

Antarctica's Heroic Era: Transport to the South Pole

Abstract

The type of transport employed was critical to the success of South Pole expeditions. Three very different men each pioneered routes into the Antarctic continent using forms of transport that say as much about the men as about their commitment to their goal. This paper outlines each of the forms of transport used by each of these expeditions, and the implications the South Pole parties had to deal with resulting from their choices.

Introduction

Transport features in virtually every text on South Pole expeditions because it was central to the comfort and success of the expedition. Even now, the transport used in the Antarctic is preserved on the continent as much as the huts are (Landis, 2001). The stables for the ponies are still attached to Shackleton's hut, fodder still lies around the grounds. Discarded sledges, and the bones of dogs and ponies are also remnants.

Many expeditions were planned to the South Pole during the Heroic Era of Antarctica's history, however, this review will cover only the four major expeditions that began on the continent. These are all well documented, especially Scott's final fatal expedition. This review will examine the four South Pole expeditions from the perspective of the types of transport used and the implications of using those forms of transport. It will also briefly comment on Shackleton's 1914 trans-Antarctic attempt in terms of the lessons he took from earlier failures and successes.

"Explorers could only guess at what conditions to expect, based on discoveries about frozen wasteland at the other end of the world," says Mason (1979:12). This uncertainty meant that many different types of transport were experimented with. For the most part, the choice of transport had to be made despite lack of experience or knowledge about their destination. All of the expeditions were the first to tread in certain parts of Antarctica. The choice of transport was made based on individual perceptions and opinions, and very little was based on actual fact - this alone was critical and will be explored further below.

Scott took only dogs for his first expedition, and his negative experiences with them were to dramatically alter his plans for his future attempts. In Scott's 1912 expedition, he seemed to attempt
to “cover all bases” by taking ponies, dogs, tractor-sledges and man-hauling equipment. Shackleton relied heavily on ponies and attempted to employ Antarctica’s first car in his expedition, and Amundsen took only dogs and experienced skiers. Martin comments “The choice of transport - man hauling, dogs or horses - was a significant factor in planning.” (1996:121). It was also a significant factor in the success of the expedition, or the alternative suffering or demise of the men involved.

Scott’s Expedition, 1902

Scott considered taking dogs as his main form of transport in his first bid for the South Pole, then decided against them despite cautionary advice from the Arctic polar explorer, Fidtjoj Nansen. Scott echoed the opinion of his financier, Sir Clements Markham:

In my mind no journey ever made with dogs can approach the height of that fine conception which is realized when a party of men go forth to face hardships, dangers, and difficulties with their own unaided efforts. Surely in this case the conquest is more nobly and splendidly won.

(Scott, in Landis, 2002:127)

McGonigal & Woodworth describe Scott’s comment above as his “fatal flaw in his Antarctic philosophy” (2001:428). Scott was very “British” in his approach, remembering that this was the early 1900’s, and preferred to rely heavily on man-hauling. However he did reluctantly agree to take some dogs with him as an experiment. He was heavily disappointed with the dogs, and commented many times in his diary that depot-laying teams failed due to inexperience with dogs (Landis, 2001; Maxtone-Graham, 1988; Solomon, 2001; McGonigal & Woodworth, 2001). Scott’s perception that the dogs had failed him and were not suited to Antarctic conditions had severe repercussions in his 1912 expedition to the South Pole (Maxtone-Graham, 1988; Solomon, 2001; Liversidge, 1958).

Cameron indicates the Scott was completely out of his element in Antarctica. He was a military man in an alien element:

That is to say they were seamen without a ship, and little they had learned in their professional training and nothing they had experienced in their private lives was a great deal of help to them when it came to exploring the mainland of Antarctica.

(Cameron, 1974:164)

Scott broke many rules in his use of sled-dogs (Solomon, 2001). Several authors point to the fact that the British are not used to working dogs.
For example, Maxtone-Graham says:

Quite simply, he was a reluctant dog-driver. ... They recoiled from the expedient of killing and feeding worn-out dogs to the surviving pack or, God forbid, eating them themselves ... Dogs in Britain are petted, seldom whipped, and never used for haulage.  
(Maxtone-Graham, 1988:216)

Before the South Pole expedition had even begun, the dogs were virtually useless to the men due to both inexperienced handlers as well as inadequate food. This resulted in an unusual inversion of priorities, with the men pulling the sledges while the dogs straggled behind (Maxtone-Graham, 1988; Solomon, 2001; Debenham, 1959).

Part of the problem was attempting to employ both men and dogs pulling together on the same sledge, a strategy never used by Inuit or Siberian trainers. A more serious difficulty was the animals’ diet, for as time went on Scott learned that the dried fish brought as dog food caused illness.

(Solomon, 2001:21)

During their South Pole expedition, progress was so slow and the dogs so weakened by their inferior food, the men not only helped with the hauling but had to employ the method of relaying - hauling half the load, then doubling back for the remainder (Martin, 1996; Quartermain, 1964; Liversidge, 1958; Sullivan, 1957; Landis, 2001). This was exhausting, and the three men were fortunate to make the journey back to Hut Point alive.

**Shackleton’s Expedition, 1908**

Shackleton was with Scott on that first expedition, and inherited Scott’s mistrust of dogs for sledge-hauling (Debenham, 1959; Mason, 1979). However, Hayes comments “Shackleton knew that transport was the key to success and introduced ponies to pull his sledges.” (1932:40). Shackleton calculated that the ponies would drag a much heavier load than dogs in proportion to the food they each consumed. He had personally seen Manchurian ponies himself in Shanghai, and heard them highly praised by people he trusted (Mason, 1979).

Shackleton accepted these favourable opinions of the ponies, although they all proved misleading ... The Irishman consequently calculated from all his sources of information that one pony could do the work of at least ten dogs on the same amount of food, in addition to traveling farther in a day’s march ... The only risk, he thought, was
removing the animals from their native climate and shipping them across the tropics and through stormy seas to the Antarctic. But he decided the risk was worth taking and went all-out for the ponies as his primary form of transportation on the journey to the Pole. Only nine dogs and a new Arrol-Johnston motor car were included to assist the ponies on the expedition.

(Mason, 1979:14)

The wild ponies were shipped to Lyttleton where they were trained. The animals did not fare well on the voyage by ship to Antarctica, and several of the ponies collapsed in the stormy conditions. One pony was so battered it had to be shot (Liversidge, 1958).

On the ship, along with the ponies, was Antarctica’s initiation to motorised transport. Maxtone-Graham describes the sight:

Lashed atop the Nimrod’s afterhatch was a crated marvel, Antarctica’s first motorcar, an Arrol-Johnston. The jaunty two-seater was powered by a four-cylinder, air-cooled engine of a prototype paradoxically designed for service in the Sudanese desert. Oversize steel and hickory rear wheels, ten inches wide, could be changed for different surface conditions, from Dunlop tires for “summer motoring” (as though Antarctica melted dry during the warm months) to wooden-knobbed rims for deep snow or spiked wheels for ice. Both front wheels could be replaced by broad runners.

(Maxtone-Graham, 1988:239)

Once the party reached the Antarctic continent, things did not quite go to plan. The motor car travelled a short distance before overheating. Martin comments “As they waited in the cold for the engine to cool down, the irony of the situation was not lost on the men.” (1996:21). McGonigal & Woodworth claim “The car, Antarctica’s first, was virtually useless.” (2001:443).

Pony numbers were again reduced within a few days on the continent after several of them died from eating volcanic soil. This meant that food had to be severely cut in order for the four remaining ponies to be able to pull the loaded sledges and still maintain a high rate of travel (Hayes, 1932). In addition, the mischievousness of the ponies surprised the men and they were ill-equipped to deal with them in such conditions:

During the first night the animals spent in the new stables no one got much sleep. Some of the ponies broke loose and trotted a short distance away. The exhausted men had to scramble out of their bunks and fetch them back. Once calm was restored, the devilish Grisi went into action. He pushed his head into the hut through one of the
half-boarded windows and woke the expedition with a resounding whinny ... The ponies all seemed to possess more cunning and sense than the English horses the men were accustomed to handling. The worst offender of course was Quan, who raised hell inside the stables. He took delight in biting through his head rope and attacking the bales of fodder stacked behind him. When a chain was put on him to stop this, the Manchurian monster “deliberately” rattled it against the side of the hut, keeping everyone awake. Quan also liked to take the wire rope to which the ponies were tied and, pulling it back as far as possible, let it go with a bang against the galvanized iron wall of the hut. The men tried to stop him by keeping his nose bag on, but within a few hours he ate a hole through the bag and began banging the rope once more. Again, everyone was wide awake.

(Mason, 1979:41)

As the South Pole party began its expedition, they found that Antarctic conditions were not kind to the ponies:

The Beardmore Glacier marked the beginning of misfortune. Moreover, it stressed the folly of Shackleton’s choice of ponies and not dogs. Huskies had long proved to be the finest means of polar travel, yet Shackleton - and later Scott - chose ponies to their cost.

(Liversidge, 1958:144)

In the end, Shackleton and his men had to rely heavily of man-hauling (Debenham, 1959). When they returned to base camp they had journeyed 1600 miles, hauling their own sledge for three-quarters of the distance. Debenham rightly comments “a glorious failure as far as the Pole was concerned but they had pioneered the way” (1959:85).

**Amundsen’s Expedition, 1911-12**

A mark of Amundsen’s South Pole expedition was his superb preparation (Fogg & Smith, 1990). He was clear that dog-teams were the key to success:

Amundsen relied heavily on dogs. He did not mistrust them in polar work as Scott did, and he did not believe in the value of man-hauling sledges, in which Scott seemed at times to have an almost mystical faith.

(Neider, 1972:198)
His use of huskies and skiers was highly effective (Chester, 1994). Hayes says:

The whole expedition was organized exclusively for getting to the South Pole and back safely; the personnel was selected for no other purpose. Thus the best dog drivers, ski runners and ice pilots that could be found in Norway were taken out, with ninety-seven Eskimo dogs and an ample supply of sledges as the sole means of land transport.

(Hayes, 1932:85)

However, it did not start out this way. Amundsen initially experienced many of the same issues with his dogs as Scott had encountered. The difference was that Amundsen knew how to handle the dogs and encourage them into action (Solomon, 2001). Debenham says of Amundsen:

His dog technique was well-nigh perfect, and on one of the depot journeys his teams did 105 miles in two days ... He also proved conclusively, what Scott prophesied, that, for a single purpose dash to an objective, dog-teams would leave man-hauling teams far behind. By contrast with such a journey the tale of Scott’s effort must be slow and laboured.

(Debenham, 1959:88)

Unlike his British competitors, Amundsen trained assiduously to prepare his body for the hardships to follow (Maxtone-Graham, 1988). In addition, he took extensive care of his dogs, providing them with tents to sleep in, plenty of food, and light loads (Hayes, 1932; Liversidge, 1958). His expedition was so well planned that there was an excess of food, and McGonigal & Woodworth comment about both the men and the dogs “They were probably fitter and healthier than when they left.” (2001:450). Hayes also says:

The return journey seemed very pleasant. All the depots were picked up, though all were not needed; limited rations were abandoned and every man and dog ate his fill. The dogs never needed the whip and actually put on flesh.

(Hayes, 1932:93)

Liversidge summarises Amundsen’s expedition well:

Above all, three factors subscribed to his South Polar success: imaginative and brilliant organization, kind weather conditions, and the fact that his party consisted of highly-skilled ski-runners ... Last, and by no means least, he had a true appreciation of the value of dogs; he realized that the explorer had much to learn from the Eskimo. And
so he took with him ninety-seven Eskimo huskies and an adequate number of sledges whose efficiency had been proved by Nansen in the Arctic.

(Liversidge, 1958:154)

Scott’s Expedition, 1911-1912

Scott’s almost-blind faith in man-power and his apathy towards dogs were further endorsed after the performance of himself and two other men. They man-hauled sledges 700 miles over 50 days on a bare minimum of food and fuel, averaging nearly 15 miles a day (Frazier, 1979). Debenham comments:

It must have been on figures such as these that Scott, and Shackleton before him, calculated that a journey to the Pole and back could be made relying on man-power for the main transport.

(Debenham, 1959:77)

For his second South Pole expedition Scott followed Shackleton’s lead and chose to rely on ponies, also taking some dogs and three motor-sledges (Fogg & Smith, 1910). He considered skiing and took along a Norwegian skier to train the men. However they were very unfamiliar with the concept:

In those days it was considered necessary to devote three pages of [an expedition] account to explaining to British readers what skiing was ... The expedition brought skis ... too few took up the opportunity and the men began to learn skiing only once they were on the plateau.

(Martin, 1996:143)

Scott took expensive motor-sledges with him. Maxtone-Graham describes them:

These were an improvement over Shackleton’s motor car - tractors, really, with 18-inch cogged wheels driving chain treads; every section of tread had bolted to it a diagonal batten to grip the snow. The chassis was built largely from aluminum, and the engines were four-cylinder Wolseleys. Each came equipped with a plywood cover lined with quilted canvas batting, enormous tea cozies that were designed to protect brittle engine components from the cold.

(Maxtone-Graham, 1988:300)
However the tractors gave constant trouble and were eventually abandoned, their total combined distance less than 140 miles (Liversidge, 1958).

All of Scott’s forms of transport proved unsuitable (Cameron, 1974). The motor-sledges were not working as well as expected, the men did not know how to get the best out of the dogs, and the ponies could not stand up to the cold. Cameron says:

No body of men ever worked harder, more selflessly or more harmoniously; but their motor sledges proved unworkable, their dogs proved intractable, and their ponies died ... what was worse, because of the failure of all other methods of transport, their leader became convinced in his mind that their only hope of reaching the Pole was by means of man-hauled sledge.

(Cameron, 1974:183)

Fogg & Smith say:

With hindsight we can see that Scott made misjudgments which together led to disaster. He allowed, surely unconsciously, the prejudice of his patron, Sir Clements Markham, in favour of man-hauling and against dog-sledges and skis, to blind him to the superiority of the latter form of travel, and he dissipated resources on Siberian ponies and motor-sledges when neither was really proven under polar conditions.

(Fogg & Smith, 1990:56)

**Shackleton’s Trans-Antarctic Expedition, 1914**

In 1914 Shackleton attempted to cross the Antarctic continent. Despite Scott’s clear failures resulting from his transport choices and the subsequent loss of life of himself and his four comrades, and despite Amundsen’s searing success with dogs, Shackleton was never deterred in his testament to man-hauling. Many people find it astonishing that Shackleton chose again to rely on man-hauling as his main method of transportation for this expedition (Levack & McGowan, 1993).

Such a decision raises the question of what he had learned from earlier South Pole expeditions. It also points most clearly to the way that nationality, or place of origin and upbringing, appears to be a critical factor in expedition planning and decision-making. Scott and Shackleton thought and operated in a very “British” manner, which impacted virtually every facet of the organisation of their respective expeditions.
Discussion

Why, one wonders, should Amundsen’s journey to the Pole read like a summer idyll and Scott’s like the road to Calvary? The answer lies in the fundamentally different method by which they travelled - the former with his sledges hauled by dogs, the latter by men.

(Cameron, 1974:16)

From the information from various sources above, it is apparent that the key to expedition success does lie in the form of transport employed. Ponies carried with them a series of limitations as they did not adapt well to Antarctic conditions (Debenham, 1959; McGonigal & Woodworth, 2001). They were anatomically disadvantaged for snow-based work due to their weight distribution, which meant they frequently broke through the snow crust or through a snowbridge over a crevasse. Maxtone-Graham comments:

Unquestionably, ponies were less well adapted to live in the polar open than dogs. Though their winter coats grew protectively long, the ponies could not curl up in the snow overnight but had to remain standing in the wind, draped with rugs. Although they never contracted frostbite, snow blindness afflicted them badly.

(Maxtone-Graham, 1988:240)

Maxtone-Graham points out that they did have one advantage over dogs however, and that was their height which meant they were able to see above the snow drift which would be at about the level of a dog’s muzzle. However, they have specific dietary requirements and will not devour their own, meaning that they lacked the convenience of self-consuming dog teams.

As stated above, the motor-car was considered practically useless. The motorised-sledges also broke down early on. However, both showed that petrol engines could function in Antarctica and led the way to modern motorised-sledges and other mechanised forms of transport (Hayes, 1932).

Amundsen employed experienced skiers in his party and they made a huge difference (Hayes, 1932). In contrast, Scott’s men were completely inept at skiing and reluctant to learn. Shackleton acknowledged the benefits of skis but also failed to take advantage of them (McGonigal & Woodworth, 2001).

Man-hauling was significant for Shackleton and Scott, both of whom used it extensively. The disadvantage of this form of transport is the weight required to be pulled and the lack of energy
provided for the men through their food. Both Shackleton and Scott believed that the key was to reduce rations thereby reducing weight. Debenham says:

It was always an obsession with Scott that a sledge-party, in order to make a long distance, must take the bare minimum of food and fuel.  

(Debenham, 1959:76)

Contrasted with the 1998 South Pole expedition of Eric Philips, Jon Muir and Peter Hillary, it is apparent that this was exactly the thing that impeded the progress of the party. Much research went into the dietary requirements of the 1998 party, and they were careful to consume at least 6300 calories daily, the minimum energy requirement in sub-zero temperatures to avoid debilitation. In comparison, at best the men in Scott and Shackleton’s expeditions consumed two-thirds of this amount each. However, most often less than 2000 calories was the norm, and their diaries detail hunger-pangs, weakness, exhaustion, and illness (Philips, 2000).

Cameron, in his book “Antarctica: the last continent” (1974), compares and contrasts Scott and Amundsen’s choices of transport when discussing the quest for the South Pole. Cameron claims that the single difference between Amundsen’s success and Scott’s failure was their attitude to dogs. He quotes from Amundsen’s own writings:

The great difference between Scott’s expedition and mine lay in our choice of draught animals. Scott had come to the conclusion that Manchurian ponies and motor sledges would be superior to dogs as a means of transport. I don’t suppose I was the only one to be amazed at this! For it seemed to me that conditions on the Antarctic ice-cap were precisely what one would desire for sledging with dogs. There must, I told myself, be a basic misunderstanding in the British attitude. Perhaps the dog didn’t comprehend its master - or was it that the master didn’t comprehend his dog?  

(Amundsen, in Cameron, 1974:170)

As discussed above, it is clearly apparent that the British attitude permeated the decision-making process, with drastic consequences for expedition parties and their animals. It was Scott’s disappointment with dogs that led him to neglect them in future expeditions as sledge-haulers. Cameron comments “Yet the dog-hauled sledge was the form of transport which offered by far the best chance of success in making a dash for the Pole.” (1974:164)

Through into the mechanised age of Antarctica’s history, dogs continued to be recognised as an essential means of transport (Macklin, 1991), and they became the exception to the outlaw of alien species in 1964. In modern times dogs continue to be used, however the highest comforts are
afforded to expeditioners and their teams. For example, the 1990 International Trans-Antarctic expedition of 4000 miles was undertaken by several men and 42 sledge-dogs - with all the benefits of the latest technology, state of the art fabrics and high energy meals, as well as an aeroplane on standby alert in case of emergency or to replace any of the fatigued dogs (Hurford, 1989). A few years before them was the first dog-sled expedition to the South Pole since Amundsen - these dogs had the added benefits of the above, and they were also outfitted with jackets and booties (Toufexis, 1989).

**Conclusion**

Due to the highly-reported nature of all five of the above expeditions, there seems to be very few gaps in knowledge. Despite the expeditions being conducted almost 100 years ago, there is ample evidence for reconstruction of events - diaries from party members, huts and stores well-preserved in Antarctic conditions, and excellent museum records around the world. Some literature specifically covered aspects of the transportation, for example Mason’s “The South Pole Ponies” (1979) and Chester’s “Huskies: polar sledge dogs” (1994). Many, many more general texts support these specialist books, and the South Pole expeditions are, in general, extremely well reviewed.

**References**


