving the Arctic in the summer of 1852, Captain William Kennedy, on board *Prince Albert*, called at Beechey Island and turned over his surviving four dogs to Captain William Pullen of *North Star*, thus adding to the number of dogs available for future sledge trips from the ships of Belcher's squadron (McClintock, 1852–54; Kennedy, 1853; McDougall, 1857; De Bray, 1992). Kennedy



FIG. 2. Captain Francis Leopold McClintock's searching party (combining a dog team and a man-hauling crew) at Cape Herschel, King William Island, May 1859 (McClintock, 1859).

had planned to drown the dogs before leaving the Arctic, but Pullen managed to dissuade him (Pullen, 1852–54).

In the following year, Captain Edward Inglefield of the supply ship *Phoenix* picked up five more dogs at Upernavik on 12 July; these were added to the animals based on board *North Star* at Beechey Island (McClintock, 1852–54; Great Britain, 1855:8). Captain Inglefield also acquired a further number of dogs from the Inuk Qillaq and his companions at their campsite near Dundas Harbour, Devon Island. Qillaq (or Qidtlarsuaq) was the leader of a group of Baffin Island Inuit who were engaged in a protracted migration to the Qaanaaq area of northwestern Greenland when Inglefield encountered them (Mary-Rousselière, 1991).

Since each of the expeditions that purchased dogs in Greenland appears to have bought both dogs and bitches, in almost every case the bitches produced pups during the expeditions. They, in due course, added to the number of dogs available for sledge-hauling.

SLEDGE DESIGNS

Unfortunately, none of the accounts includes a verbal description of the design of the dog sledge most commonly used. Since the practice of using dog teams was initiated by Carl Petersen from Upernavik, it seems safe to assume that at least some of the sledges were of the design used in

that area. This design is similar to the *komatik* still used throughout the Canadian Arctic and West Greenland. The runners are solid wooden timbers some 25 cm high and up to 3.5 m long, curving up slightly at the front and joined to transverse slats by means of sealskin or rope lashings rather than metal fastenings, to provide flexibility. The distinctive additional feature in the Greenland version was (and is) the addition of “up-standers” or “handle-bars” rising about 1 m from the rear of the sledge, with which the driver can steer—to some degree. A short version of this type of sledge is illustrated in McClintock (1859: facing p. 201). But also depicted in McClintock's account of his expedition on board *Fox* is a dog team pulling a sledge identical to that being man-hauled (also illustrated) (Fig. 2; McClintock, 1859: facing p. 278), but with the addition of “up-standers.” This sledge design, of which a scale drawing is presented by De Bray (1992:97), is much lighter, with the bed of the sledge rising some 30–35 cm above the relatively light runners on fairly light vertical members. It too is held together by sealskin line or rope lashings rather than by metal fastenings. This type of sledge has a strong family resemblance to the Nansen sledge that was used, for example, by the British Antarctic Survey (Walton and Atkinson, 1996).

In none of the accounts is there any reference to icing the runners of these types of sledges, a technique commonly used by the Inuit, whereby a thin layer of mud, topped with a coating of ice, is applied to the runners to reduce friction

to a minimum. If, as seems probable, this refinement was not being used, the strain on the dogs was significantly greater than it might have been.

A notable exception in terms of sledge design was the expedition led by Captain William Kennedy, which used neither of the designs just mentioned. Having been born and brought up at the Hudson's Bay Company's post at Cumberland House, Rupert's Land (now Saskatchewan), Kennedy used the sledge design with which he was familiar, namely the toboggan or cariole or "flat native sleigh" or "Indian sleigh" as he calls it (Kennedy, 1853:94, 113), equipped with "up-standers" at the back for steering. Bellot has left a detailed description of this design:

Our sledge, too, is one of those which we called flat, composed of long planks, curved up in front so as to form a pretty wide arc; a cord passing from one end to the other serves to give it spring. With its sixteen inches of width, and its twelve feet of length, it is so flexible that, under a load of about five hundredweight [254.5 kg], it glides over the snow from one block to another without danger of being broken where the Esquimaux sledge would soon be smashed to pieces. It has also the advantage of not sinking in the snow when it is still soft, whereas the Esquimaux sledges would sink to their full depth in it. (Bellot, 1885, vol. 2:81)

Dr. John Rae, on his trip from Fort Confidence to search the south and southwest shores of Victoria Island in the spring of 1851, used his own modification of the toboggan, with iron-shod runners a few inches high beneath it. During travel on bare ice, the runners would raise the load above any water on the ice surface, while in soft snow, the modified sledge would function as an ordinary toboggan (Rae, 1875).

HITCHES, HARNESSES AND DOG MANAGEMENT TECHNIQUES

Since the practice of using dogs by the British search expeditions originated with Carl Petersen, with his background of driving dogs in West Greenland, it is only natural that most of the search expeditions used the hitch in use there, namely the fan hitch, in which each dog is on a separate trace, and the lead dog's trace is slightly longer.

In a lecture to the Royal Geographical Society on the subject, McClintock presented a graphic picture of some of the resultant aggravations of dog-driving:

Once started they are guided by the whip, which the driver should be able to use effectively with either hand. As the dogs on each flank are most exposed to its influence, there is a continual striving to get into the middle, by jumping over each other's backs, so that it is often necessary to halt, pull off one's mitts, and, at the risk of frozen fingers, disentangle the traces, which have

become quite plaited together. When a dog feels the lash, he usually bites his neighbour, who bites the next dog, and a general fight and howling begin. The lash is no longer of any avail, and the driver is compelled to restore order with the handle of his whip.

(McClintock, 1875:472–473)

By contrast, it would appear that Kennedy, on the basis of his boyhood experience from Cumberland House, used a tandem hitch. Bellot (1855, vol. 2:81) wrote, "The Esquimaux harness them two and two...whilst the Indians fasten them one by one." The implication is that on their expedition Kennedy and Bellot also harnessed their dogs "one by one."

They appear to have been the exception, however. Both illustrations in McClintock's expedition account already referred to (McClintock, 1859), one of which also features in Petersen's account of the *Fox* expedition (Petersen, 1860, facing p. 196), show the dogs harnessed in a fan hitch, i.e., with each dog on a separate trace fastened to the sledge. Since it was Petersen who introduced dogs and dog sledges to the British expeditions, it is fair to assume that the fan-hitch was the one generally used on all these expeditions.

On some of the expeditions, for example Captain Kennedy's, it was a combined team of men and dogs that hauled the sledges. No information is available from this expedition as to how this arrangement was configured, however.

Although there are several references in the literature to the making of dog harnesses by the ships' sailmakers, there appears to be only one description of the harness design, namely that of McDougall (1857:54). According to his account of Kellett's expedition on board *Resolute* and *Intrepid* (1852–54), the harness design used initially originated with the seaman looking after the dogs, who had had dog-driving experience in Newfoundland:

A stuffed collar was made to fit close round the neck, to the side of which were attached the drag-ropes, fitted with a toggle to facilitate slipping [i.e., releasing the dogs]. A belly-band and back-strap kept the drag-ropes, or more properly speaking, traces, in the proper position.

(McDougall, 1857:370)

Later, however, the seaman Alexander Thompson, who had learned his trade of dog-driver from Carl Petersen, took charge of the dogs:

[Thompson] substituted for the old harness some of his own, lighter, more simple and better adapted for the service in every respect. It consisted of two strips of canvas, with occasional stops (white line) thus forming loops, one fitting over the head, and one for each fore-leg, being a combination of martingale and belly-band. On trial, the pressure on the neck and shoulders was much decreased, and the dogs evidently dragged with greater ease than under the old system. (McDougall, 1857:370)

It is this latter design of harness that is depicted in the illustrations in both McClintock (1859) and Petersen (1860).

On at least some of the expeditions, the dogs were housed in “kennels” on the ice near the wintering ships; thus Dr. Sutherland (1852, vol. 1:418), on Penny’s expedition on board *Sophia*, noted: “The dogs were now located on the ice in a little snow-house at the ship’s bow, with a quantity of straw between them and the cold and soft ice beneath.”

Captain Belcher (1855, vol. 1:194) reported that his expedition’s dogs had snow-houses “into which they can retire, if cold pinches, but we do not perceive that they do so, until the breeze makes it felt...” Mumford, carpenter on board HMS *Resolute* (1852–54: 20 January 1853), also made reference to the dog’s house astern of the ship. In the case of the Kellett expedition’s other ship, however, the dogs were not “pampered” in this fashion; McClintock, in command of HMS *Intrepid*, reported that “they, poor brutes, live out on the floe, without shelter of any kind” (McClintock, 1852–54, 4 January 1853). He noted the same arrangement on his later expedition on board *Fox*: “They lie upon the snow under the lee of the ship, with no other protection from the weather” (McClintock, 1859:219). Kennedy’s dogs similarly slept out on the ice all winter, “. . .left to shift for themselves as they best could, and provided they had a sufficient supply of food, we find that the strength and vigour were the reverse of impaired by their bivouac in the snow” (Kennedy, 1853:98).

Sutherland, medical officer on board Penny’s *Sophia*, has commented in detail on the ability (or even preference) of their dogs to allow themselves to be buried in drifting snow:

In cold weather the Esquimaux dog lies rolled up in a ball, with his muzzle deeply buried in the long and shaggy fur of his tail, which really imparts all the advantages of a respirator, and if there is snow he never rises to shake the accumulating wreath from his side, or to clear the drifting snow which mats his hair. If he is accosted by his master, he deigns to open his eyes, but not to raise his head, or move a limb, unless the former persists in ordering his immediate attendance.

(Sutherland, 1852, vol. 2:24)

Bellot was even quite alarmed one morning, when he could not see the dogs on looking out of the tent:

Sorely apprehensive of the loss of what was so essential to us, I called out, and what was my surprise to see my favourite bitch, roused from sleep by my voice, come out from under a heap of snow more than two feet high. Slight undulations in the vicinity showed me that the rest of the pack was sleeping in the same manner, without giving themselves the least concern about the snow which was accumulating over them.

(Bellot, 1855, vol. 2:25)

Traditionally the Inuit use a very long whip when driving their dogs, and its effective use is attained only by long

practice. As Sutherland noted, and as might be expected, Carl Petersen was the only member of Penny’s expedition who could wield the whip effectively: “We often made attempts to learn the use of it, but they never were persisted in sufficiently to enable any of us sitting on the sledge to drive the dogs over a new and trackless journey” (Sutherland, 1852, vol. 2:31).

On steep downslopes, or if the dogs needed to be restrained, rope-locks were used:

We used a sort of drag made of rope, which we threw over one of the runners of the sledge at its fore part, where the friction on the snow could be increased so much, by one leaning with all his weight upon it, that the sledge would be brought to a stand in a short time, in spite of all the efforts of the dogs, going at a galloping pace. (Sutherland, 1852, vol. 2:107)

Carl Petersen would undoubtedly have used the traditional verbal commands from West Greenland, to which his dogs were accustomed, and no doubt he taught these to the British seamen who were assigned to look after and drive the dogs. An interesting exception, however, was the usage on Kennedy’s expedition. Bellot’s comment, “The words of command imported into Hudson’s Bay by the Canadians are almost all French” (Bellot, 1855, vol. 2:370), would suggest that Kennedy used French commands in driving their dogs; as a French naval officer, Bellot would have been very comfortable with this.

Rarely, however, could the dogs be persuaded to head in the right direction (or to move at all) without a person running or walking ahead. Thus Sutherland commented that “The dogs did very well when one of us went before them, but nothing without this way of leading them, for we had found it quite impossible to *drive them*” (Great Britain, 1852:338). Leading the dogs like this could be very strenuous: when a dog sledge collapsed shortly after leaving *Resolute* and *Intrepid* off Cape Cockburn at the start of a trip to Beechey Island, and Mr. Roche (*Resolute*’s mate) returned to the ships with the disabled sledge, he “looked very tired after his run back & not sufficiently strong for such dreadful, fagging work; running for hours before the dogs over rough ice and snow, bathed in profuse perspiration...” (McClintock, 1852–54: 5 March 1854).

Both men and dogs found travelling in heavy, drifting snow extremely unpleasant, and even with a man walking ahead, it was sometimes nearly impossible to get the dogs to face the drift. Lieutenant Richard Hamilton of *Resolute* has recalled the somewhat amusing situation that could result:

In Wellington Channel we found the wind blowing from the northward which, raising a heavy drift, rendered the work very fatiguing to the dogs, who lost no opportunity of shoving their snow-covered noses between the legs of the person ahead as a protection from it—frequently disturbing his equilibrium considerably.

(Great Britain, 1855:725)

Sometimes, on the other hand, the dogs' "homing" instinct under blizzard conditions could be relied upon, as Kennedy and Bellot discovered when lost in a blizzard on a cache-laying trip south of Batty Bay (Kennedy, 1853:1107).

An aspect of dog-driving that one suspects had been taught by Petersen to the Royal Navy's dog-drivers, was the use of "boots" to protect the dog's feet once ablation of the sea-ice had begun, resulting in extremely sharp "needles." Thus Mumford (1852–54: 27 July 1854) makes reference to "Moccasins made for the dogs' feet which suffer much in the summer time from the sharp points & edges of the decaying ice." However these "moccasins" had to be secured firmly but not too tightly. A year earlier he had noted that some of the dogs: "from wearing moccasins to protect their feet from the "needle ice" were nearly hamstringed by the lines which secured them on the feet. Two of them could only walk on the fore-legs, on which they managed to balance themselves most painfully" (Mumford, 1852–54: 14 July 1853).

The size of teams varied considerably. The smallest team appears to have been only two dogs. Dr. John Rae carried out his search of the south and southwest coasts of Victoria Island in 1851 using two sledges pulled by five dogs, presumably two pulling one sledge and three the other (Rich, 1953: ci, 161). Dr. McCormick of HMS *North Star* used only four dogs when transporting a fox trap from the ship to the place beneath Cape Spencer where he planned to set it (McCormick, 1884). Captain William Kennedy also used four dogs, but on a much more ambitious trip, from *Prince Albert's* wintering site at Batty Bay south to Fury Beach and back, in January 1852 (Bellot, 1855, vol. 2:81).

The largest team used by any party from any of the expeditions was the 12 dogs that Captain McClintock used on his trip in April 1854. He traveled from *Resolute* and *Intrepid* off Cape Cockburn to Beechey Island, and north to *Assistance* and *Pioneer* just north of Cape Osborn, to obtain clarification of Captain Sir Edward Belcher's instructions about abandoning his ships. In other words, this was an extremely important trip, and the size of the team was a direct reflection of the urgency involved. McClintock was accompanied only by seaman Alexander Thompson (of whom more later), and the size of the team also says a great deal about the latter's skill as a dog-driver (McClintock, 1852–54: 12 April and 1 May; Mumford, 1852–54: 13 April).

Teams as large as nine dogs were not unusual, however. This was the size of the team used by De Bray when he travelled from *Resolute* and *Intrepid* off Cape Cockburn to Beechey Island with a party of invalids in May 1854. The invalids hauled one sledge but the team of nine dogs was used to haul a sledge carrying a "hanging cot" containing a seriously sick man, Thomas Morgan. This case again says much for the skill of the driver (unidentified) and the confidence placed in him and the dogs by De Bray and the ships' surgeons (Scott, 1852–54; De Bray, 1992:167).

DOG FOOD

Whenever possible, the dogs were fed on fresh meat, and to this end bears (and to a lesser extent muskoxen, seals, and walrus) were pursued and killed almost whenever they were sighted. Failing these, however, almost any other type of meat was secured whenever possible. Thus in Melville Bay, De Bray (1992:27) reported shooting some seabirds to feed to the dogs. In his account of his sledge trip from *Resolute* and *Intrepid* to McDougall Sound, McDougall reported finding "the remains of a seal, on which our dogs made an excellent meal" (Great Britain, 1852:280). And on his way back from Mercy Bay to Dealy Island to report on the situation on board HMS *Investigator*, Lieutenant Pim shot five muskoxen near Cape Dundas on 14 April, allowing him to give his dogs a good feed (Great Britain, 1855:658).

Occasionally too the dogs would secure their own meat. Bellot reported that the dogs ate at least two of the homing pigeons that Kennedy took to the Arctic on board *Prince Albert* (Bellot, 1855:225, 243). As reported by Richard Roche, dogs would also chase, kill, and eat lemmings if they happened across them (Great Britain, 1855:688). Rae's dogs, too, were partly self-sufficient from this source: "These little animals [lemmings] were migrating northward and were so numerous that our dogs as they trotted on, killed as many as supported them, without any other food" (Rich, 1953:190). On one occasion, while crossing M'Clure Strait, Lieutenant Pim found his dogs quite satiated one morning, and assumed that they had caught and eaten large numbers of lemmings or had managed to kill a seal on their own account (Great Britain, 1855:658). And while the dogs commonly pursued and killed arctic foxes, they usually would not eat them.

Old or feeble dogs were occasionally killed, and puppies drowned if they arrived at an inconvenient time; in either case, the carcasses were kept to feed the other dogs (Mumford, 1852–54: 14 September 1853). The meat might be fed directly or incorporated into "dog pemmican" (Mumford, 1852–54: 31 March 1854). On some occasions, however, the dogs would refuse to eat dog meat (Penny, in Sutherland, 1852:134; Great Britain, 1855:75).

McClintock, in his presentation to the Royal Geographical Society, described the process of feeding the dogs on the trail:

The moment our weary dogs were allowed to cease dragging, they fell asleep, and remained motionless, until the cook for the day commenced chopping-up the pemmican, or the dog's meat. At the first sound of his axe they would spring up and surround him like so many famished wolves, darting upon any splinters of meat which flew off, or watching an opportunity to steal some pieces. Besides this severe trial of the cook's temper, more of his time was spent in chopping at the dogs than in chopping up the frozen supper. We were careful not to feed the dogs until an hour after halting; when that time arrived, their food (commonly frozen

seal's or bear's flesh) was strewed over the snow, and trampled into it, before the rush for supper, so as to enable the weak ones to secure an equal share with the strong. (McClintock, 1875:473)

If fresh meat was not available, the dog drivers had recourse to quite a variety of alternatives. For example:

Salt beef issued to feed the dogs every day instead of pea soup; bread dust once a week which had been their allowance from the ships, to which the hands had charitably contributed their allowance of dried carrots; scraps of sealskin, stray mittens and any matter that was not ice itself, completing their dejeuner. (Mumford, 1852–54: 22 February 1854)

Or, as de Bray (1992:89) reported, "Since we are running out of food for the dogs we are obliged to take all the bacon rinds, bones, and condemned canned meat, grind it all up, boil it with whale oil and put it in tins." Later in the voyage the ingredients were probably less nutritious: "By concocting a terrible mixture of whale oil, bread powder and ground sealskin we managed to produce a type of dog food" (De Bray, 1992: 157). McClintock's description of the dogs' diet during that second winter is as follows:

The well-picked bones [of muskoxen, every ten days] and once a week ... half a pound of biscuit each, mixed up with the refuse of pea soup. An old shoe is a luxury any one of them would forfeit ears & tail in fair fight for. (McClintock, 1852–54: 30 November 1853)

Kennedy (1853:149) reported that "To lengthen out our stock of provisions we fed our dogs on old leather shoes, and fag-ends of buffalo robes..." For food for his dogs on the trail Penny had a special concoction prepared: "It was made of a large proportion of oatmeal mixed with melted fat and a very small proportion, perhaps one-sixth or one-eighth of 'soup and bouilli'" (Sutherland, 1852, vol. 2:30). This mixture was poured into canvas bags and allowed to freeze in a flattened position for ease of storage.

Towards the end of his major sledge trip with Kennedy around Somerset and Prince of Wales islands, Bellot (1855:237) noted that "in order to leave something for breakfast tomorrow we give the dogs our old moccasins, torn gloves, and a piece of bison's skin with the hair on, and keep the ration of pemmican for ourselves." At Beechey Island in January 1853, Captain Pullen, commanding *North Star*, reported:

On the 10th of the month, the bread-dust was all gone, and having such a good supply of flour I ordered a cask to be opened and a daily issue of half a pound each [for the dogs]; and as soon as possible to get a cask of whale blubber out of the house [Northumberland House] (where it lay buried deep in the snow) for their use. (Great Britain, 1854:125)

The Inuit and other indigenous dog-drivers long ago learned that failure to tie one's dogs up overnight when on the trail was almost certain to lead to damage to critical items of equipment or loss of provisions or dog food. The British Arctic dog drivers had to learn this the hard way. Dr. Sutherland reported that, on 19 April 1851, "The dogs during the night broke into the sledge of which Mr. J. Stuart had the command, and scarcely left a trace of seventy pounds of bear's flesh" (Sutherland, 1852, vol. 2:47). During McClintock's expedition on board *Fox* (1857–59), in which the expert dog-driver Carl Petersen participated, the necessary precautions were invariably taken. In the evening, the men carried into their snow-house "all boots, fur mittens, and even the sledge dog harness to prevent the dogs from eating them during our sleeping hours" (McClintock, 1859:229).

On occasion, the dogs' depredations could result in embarrassing and frustrating situations. While on a shooting trip in Bridport Inlet, Mumford reported, "About midnight the dogs, which were tied up to the tent rope, made a great noise and gnawed the rope in two and let the tent down on us" (Mumford, 1852–54: 21 October 1852). Another incident was caused by the dogs' being left loose overnight, but the dog involved was not really at fault:

One of our dogs, pursued by the others, took refuge on the roof of our snow-house, broke it in, and fell down amongst us, bringing with him a considerable amount of snow. The poor animal looked so silly and amazed that we repressed our first impulse of annoyance.... (Bellot, 1855:150–151)

"FITS" AND OTHER MEDICAL PROBLEMS

A frequently recurring problem among the dogs was the occurrence of what was usually, somewhat cryptically, described as "fits." Thus McClintock mentions that during one of his sledge trips in February 1859, several of his dogs "repeatedly fell down in fits" (McClintock, 1859:227). Commonly the affected dog, on apparently recovering, would run away and not return. Dr. Scott of HMS *Intrepid* reported that in February 1854, near Cape Cockburn, "One of [the dogs] had fits & in one of them went off at full speed & has not since been heard of" (Scott, 1852–54: February 1854). The most susceptible group of dogs appears to have been those that were bought by Captain Pullen of *North Star* at Godhavn. Thus the ship's master, Thomas Pullen, reported on 17 January 1853: "One of our dogs taken ill with severe fits; runs away on the floe and we lose him for a couple of days. At length he finds his way back very much exhausted" (Pullen, 1852–54, vol. 1:25). A month later a dog (possibly the same one) died: "Yesterday we lost one of our dogs who has been complaining for some time with Fits" (Pullen, 1852–54, vol. 1:80). The problem recurred the following winter. Thus, on 1 December 1853: "Am sorry one of them, the Master dog, has had one or two fits. These

dogs appear to be subject to them” (Pullen, 1852–54, vol. 2:40). And three weeks later, on 23 December: “Yesterday lost a fine, young Dog, poor Nip. The last winter’s complaint is again on our Dogs – Fits. They have all had them. I fear we shall lose more of them” (Pullen, 1852–54, vol. 2:42). Ultimately they lost four dogs (Pullen, 1852–54:35).

Elsewhere Captain William Pullen elaborated on the subject:

For the last month or so the dogs have been greatly troubled with fits, and no one appears to be able to assign a reason. It was chiefly confined to those we got at Disco, all suffering more or less, when on the 17th [February 1853] one unfortunate brute died, and two others of the same team seem about to follow; one of these two is the best of that lot. Up to the middle of the month those Mr. Kennedy left appeared to be quite free of any disease, and doing remarkably well, when unfortunately three have been attacked in like manner, and I really think we shall lose some of them. (Great Britain, 1854:128)

Of the dogs on board *Resolute* and *Intrepid*, McClintock reported, “Fury had two fits yesterday & after the second one ran away & has not been seen since” (McClintock, 1852–54: 28 February 1854). And on 14 March: “Bess has died after a series of fits.” McDougall (1857:369) felt that the fits were somehow associated with the dogs’ being exercised in harness for the first time in the spring: “The exertion required caused several of the weakest to have serious fits; none of them, however, ended fatally.”

Unfortunately, none of the writers provides any details of the dogs’ appearance or behaviour, beyond what has been cited here. However, it seems possible, even probable, that the dogs were suffering from canine rabies. According to K. Wamberg (quoted in Crandell, 1975), a dog disease resembling rabies was reported in Greenland as early as 1859. Epizootics, commonly described as “fits,” have recurred in dogs in West Greenland until quite recently. Wamberg reported such epizootics from the Upernavik district in 1957–58, the Thule district in 1958–59, the Uumaanaaq district in 1959, and the Egedesminde (now Aasiaat) district in 1959–60. In the winter of 1958–59, 50% of the dogs died. A thorough study of similar epizootics among sledge dogs in the Canadian Arctic was made by Elton (1931).

Since almost all the sledge dogs used by the British expeditions originated in West Greenland, it seems almost certain that the “fits” that were so prevalent among their teams were the same disease described by Wamberg, Crandell, and Elton. The symptoms in some cases point to rabies, but at first sight the fact that some of the dogs are reported as recovering would seem to rule this out. Furthermore, since it is extremely unlikely that the men were not occasionally bitten, even accidentally, by dogs experiencing “fits,” the fact that there were no human fatalities from this cause would seem to argue against identifying the disease as rabies. Another possibility mentioned by Crandell (1975), Elton (1931), and Rausch (1958) is that the “fits” were

canine distemper. As Rausch (1958:247) has noted, “The possibility exists that animals affected by canine distemper may occasionally appear to be rabid.... Canine distemper is enzootic in sledge dogs in some regions of Alaska.”

On the other hand, Rausch would argue that the lack of fatalities among humans from transmission of the disease is inconclusive:

In my opinion there is no longer any reason to doubt that the disease in question is rabies... While it is generally true in high boreal regions that dogs showing the clinical signs of the disease are relatively nonaggressive, there are exceptions... [On the other hand] there is really a rather small probability that exposure to rabies in man will lead to infection and fatal disease.

(Rausch, 1958:257–258)

Whatever the nature of the disease affecting sledge dogs from Greenland to Alaska, it was undoubtedly the same disease that struck so many of the teams used by the British during the Franklin search, and which they characterized as “fits.”

Apart from this disease, and from wounds caused by the dogs fighting among themselves or from conflicts with bears, the dogs rarely appear to have needed medical attention. However, one remarkable exception was an “operation” carried out on board *Resolute* at Dealy Island, as reported by George Ford, carpenter on board HMS *Investigator*:

A medical survey [was made] on an Esquimaux dog consisting of Capt. Kellett, 2 pursers, 2 mates & assistant surgeon (& myself), the hamstring being broken. I had to make a gutta percha splint. Our mate provided needle & thread & another bandage; our purser roll[ed] bandages; the other held dog’s head, doctor gave advice & Cap. operated. The dog on the [sick] list & doctor’s coxswain (sick bosun) to report the state of the dog every morning. (Ford, 1850–55, 15 July 1853)

Several accounts make reference to the dogs’ suffering from snow blindness. Kennedy reported: “They were all suffering like ourselves from snowblindness, but did not in the least relax their exertions on this account” (Kennedy, 1853:139). Similarly, Bellot (1855, vol. 2:214) reported: “Our dogs appear to be affected like ourselves with snow blindness, for several hunt for the route, not seeing it well enough.” There is no mention of any attempts to alleviate the dogs’ distress from this cause.

SECONDARY FUNCTIONS

The primary function of the dogs was to haul sledges, but they also performed other functions. One of the more important was that of pursuing bears and bringing them to bay so that the hunters could come within gunshot. For example, Thomas Pullen, the ship’s Master on board *North*

Star, described an incident when a female bear and cub approached the ship at Beechey Island on 5 May 1853 and when the mother was shot from the ship but only wounded: “We slipped the Dogs and [they ran] after both of them... After running about Three hundred yards the Dogs brought them to Bay... the dogs behaving well, only Three of them” (Pullen, 1852–54, vol. 2:3). Both bears were killed.

Another bear approached the ship less than a week later, on 10 May, and the dogs were again loosed: “It was a fine sight to see the dogs covering him [i.e., holding him at bay] a long distance up a very steep cliff...” On having been shot, “he came rolling down the face of the hill like a shot, & the dogs in full cry” (Pullen, 1852–54, vol. 2:6–7).

On 8 June 1853, while travelling between Beechey Island and *Resolute* and *Intrepid*, Richard Roche, the mate on board *Resolute*, experienced two such bear hunts in quick succession, but with different outcomes:

At 5.20 saw a bear with two very young cubs. Dogs ran off with sledge in chase, and we were obliged to cut them adrift, but they lost sight of bear among the hummocks, and came back to the sledge in about an hour.

9.40 p.m. Dogs scented a bear and cub and set off after them; we were obliged to cut them adrift. They soon surrounded them and we succeeded in killing both; cut up the large one, filled our bags with bear’s meat, and took the cub on the sledge for evening use.

(Great Britain, 1855:688)

A secondary function of the dogs, in Dr. Sutherland’s view, was to inhibit bears from approaching the ships. He contrasted the situation at Griffith Island, where *Resolute*, *Intrepid*, *Assistance*, and *Pioneer* wintered, without dogs, and where several bears were shot over the winter of 1850–51, with that at Assistance Harbour, where *Lady Franklin* and *Sophia* did have dogs. “It is very probable that the dogs which prowled about and so frequently raised fearful howlings, were the cause why bears did not pay their visits to us, as well as to the other ship” (Sutherland, 1852, vol. 1:473).

The sledge parties found that even a single dog served a useful function as a watch-dog. Thus Robert Allen, master on board *Resolute*, noted on 28 May 1851: “At 2 A.M. we were all awoke out of our sleep by the growling of our Esquimaux dog [at the appearance of a bear and cub] (Great Britain, 1852:244).

And on at least two occasions, dogs were credited with saving men’s lives. Sultan, one of the dogs with Penny’s expedition at Assistance Harbour, probably saved the life of a seaman from Sir John Ross’s *Felix*, who lay down on the ice, dead drunk, one night when the temperature was about -30°F. The dog raised the alarm, and the man was hustled back on board (Sutherland, 1852, vol. 2:14). In March 1853, when Dr. McCormick (“our precious, useless medical officer,” in Thomas Pullen’s phrase) along with his dogs “Erebus” and “Terror” and one seaman, was caught out by

fog and darkness near Caswell Tower: “The only thing that kept life in them was by hollowing out a Bank of Snow & crawling in there keeping the dogs close to them to ensure warmth” (Pullen, 1852–54, vol. 1:84).

And even during an ordinary night on the trail, dogs could be a source of real comfort. McClintock (1875:473–474) reported that “My dog-driver [Alexander Thompson], whose previous experience had taught him what luxuries this mode of travelling was capable of, used to sleep warmly enough, with one dog at his back and another at his feet!”

TYPES OF SLEDGE TRIPS

But the primary function of the dogs was to provide traction power in hauling sledges. The trips involved varied considerably in length and purpose. The shortest were intended to move heavy loads in the immediate vicinity of the wintering ships. A typical example was hauling gravel from shore for ballasting the ships as stores and fuel were consumed over the winter (McClintock, 1852–54: 4 January 1853). By Mumford’s calculation (1852–54: 7 February and 8 March 1853), the dogs hauled 24 tonnes of gravel from Dealy Island out to *Resolute* alone over the winter. De Bray (1992:82) noted that since the ice was fairly good, the dogs could easily haul 600 kg of gravel. Later in the winter, the dogs were used for hauling sand from Dealy Island to spread on the ice around the ships. The sand would accelerate melting to free the ships as the sun grew stronger in the spring (De Bray, 1992:87). The dogs were similarly used at Assistance Harbour for hauling gravel out to *Lady Franklin* and *Sophia* for ballast. Sutherland (1852, vol. 2:213) estimated that over the smooth ice, they could haul anything up to half a tonne. In a similar operation at Batty Bay, Bellot (1855, vol. 2:129) estimated that *Prince Albert*’s five dogs could haul nearly a tonne of gravel for ballasting the ship, without difficulty.

At Dealy Island, McClintock borrowed *Resolute*’s dogs to haul away the snowdrifts that had piled up against *Intrepid* in May 1853 (McClintock, 1852–54: 16 May 1853). In similar fashion the dogs were used for hauling water from shore out to *Resolute* and *Intrepid*, presumably in barrels on the sledges (Mumford, 1852–54: 15 and 21 June 1853).

The dogs were also widely used for relatively short trips with light loads. A typical task would be to transport the camping equipment of a small hunting party and bring back the game killed. For example, Lieutenants Pim and Hamilton and Dr. Domville left HMS *Resolute* on 12 October 1852 for a three-day hunting trip in the Bridport Inlet area and returned on 14 October with the meat of three caribou on their dog sledge (Mumford, 1852–54: 12 and 14 October 1853). Similarly, Captain Kellett frequently used a dog sledge to haul his camping and survey equipment when he went off from Dealy Island to survey sections of the coast, for example, in the Skene Bay area (McClintock, 1852–54: 8 June 1853).

Probably the most common use of the dog sledges, however, was as “express couriers” between wintering ships that were relatively close to each other. The sledge would be travelling light, carrying just one passenger and camping equipment. An example is the substantial traffic between *Resolute*, *Pioneer*, *Assistance*, and *Intrepid* at Griffith Island and *Lady Franklin*, *Sophia*, and *Felix* at Assistance Harbour, over a distance of about 39 km. Petersen made this round trip, with various passengers, at least four times over the winter of 1850–51 (Sutherland, 1852). Another example, involving a longer route that was travelled repeatedly, was between *North Star* at Beechey Island and *Assistance* and *Pioneer*, wintering just north of Cape Osborn on the east shore of Wellington Channel over the winter of 1853–54, a distance of some 98–115 km, depending on ice conditions. Various officers made this return trip at least four times (Mumford, 1852–54; Pullen, 1852–54). One of these circuits by dog sledge was to take Lieutenant Hamilton north to supersede Commander Sherard Osborn, who at his own request had been relieved of command of HMS *Pioneer* under Captain Sir Edward Belcher, and to bring Commander Osborn south, on the start of his journey back to Britain (Mumford, 1852–54: 22–23 June 1854).

Another, longer route that was covered by dog-sledge “couriers” was from *North Star* at Beechey Island to *Resolute* and *Intrepid* at Dealy Island, a distance of some 553 km, in June 1853; Richard Roche, *Resolute*’s Mate, was in charge, and the dogs were driven by Alexander Thompson (Pullen, 1852–54). Once *Resolute* and *Intrepid* had moved east to Cape Cockburn, Bathurst Island, a “courier” route travelled quite frequently in the spring of 1854 was from there to Beechey Island and then north to *Assistance* and *Pioneer*, wintering off Cape Osborn. The distances involved were 311 km from Cape Cockburn to Beechey Island and a further 98 km north to Cape Osborn, i.e., a total round-trip distance of 818 km. This circuit was completed by Lieutenant Hamilton (6 March–11 April 1854) (De Bray, 1992:158–160) and then by Commander McClintock (13–28 April 1854) (Mumford, 1852–54), the latter having been dispatched by Captain Henry Kellett to obtain clarification of Captain Sir Edward Belcher’s ambiguous orders about abandoning *Resolute* and *Intrepid*.

Dog sledges were also used for other missions when speed was the primary requirement. Thus when Lieutenant Pim and Dr. Domville were dispatched by Captain Kellett from Dealy Island to try to make contact with HMS *Investigator* (having learned from a note left by M’Clure at Winter Harbour that he was wintering at Mercy Bay, Banks Island), a man-hauled sledge and a dog sledge were used (Great Britain, 1855:646). When the man-hauled sledge broke down some 46 km beyond Cape Dundas, Pim continued with the dog sledge to Mercy Bay. That sledge’s round trip from Dealy Island to Mercy Bay and back (10 March until 19 April) totaled some 783 km (McDougall, 1857:200, 217). The outcome of this trip was that Pim arrived in time to prevent Commander M’Clure from dispatching most of his men on desperate overland trips east to Port Leopold

or south to the nearest Hudson’s Bay Company’s post on the Mackenzie River—trips which probably none of them would have survived. Instead, they were escorted across M’Clure Strait to *Resolute* and *Intrepid* at Dealy Island and ultimately to Beechey Island and home.

Another example of the use of a dog sledge when safe, rapid transport was required was the journey made by Enseigne-de-vaissseau De Bray of the French navy, attached to HMS *Resolute*, from that ship off Cape Cockburn to Beechey Island in the spring of 1854. While Dr. Domville was in charge of a man-hauled sledge, De Bray was in charge of the dog sledge (with nine dogs) on which a “hanging-cot” had been rigged to transport Thomas Morgan, of HMS *Investigator*, who was suffering severely from scurvy. They left the ships on 8 May (McDougall, 1857:388) and reached Beechey Island on 19 May (Pullen, 1852–54, vol. 2:63). Unfortunately, Morgan died only a few days later and was buried on Beechey Island.

Only four expedition leaders used dog sledges for the extensive trips whose primary purpose was to search for any trace of the missing Franklin expedition. One of these was Captain William Penny. As an experienced whaling captain, Penny had had plenty of opportunity to appreciate the merits of dog sledges as used by the Greenlanders and by the Inuit of Baffin Island. In addition, he had the advantage of having recruited Carl Petersen, a Dane who had lived in Greenland for many years, at Upernavik. Starting from Assistance Harbour on 9 May 1851 with two dog sledges (with 9 and 10 dogs), he travelled north along the east coast of Cornwallis Island and Baillie Hamilton Island to the latter’s northern tip, Point Surprise. The “surprise” was that beyond this, in Queen’s Channel, he discovered open water, and he then headed back south to get a boat with which to explore farther north. The dog sledge trip lasted from 9 May until 20 May, the round-trip distance being 415 km (Penny, in Sutherland 1852:123–138). The two dog sledges later accompanied the sledge on which the boat was hauled north in June, by a team of 10 men, to where it could be launched in Wellington Channel (Penny, in Sutherland 1852:139–148).

Another expedition leader who used a dog sledge (in combination with a man-hauled sledge) on the expedition’s main searching trip was Captain William Kennedy. The route of this trip (25 February until 30 May 1852) was from Batty Bay south via Fury Beach and Creswell Bay to Bellot Strait; through that strait, across Franklin Strait and due west across most of the width of Prince of Wales Island; north to Ommanney Bay, then east back across the island to Browne Bay; north along Peel Sound, east along the north coast of Somerset Island to Port Leopold; and south again to Batty Bay (Kennedy, 1853; Bellot, 1855). The length of this route is, at a minimum, 1187 km. Kennedy and Bellot were travelling with two toboggans, one hauled by five dogs, the other by five men.

Far to the south and west, Dr. John Rae of the Hudson’s Bay Company mounted one of the longest such searches by dog sledge, from Fort Confidence on Dease Arm of Great

Bear Lake, in the spring of 1851 (15 April until 10 June) (Rich, 1953). Having sledged overland to the mouth of the Coppermine, Rae crossed the east end of Dolphin and Union Strait to Wollaston Peninsula of Victoria Island and searched the coast of that island from Wilbank Bay in the east to near Cape Back in the northwest. On his return trip, he sledged up the Coppermine to the confluence with the Kendall, where boats had been cached for him. He then resumed his search by boat. The length of the sledge trip was about 1520 km (Rich, 1953).

Equally long dog-sledge trips were made during McClintock's expedition on board *Fox* (1857–59). Over the period 11 February–14 March 1859, McClintock made a preliminary trip from *Fox*'s winter quarters at Port Kennedy at the east end of Bellot Strait, accompanied by Carl Petersen and Alexander Thompson, each driving a dog sledge (with 7 and 8 dogs). They travelled west through Bellot Strait and south down the west coast of Boothia Peninsula. Just south of Cape Victoria, they encountered some Inuit; this was their turning point (McClintock, 1859:217). This round trip was, conservatively, 668 km in length.

Three separate parties set off in early April 1859 to conduct the main search trips of the expedition. McClintock and Lieutenant William Hobson set off from *Fox* on 2 April, each with a sledge hauled by four men and a dog sledge (McClintock, 1859:246). McClintock himself drove a small sledge pulled by five pups that were in harness for the first time; this was to act as a "scout sledge." The two parties kept company as far south as Cape Victoria, where they separated. Hobson and party crossed James Ross Strait to Cape Felix on King William Island, and then searched the west and southwest coasts of that island almost to Cape John Herschel before turning back. Along the way, Hobson found the only message ever recovered that revealed any details as to the fate of the Franklin expedition, as well as a vast pile of abandoned clothing and equipment at the point where the crews came ashore after abandoning *Erebus* and *Terror*. On his way back north, he also found a boat on a heavy sledge, containing two skeletons and a bizarre selection of abandoned items. The total distance covered by Hobson and his men and dogs was conservatively 1244 km.

In the meantime, from Cape Victoria McClintock headed straight south along the east coast of King William Island then across the east end of Simpson Strait to Point Ogle and on south to Montreal Island, his farthest south. Heading back north to King William Island, he searched the north shore of Simpson Strait then rounded Cape Crozier and travelled north along the west coast of King William Island, where, alerted by a note left by Hobson, he examined further the significant sites that Hobson had found. He returned to the ship on 19 June 1859, having covered a distance conservatively assessed at 1543 km.

Meanwhile Captain Allen Young had left *Fox* on 7 April, also with a man-hauled sledge and a dog sledge. From the west end of Bellot Strait, he cut straight across Franklin Strait to Prince of Wales Island, then right around its southern tip and north to Cape Collinson. Along the way, he

made a foray of some 15 km out across McClintock Channel but was turned back by extremely rugged ice. Retracing his steps round the southern tip of Prince of Wales Island, he returned to Port Kennedy. After a short rest, he set off again, also with a man-hauled sledge and a dog sledge; crossing to Prince of Wales Island again, he headed north and searched both shores of Franklin Sound and Peel Sound as far north as Cape McClintock, the southern tip of Prescott Island. He was back at *Fox* by 28 June (McClintock, 1859:337–339). The total distance he covered in both trips was at least 1256 km.

DOG HANDLERS

Quite striking is the fact that, of the various dog-drivers employed on the different expeditions, only two were indigenous. These were the Greenlanders Christian, hired at Godthåb (now Nuuk), and Samuel, from Upernavik, who took part in McClintock's expedition in *Fox* in 1857–59 (McClintock, 1859). However, it is noteworthy that Carl Petersen, hired by Captain Penny in 1850–51, was a Dane who had spent many years in West Greenland; he also later took part in the *Fox* expedition. For most of the sledge trips that Penny made, Petersen was his dog-driver, but as Penny reported, they were "accompanied by Alexander Thompson, one of the seamen whom I had appointed to attend to the dogs" (Penny, in Sutherland 1852:123). Robert Goodsir, surgeon on board *Lady Franklin*, described Thompson as "an active young fellow" (Great Britain, 1852:348), who clearly became a proficient dog-driver under Petersen's guidance, and who, when he returned to the Arctic on board *Resolute* in 1852–54, naturally assumed the role of principal dog-driver. It was he who drove the dogs on most of the important sledge trips between Dealy Island and Beechey Island, Cape Cockburn and Beechey Island, and Beechey Island and Cape Osborn. It was natural, for example, for Thompson to be selected to drive the "hospital sleigh" that carried the very sick seaman, Morgan, from Cape Cockburn to Beechey Island. McClintock noted that Thompson "has been rated ice-quarter-master for his active zeal in dog-sledge travelling" (McClintock, 1852–54: 7 May 1854).

Thompson received accolades from several officers for his dog-driving skills. McClintock noted: "Alexander Thompson thoroughly understands the management of dogs, and no means were omitted which could possibly render the journey [from Cape Cockburn to Beechey Island and Cape Osborn, and back] more expeditious" (Great Britain, 1855:732). In a similar vein, Richard Roche, *Resolute*'s mate, reported to Captain Kellett: "I beg to recommend to your notice A. Thompson (A.B.). His conduct throughout was most praiseworthy, and his previous acquaintance with dogs rendered him of great service to me [on his trip from Beechey Island to Dealy Island]" (Great Britain, 1855:689).

When McClintock returned to the Arctic in *Fox* in 1857, he had again recruited Thompson, who now served as Quartermaster. However, it was Petersen who drove the dog

sledge on McClintock's trip around King William Island, and unless Thompson was driving Hobson's dog sledge, he appears to have stayed on board ship. Young's dog sledge was driven by the Greenlander Samuel, and later by one of the seamen, George Hobday (McClintock, 1859:318).

Several other seamen acquired sufficient skills at driving dogs to be given charge of the dogs on major sledge trips. Thus Dr. Sutherland, for his major trip from Assistance Harbour in the spring of 1851, chose John Lawson (of *Sophia*) on the basis of his "experience during winter and spring" (Sutherland, 1852:338). On Kennedy's and Bellot's major sledge trip from Batty Bay to Prince of Wales Island and back, Bellot identified William Adamson as the dog driver (Bellot, 1855, vol. 2:132). And when Lieutenant Pim reached HMS *Investigator* at Mercy Bay, he was accompanied by only two men, Emmanuel Bidgood and Robert Hoyle (Armstrong, 1857; Miertsching, 1967), but which of them was driving the dogs was not recorded. It is evident that several of the Royal Navy's seamen acquired sufficient proficiency, in some cases over the course of only a few months, to drive dogs on some impressively long and difficult journeys.

DISTANCES, SPEEDS AND LOADS

If one excludes the extremely short trips for which dog sledges were used, e.g., for hauling gravel or for short hunting or surveying trips, the total length of the major dog-sledge trips was conservatively 11 576 km. The total distance travelled by man-hauled sledges amounted, conservatively, to 41 555 km. Thus, while man-hauling was clearly the preferred means of traction used by the searching expeditions during the Franklin search, the use of dog sledges represented a significant secondary means of transport.

The speeds achieved by the dog sledges varied enormously, depending on ice conditions, weather, number of dogs, length of daylight, and load. A further imponderable in calculating speeds is whether or not the writer included weather-bound days in his calculations. But bearing these variables in mind, one can reach some approximate conclusions as to the speeds attained.

Some of the fastest dog-sledge trips were those whose function was that of a courier service, i.e., involving an officer and a dog driver, with only their provisions and camping equipment on the sledge, and with a large dog team. An excellent example is McClintock's trip from *Resolute* and *Intrepid* wintering off Cape Cockburn to Beechey Island, then north to HMS *Assistance* just north of Cape Osborn, in April 1854 to obtain clarification from Captain Sir Edward Belcher about his orders to abandon his ships. His dog driver was Alexander Thompson, driving 12 dogs. They covered the distance from *Resolute* and *Intrepid* to Beechey Island (311 km) in five days, for an average speed of 62 km/day; on the return trip, that leg (slightly longer because of changed ice conditions – 335 km), again took them five days, for an average speed of 67 km/day. The

entire round trip, from Cape Cockburn to Cape Osborn and back (848 km), took 15 days, for an average speed of 56.5 km/day (McClintock, 1852–54).

Some of the fastest short trips were those resulting from emergency situations. A good example occurred when Richard Roche, who had just left *Resolute* and *Intrepid* to travel to Beechey Island, was accidentally shot in the thigh. With the wounded man on his sledge, Thompson covered the 29.5 km back to the ships in three hours and 45 minutes, i.e., at an average speed (over fairly rough ice) of 7.9 km/hour (McDougall, 1857). Speeds in excess of 45 km/day, or more than 4 km/hour over short distances, were quite common.

For a comparison between speeds attained by dog sledges and by man-hauled sledges, the trip made by Richard Roche to Beechey Island and back in May–June 1853 is informative. On the eastbound trip, Roche was in charge of two man-hauled sledges and took 26 days to cover the 553 km, i.e., his average speed was 21.25 km/day. On the return journey, with a team of five dogs, he covered the same distance in 14 days, i.e., at an average speed of 39.5 km/day (Scott, 1852–54).

For the route between *Assistance* and *Pioneer* just north of Cape Osborn and *North Star* at Beechey Island (98 km), much traveled in the spring of 1854, Belcher (1855) reported the following comparison: a man-hauled sledge with a heavy load could be expected to take five days (i.e., 20 km/day), and with a light load, four days (24.5 km/day), whereas dog sledges regularly made this trip in 22 hours, i.e., at a speed of 4.5 km/hour.

Reports in the literature vary widely as to the loads that the dogs could pull. Thus Kennedy (1853) reported that a team of four dogs could easily pull 200–250 lbs on good ice on a toboggan, but that in rough ice the combined efforts of men and dogs were required. By contrast, over a short distance (1.6 km) and on good ice, De Bray (1992) reported that the dogs on board *Resolute* and *Intrepid* (probably eight in number) could easily haul 600 kg of gravel between Dealy Island and the ships. Later he reported that a team of five dogs could haul 1000 lbs (454 kg) of sand from the island to the ships. On long trips, however, he recommended that the load should not exceed 120 lbs (54.5 kg) per dog.

With reference to his trip from Dealy Island across M'Clure Strait to Mercy Bay and back in March–April 1853, Pim later wrote: "I cannot finish this letter without mentioning the extraordinary performance of the dogs [five in number]. These useful animals dragged about 1000 lbs and travelled with that load as fast as a man could walk" (Great Britain, 1855:650). Elsewhere, for the early part of the outward trip, he recorded that the load on a sledge hauled by seven men was 1438 lbs (654 kg), while that hauled by the five dogs was 1288 lbs (585 kg).

LIMITATIONS

Several writers commented on the limitations of dogs, as against men, when it came to handling rough ice or other

obstacles. For example McClintock, describing a journey that Allen Young had made from Fury Beach to *Fox's* winter quarters in the late winter of 1859, noted:

The sledge was so heavily loaded that it could only run freely after the dogs on smooth ice; and directly any hummocks were encountered, the dogs with their usual instinct, not to drag a sledge unless it run freely, would lie down, and oblige Captain Young and his two men to unload and carry the packages over the obstacle, upon their own backs. (McClintock, 1859:242)

On the basis of a trip north up Wellington Channel with a party of five men and four dogs, William Shellabear, master on board *North Star*, reported, "The dogs were of little use among hummocks, but on a floe two were about equal to one man" (Great Britain, 1854:142). De Bray's observations on the relative merits of dogs vs. men are also quite revealing:

If the ice were always passable it would thus be very advantageous to use only dogs with the sledges, but since one generally encounters many hummocks and deep snowdrifts one has to have recourse to a more considerable, if slower, force and one uses men who, with their natural strength and moral power, are more apt to overcome all difficulties than any other being in creation. (De Bray, 1992:87)

On occasion dogs were almost a liability. Captain Pullen reported that during his trip from Beechey Island north to *Assistance* and *Pioneer* in October 1853, with a party of 18 men (10 of them being a support party) and an unspecified number of dogs, open water forced him to take an overland route, up and over the headland of Cape Spencer. On the "steep and almost perpendicular ascent to the summit of the ridge," they had to resort to "standing pulls," whereby the dogs were "now of no service whatsoever" (Great Britain, 1855:301, 790).

SENTIMENT AND MORALE

Although there are few references to this aspect in the literature, it is clear that strong feelings of affection, which were clearly reciprocated, developed between dogs and men, and especially, no doubt, between the dogs and their drivers. Thus Sutherland (1852: vol. 2:494) noted:

The dogs, young and old, seemed to have a great attachment to us. Every morning, the moment they discovered that one of us had gone into the open air, they all came out of the kennel and crowded round us looking for nothing but caresses, which were often lavishly bestowed.

He also advised against paying too much attention to any particular dog, since this was a sure recipe for a dog-fight. This latter propensity was also noted by Bellot: "Our bitch attaches herself particularly to me, and when I pat her, the other dogs growl and seem jealous" (Bellot, 1855, vol. 1:239). Sutherland further noted that on the trail, "the dogs appear to be glad to overtake us [i.e., the man-hauled sledges] for they generally meet with a great deal of caressing and attention among the seamen" (Sutherland, 1852, vol. 2:69).

Captain Stewart of HMS *Sophia*, on the homeward voyage through Baffin Bay, when the dogs appeared to be suffering severely from the heat, decided that a few of them should be destroyed. He was faced with a strong reaction from his men: "This was a great trial to the seamen, who were all exceedingly attached to them; and to the men who had charge of them, and who had watched over them during the long winter, it was a source of great grief and not a few tears" (Sutherland, 1852, vol. 2:339). Four of the dogs were allowed to live, but "there was not a person on board but felt ashamed of the deed of extermination that had just been perpetrated" (Sutherland, 1852, vol. 2:339).

One suspects that it was to some extent feelings of a similar nature that led Captain Kennedy to donate his four dogs to Captain Pullen when *Prince Albert* called at Beechey Island on her way home. Captain Pullen reported that "Mr. Kennedy had intimated to me his intention of drowning his dogs when he got to sea, rather than taking them home; I begged that he would leave them here, as their having been trained by his own men, and spoken of so highly, they would be of great service to us" (Great Britain, 1854:108).

In their book *Of dogs and men: Fifty years in the Antarctic*, which arose from the decision that all the British Antarctic Survey's dogs must be removed from Antarctica by 1994, in view of the alleged possibility of their transmitting disease to the seal population, the authors Ken Walton and Rick Atkinson wrote: "...so many of us developed an affection and respect for [the] dogs that is far deeper than the most sentimental would have believed possible" (Walton and Atkinson, 1996:13). In his foreword to the book, Prince Charles wrote: "There can be no doubt that the huskies made a great difference to the morale and well-being of those who lived and worked with them" (Prince of Wales, 1996:12). The point was made even more strongly by Peter Forster, one of four men who wintered in one room of the iced-up hut at the Stonington base of the Falkland Islands Dependencies Survey (forerunner of the British Antarctic Survey) during the 1960–61 season:

The saving grace for the stress of close relationships and lack of privacy was undoubtedly the dogs. One would emerge from the hut in an Antarctic winter twilight to the welcoming chorus of barking and howling.... The realization would dawn that the general excitement was for you and you alone, and already the tensions and frustrations of base life were beginning to lift.

(Forster, quoted in Walton and Atkinson, 1996:49)

While there appear to be no specific references to this aspect of the role played by the dogs during the British search for the Franklin expedition in the 19th century, undoubtedly the dogs must also have helped to relieve the inevitable tensions on board those crowded ships wintering in the North American Arctic.

CONCLUSIONS

From past personal experience or observing Greenlanders or Inuit, several of the leaders of the British expeditions in search of the missing Franklin expedition realized the advantages of dog sledges over man-hauled sledges (at least for some purposes) and used dog sledges extensively. Approximately 28% of the total distance covered by the sledge parties involved in the British search for the missing Franklin expedition in the North American Arctic islands over the period 1848–59 was covered by dog sledges rather than by man-hauled sledges. Most of the drivers were British seamen who had acquired the necessary skills “on the job.” The dog sledges were used primarily as “couriers,” i.e., for communication between the various wintering ships. The importance of the boost to the men’s morale provided by the presence and behaviour of the dogs should not be underestimated.

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