No edible plants grow readily in the Polar regions. The traditional diet of the indigenous peoples was based on whale, walrus, seal and fish. The early Antarctic expeditions, too, relied heavily on a meat diet — supplemented with a range of stored goods, including tinned and powdered products. Although 'Heroic Age' explorers had only a basic understanding of the need for a mixed, balanced diet, they knew some of the medical conditions that could result from a poor diet — notably scurvy.

Many firms supplied goods to Scott's Expeditions free of charge — with an eye on publicity. Gallons of lime juice were offered by Evans, Lescher & Webb; Bird & Sons gave huge quantities of custard powder; Coleman's provided barrels of flour and cases of mustard and Cadbury's sent 2-tons of cocoa powder.

Some of the clothing, transport and other equipment used by expeditions to Antarctica was simply copied or adapted from the indigenous peoples of the Arctic region. These included the Sami - North Norway, Sweden, Finland, and Kola Peninsula in Russia; the Kalaallit - Greenland and the Inuit - Greenland, Northern Canada and Alaska.

The explorers of the 'Heroic Age' also borrowed successful ideas from European whaling and sealing parties and the pioneer Arctic explorers. Some items, like the lightweight sledges and a special cooker developed by the Norwegian explorer Nansen, were invented for the purpose. Antarctic exploration was also a testing ground for new technologies and equipment that was under development. Often the equipment had not previously been used in the Antarctic - and, inevitably, not all proved useful.

Out of the Cold
Building materials are in short supply at the Poles. In Arctic regions, the Inuit traditionally lived in round houses made from blocks of snow called 'igloos'. In the summer, when the snow melted, they lived in tent-like huts made of animal skins stretched over a frame. In the far north, round conical tents were favoured; quick to put-up and able to withstand high winds. The 'Heroic Age' expeditions used tents on their sledging journeys. More permanent buildings were made of wood. With no trees or wood available at the Pole, the huts and sheds were designed and built in prefabricated kit-form and travelled with expedition. They were put together on arrival.

Dressed for the Occasion
The Inuit made clothes and footwear from animal skins and the traditional 'anorak' (parka) originates in the Arctic region. Scott's expeditions had reindeer-skin sleeping bags, made to order, along with fur gloves and fur boots. Scott could not obtain fur clothing and his men mostly wore layers of woollen clothing - knitted, woven and felted. They also had 'Burberrys', a special wind-proof outer gear well suited to sledging journeys. Named after the maker, the 'Burberrys' were made of hard-wearing and water-resistant gabardine; a cotton based and breathable fabric invented in 1880. Leather boots were worn for skiing. Different types of goggles helped prevent snow-blindness - but goggles were uncomfortable and glazed goggles could easily fog-up, making it difficult to see.

Come Dine With Me
No edible plants grow readily in the Polar regions. The traditional diet of the indigenous peoples was meat based - including whale, walrus, seal and fish. The early Antarctic expeditions, too, relied heavily on a meat diet - supplemented with a range of stored goods, including tinned and powdered products. Although 'Heroic Age' explorer's had only a basic understanding of the need for a mixed, balanced diet, they knew some of the medical conditions that could result from a poor diet - notably scurvy. Many firms supplied goods to Scott's Expeditions free of charge - with an eye on publicity. Gallons of lime juice were offered by Evans, Lescher & Webb; Bird & Sons gave huge quantities of custard powder; Coleman's provided barrels of flour and cases of mustard and Cadbury's sent 2-tons of cocoa powder.
Scott took two balloons South on the *Discovery* Expedition. He went up himself in the hot air balloon named ‘Eva’ on 4 February 1902, and reached a height of 250 metres (820ft). This was the first flight in Antarctica. On a second ascent, the same day, Ernest Shackleton took the first ever aerial photographs in the Antarctic. The second balloon was never flown.

These pioneer balloon flights gave a glimpse of what lay beyond the Antarctic horizon. However, the problems of transporting large quantities of hydrogen fuel limited their use. On the *Terra Nova* Expedition, Scott studied the weather using un-manned balloons.

There is a Plymouth connection with plans to take the first aircraft to Antarctica in 1911. The Mechanical Engineer on Mawson’s Australasian Expedition was Francis Bickerton (1889-1954). The orphaned Bickerton was brought up by an uncle who lived at 9 Osborne Place, Plymouth. In the event, Mawson’s aircraft was damaged whilst on an Australian test flight - and was taken South and used only as a motorised ‘air-tractor’.
Motorised Sledges

Shackleton’s *Nimrod* Expedition was the first to take a motor car to Antarctica but the engine struggled in the cold - and the tyres for grip.

Scott took three specially designed motor sledges on the *Terra Nova* Expedition. The sledge engines could run for 480km (300miles), carrying three-quarters of a ton at up to 5km per hour (3mph). One of Scott’s motor sledges was lost through thin ice as it was unloaded from the ship. The other two proved completely unreliable - due to overheating.

Scott had planned that the motorised sledges would *“relieve the ponies and dogs of weight and increase the safety of the return journey”*. Scott’s Journal, 1 June 1910
“We camped and the ponies have been shot. Poor beasts! They have done wonderfully well considering the terrible circumstances under which they worked…” Scott’s Journal, 9 December 1911

Ponies had been used in places like Siberia but not in Polar regions. It was Shackleton’s *Nimrod* Expedition that first used them for hauling sledges in Antarctica. As there are no grasses or herbs, all the fodder had to be transported too. However, if needed, the ponies could be killed and eaten.

Scott used ponies for the *Terra Nova* Expedition, hauling sledges to lay storage depots. The ponies had snow shoes which, if used, increased the daily mileage. Of the nineteen ponies Scott took South, nine were lost by illness or accident before the Polar Journey. The survivors hauled sledges to the foot of the Beardmore Glacier, where, exhausted and low on fodder, they were killed. As was normal, the meat was fed to the dogs - but, this time, some was stored to be used by the Polar Party on their return journey.
Dogs were the traditional method of hauling sledges in the Arctic regions - and they were used by some of the first European explorers in both the Arctic and Antarctic.

Although Scott used dogs on the *Discovery* Expedition, he felt they had failed. In fact, the men could not keep-up with the sledge dogs on ski, and over-loaded the sledges to slow them down. The dogs’ health also suffered, fed mostly on dried fish. As they weakened, they could no longer pull. The weakest animals were killed and fed to the surviving dogs and, eventually, the men hauled the sledges themselves.

Scott took dogs again on the *Terra Nova* Expedition. Thirty-three sledging dogs were collected and driven across Siberia and transported by sea to New Zealand, to join the ship. Although both ponies and dogs were used for depot laying, Scott chose to man-haul the sledges on the final journey to the South Pole.
“In my mind no journey ever made with dogs can approach the height of that fine conception which is realised when a party of men go forth to face hardships, dangers, and difficulties with their own unaided effort ... Surely in this case the conquest is more nobly and splendidly won”.

Captain Scott - Discovery Expedition, 1901-04

Man-Hauling

Using men to pull or haul sledges was not an unusual choice on the pioneering Polar expeditions - even when dogs and ponies were available. Man-hauling was first taken-up by Royal Naval expeditions of the Victorian era. It was sometimes even favoured by the British - the influential Sir Clements Markham, for one, saw it as the nobler method.

The sledge would be pulled by a team of men in harness - connected to the sledge itself by tether ropes.
A sledge is a vehicle ideal for running over snow and ice. It can have a smooth underside, in direct contact with the ground, or be supported on two or more narrow runners. The Norwegian explorer Nansen studied Inuit sledges and developed a stronger, lighter design - with the runners wider apart, so the sledge could carry more weight without sinking into the snow. ‘Heroic Age’ sleds were mostly made of wood, with leather wrappings, rope lashings and metal bracing for extra strength.

Scott’s Terra Nova Expedition took twenty-four sledges of 12ft (3.7m) length, ten of 10ft (3m) and ten of 9 ft (2.7m). Many were supplied by L. Hagen & Co. of Norway, mostly of elm with hickory runners - with up to six made in Australia with specially treated, experimental, hardwood runners. The sledges had to carry all the required supplies, including tools, scientific equipment, plus tent, cooker and fuel.

“Evans, a giant worker ..... He is responsible for every sledge, every sledge fitting ..... he thinks out and arranges the packing of the sledge; it is extraordinary how neatly and handily everything is stowed, and how much study has been given to preserving the suppleness and good running qualities of the machine.”

Scott’s Journal, 8 January 1912
Both of Scott’s Expeditions were equipped with skis - and he took Norwegian ski expert Tryggve Gran on the Terra Nova Expedition to train the men. However, Scott’s men were far from being expert skiers - unlike Amundsen and the men of the rival Norwegian expedition. This put Scott at a disadvantage in the ‘Race to the Pole’.

Questions remain about the fact that Henry Bowers, a late choice for Scott’s Polar Party, no longer had his skis. Scott had previously instructed the final support party to depot their skis before climbing the Beardmore Glacier. As a result, Bowers had to cover the 580km (360miles) to and from the Pole on foot - while the others skied.

The Terra Nova Expedition skis were made of a close grained wood and the ski sticks of strong, but light, bamboo. They were of Norwegian manufacture and it is likely that Gran sourced all the skis from L. Hagen & Co., the leading maker of the time.

“I’m much pleased with the ski and ski boots - both are very well adapted to our purposes”.
Scott’s Journal, 11 December 1910

Discovery men practicing on their skis, 1902-04
Plymouth City Museum and Art Gallery (Dailey Collection)
Scott calculated a day’s ration for one man on the sledging journey at: “16 ounces (450 g) biscuit, 12 ounces (340 g) pemmican, 3 ounces (85 g) sugar, 2 ounces (57 g) butter, 0.7 ounces (20 g) tea and 0.57 ounces (16 g) cocoa.”

Sledging Rations

Men doing hard physical labour in very cold conditions needed fatty, nutritious, energy rich food. Sledging journey supplies had to be lightweight, portable and able to be kept for a long time without going-off. Pre-cooked food needed to be re-heated using the minimum of fuel.

Pemmican was a high energy meat-mix used on sledging journeys by the native peoples of North America. It was adopted by fur traders and later used by Arctic and Antarctic explorers.

Scott’s pemmican was a concentrated mix of fat and protein, a dried mix of ground or minced meat and oil. It was often made into ‘Hoosh’, a meat and melted snow soup, eaten with buttered sledging biscuits. The biscuits were made from Plasmon milk powder - high in protein content but very hard.
After my walk I discovered that great preparations were in progress for a special dinner, and when the hour for that meal arrived we sat down to a sumptuous spread with our sledge banners hung about us. Clissold’s especially excellent seal soup, roast mutton and red current jelly, fruit salad, asparagus and chocolate – such was our menu. For drink we had cider cup, a mystery not yet fathomed, some sherry and a liqueur.”

Scott’s Journal, Birthday entry, 6 June 1911

Square Meals

At Base Camp, Scott’s men ate well. For breakfast there was porridge, bread and butter, marmalade or jam - with seal liver instead of porridge twice a week. Lunch consisted of soup, meat - often seal or penguin - and a fruit tart. A similar, lighter meal was served for dinner.

Fresh bread, cakes and fruit tarts were baked each day. There was roast mutton on Sundays. During the winter, it was important to vary the menus to keep up morale. Special treats were available to celebrate festive days such as Christmas and Mid-Winter.
"The hut is becoming the most comfortable
dwelling-place imaginable. We have made unto
ourselves a truly seductive home, within the walls
of which peace, quiet and comfort reign supreme."
Scott's Journal, 19 January 1911

Sea-ice stopped Terra Nova reaching the old Discovery
base camp at Hut Point, near the present-day
United States McMurdo Station. Scott landed to the
north and the men immediately got to work, unloading
stores and erecting the pre-fabricated huts. The place
was named Cape Evans - after Lt. Edward Evans RN,
Scott's second-in-command.

Frank Davies, the Expedition carpenter, supervised the
hut building. The floor, walls and roof were insulated
with a combination of Gibson Quilting, rubberoid and
shredded seaweed. Weatherboards formed the exterior
wall cladding. The roof was covered with rubberoid,
lapped and glued, over timber boarding.

Bowers was in charge of the stores and an outside
annexe was constructed from store boxes. A separate
bathroom was installed, one of the motor tractor crates
- divided inside for officers and men. The adjoining
stables were made of large fodder bales and blocks
of Patent Coal. A small stove in the stables was used
to cook mash for the ponies and pemmican for the dogs.

"Day and Nelson, having given much thought to the
proper fitting up of their corner, have now begun work.
There seems to be little doubt that these ingenious
people will make the most of their allotted space."
Scott's Journal, 19 January 1911

The seductive folds of the sleeping bag. The hiss
of the primus and the fragrant steam of the cooker
issuing from the tent ventilator. The small green tent
and the great white road…"
Scott's Journal, 2 February 1911

The tents used on sledge journeys needed to be light
and portable - with a waterproof but breathable fabric.
They had to be quickly and easily put up and taken down.
Scott's expedition tents mostly slept between two and
four men. Sleeping close together - using a one or
two-man sleeping bag, provided additional warmth.
The cooking was also, often, done inside the tent.
The British Army had first developed the pyramid tent
- originally with a single central pole. The Norwegian
explorer Nansen used a more lightweight, silk version
in Greenland in 1888. Earlier expeditions to the
Antarctic introduced four corner poles of bamboo,
hinged at the peak, to better withstand the winds and
with a mainly 'Burberry' waterproof canvas sewn to the
structure. The Terra Nova Expedition introduced an
inner-lining called a double tent - now referred
to as a 'Scott Tent'.