

ROALD AMUNDSEN*

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ROALD Engebregt Gravning Amundsen (1872-1928) was the first to navigate the Northwest Passage, the first to reach the South Pole, a navigator of the Northeast Passage, the first to fly to latitude 88°N. and the first to fly across the Arctic Ocean.

Early life

Amundsen was born on July 16, 1872 on a small farm near the town of Sarpsborg in southeastern Norway. For five generations his ancestors had been farmers and sailors. Roald Amundsen's father, Jens Amundsen, sought the sea and worked his way up until he captained his own ship. With his two brothers and a brother-in-law he developed a flourishing shipping business, which operated up to 22 sailing vessels.

When Roald was only a few months old his father moved to Oslo (then Christiania) where he bought a property on the outskirts of the city. Here Roald and his three older brothers grew up, taking full advantage of the facilities for skiing and skating and spending their summers sailing and fishing. Their father was a powerful man of the stern old school, who claimed full authority in his home and gave his boys some sound advice: "I had never a chance to get an education and have often felt my handicap. It is not enough to have the will to work, one must also have knowledge. I want you boys to learn more than I did." And: "I don't want you to get into any fights, but if you have to fight, deal the first blow and see to it that one blow is enough."

Roald may have followed the latter advice, but not the former. He did manage to get admitted to the university when he was eighteen, but he was at the bottom of his class. He was a quiet boy who evidently considered the school a necessary evil and who from the age of fifteen had made up his mind about his future. He wanted to explore the polar regions and his first goal was the navigation of the Northwest Passage.

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He had come across the accounts of the Franklin Expedition and had read every book he could find about the search parties that for 20 years tried to learn the fate of Sir John Franklin and his men. The search had led to the discovery of the Northwest Passage, but no navigator had yet succeeded in sailing a ship through the ice-filled and treacherous waters. Here was a task that appealed to Roald's imagination, a task surpassing Nansen's crossing of Greenland, which had set him afire. Neglecting his homework he read and re-read the great travel books from the Arctic.

He wanted to prepare himself thoroughly for his career and would have preferred to go to sea in order to obtain his master's papers, because he wanted to be captain on board of his own ship. However, his older brothers were already sailors, and his mother, now a widow, wanted her youngest son to stay away from the sea and study medicine.

Amundsen felt it his duty to follow his mother's wishes, but he spent little time studying and much more in hardening himself and developing a magnificent physique. When his mother died in 1893, Amundsen sold his few medical books and got a berth as ordinary seaman on board the sealer *Magdalena*, the ship which later, renamed *Danmark*, was used by Mylius-Erichsen on his East Greenland expedition of 1906-8. During the following years Amundsen advanced steadily, in 1895 he obtained his papers as mate and in 1900 his master's license. In later years the only title he liked to have applied to him was that of "Captain".

He gained his first experience in the polar regions from 1897 to 99 when he took part in de Gerlache's antarctic expedition as mate of the *Belgica* and spent a year drifting with the ice between longitudes 70° and 100°W. The western part of that region is now called Amundsen Sea. Dr. Frederick A. Cook was physician on board of the *Belgica*. Amundsen admired Cook's ability and initiative, and the friendship that grew up between the two men lasted through their lives in spite of the different fates of the two.

The Northwest Passage

After his return from the *Belgica* expedition Amundsen considered himself experienced enough to start preparations for realizing his boyhood dream, but first he had to get the support of his hero, Fridtjof Nansen. Nansen not only approved the plans, but in years to come gave advice freely whenever Amundsen asked for it and repeatedly helped to straighten out Amundsen's tangled finances.

Nansen's eminent scientific ability and his enthusiasm for expanding scientific knowledge of the Arctic must have exercised a considerable influence on Amundsen's thinking and must have strengthened his wish to get acquainted with different methods of observation so that he, though no scientist himself, could collect accurate data for others to analyze.

One important problem presented itself, the relocation of the north magnetic pole, which had been visited first in June 1831 by James Clark Ross. In order to make himself familiar with magnetic measurements,

Amundsen went to Hamburg where he presented his plans to Dr. G. von Neumayer, at that time the foremost expert in the field of terrestrial magnetism, and asked advice regarding instruments and methods of observation. Neumayer received Amundsen most cordially, encouraged him and instructed him for several months in all the details of precise observations.

The next step was the search for a suitable ship. It had to be small, sturdy, and inexpensive because he hoped to finance the expedition himself and he had only a small inheritance at his disposal. After thorough examination Amundsen bought the small sloop *Gjøa* of only 46 tons, which had been built in 1872, the year Amundsen himself was born, and which was still as sound as he. In the next summer, 1901, he took the *Gjøa* for a cruise to the East Greenland waters, partly to get acquainted with the handling of the ship and partly to undertake oceanographic observations in which Nansen was particularly interested.

The following two years were spent in carefully selecting and testing equipment and provisions and in assembling the small party that could be accommodated on board the ship. It soon became clear that Amundsen's own funds were quite insufficient to cover all expenses and much against his wishes he had to ask for support from various sources. He did this reluctantly because he hated to talk about plans and preferred to keep away from all publicity until he had reached his goal. He retained this characteristic through life, but in later years he became too much of a public figure to stay out of the limelight. There is, however, no doubt that his reluctance to discuss plans, which was often considered a special form of conceit, had deep roots and that by nature he was a lonely man who preferred action to words.

The financial support that Amundsen was able to obtain for his first expedition was still inadequate, and when he was ready to sail in June 1903 he found himself considerably in debt. He himself tells that, when one of his creditors threatened to place the *Gjøa* under lien until payment was made, he decided to sneak away after having informed the crew of his plans. According to another source Nansen himself undertook the responsibility for the departure by promising Amundsen to see to it that his creditors were satisfied. Be that as it may, the *Gjøa* left Oslo about midnight on June 16, 1903, and the creditors were paid when the Northwest Passage had been conquered.

After having studied all available accounts of earlier expeditions, Amundsen had decided to try the straits between the American mainland and the southern islands of the Canadian Archipelago. The *Gjøa* first called at Godhavn, Greenland, to take 20 dogs on board and next at Dalrymple Rock to obtain supplementary provisions and kerosene from Scottish whalers. From there Amundsen continued past Beechey Island and then turned south into Peel Sound and Franklin Strait.

Storm, fire in the engine room, and near shipwreck on a submerged rock threatened to bring the journey to an early end, but superb seamanship and quick action prevented disaster on each occasion.

It seems possible that the *Gjøa* could have sailed through the Northwest Passage in one season, because Simpson Strait was free from ice when the eastern entrance was reached on September 9. However, the navigation of the Northwest Passage was only part of the program, the relocation of the north magnetic pole and continuous recordings of the magnetic elements during at least one full year were equally important. Since the recordings should preferably be made at a distance of about 100 miles from the magnetic pole, Amundsen was on the lookout for a suitable wintering place when approaching King William Island and was delighted at the discovery of the nearly closed and completely sheltered little bay that now on all charts carries the name Gjoa Haven. After a careful survey of the bay the *Gjøa* sailed into it, anchored, and stayed there for two years.

Besides Amundsen the party consisted of the following six men: Godfred Hansen, lieutenant in the Danish Navy, second in command, navigator, geologist, and astronomer; Anton Lund, first mate, with much experience in ice navigation; Peder Ristvedt, meteorologist and engineer; Helmer Hansen, second mate and also an experienced sealer; Gustav Juel Wiik, magnetic observer who with Amundsen would be responsible for the magnetic observations; and Adolf Henrik Lindstrøm, the "polar cook", who had been cook on the Second Expedition in the *Fram* from 1898 to 1902 and now served in the same capacity in the *Gjøa*.

It was not economy alone that was responsible for Amundsen's selection of a small ship, which could not accommodate a large party. The choice of vessel was also based on the one principal thesis to which Amundsen subscribed on this and every other of his subsequent expeditions: a party should be the smallest possible consistent with the purpose of the enterprise. Only by adhering to this rule would it be possible to keep each man fully employed and to make him feel that his personal effort was all-important to the success of the expedition. Amundsen considered it his duty as leader to see that none of his men had an opportunity to loaf or become demoralized because he felt that he was wasting his time on useless assignments. On the *Gjøa* expedition Amundsen had little difficulty in discharging the duties of leader because the party was so small and was composed in such a manner that each man had to be given more than one task for which he must be responsible.

Wiik and Ristvedt built their magnetic observatory on shore and added a shack where they lived for nearly two years, collecting a wealth of data that was taken over by the Norwegian Government and later distributed to specialists for working up and publication. The continuous meteorological observations at *Gjøa* Harbour added much to the knowledge of the climatology of that part of the Arctic. After two shorter trips in March 1904 to establish caches Amundsen and Ristvedt started on April 6 on a sled journey to Boothia Peninsula in order to take observations close to the magnetic pole. A series of stations was occupied and the observations showed that the pole was located in 1904 near the place at which James Clark Ross had first found it 73 years earlier.

From April 2 to June 23, 1905 Godfred Hansen, also accompanied by Ristvedt, explored the east coast of Victoria Island between latitudes 70° and 72°N. and mapped this previously unknown coast line.

There were no Eskimo at Gjoa Haven when winter quarters were established, but in November the first arrived and from then on the contact was permanent and evidently mutually beneficial. Amundsen and his party obtained prepared reindeer skins as well as complete outfits of clothing and learned how to build snowhouses. On subsequent expeditions Amundsen used Eskimo-type clothing and footgear with some minor modifications, but neither he nor any of his companions became such experts in building snowhouses that they could discard their tents. The Eskimo, on the other hand, received needles, knives, empty tin cans, and many other useful articles from the visitors. All the different groups that visited the *Gjøa* had had very little contact with western civilization; they were practically lacking iron and steel and had little knowledge of firearms. Amundsen made extensive notes of their customs and brought back a large collection of their various implements. Amundsen's views on cold-weather clothing are stated or implied in a number of his writings. The essence is found in the chapter "Towards the Magnetic Pole", which is the fifth chapter of Volume I of the English edition of "The Northwest Passage".

"We were ready to leave on the first of March. The thermometer showed -55°C. (-63°F.). But through the month of February we had become so accustomed to the cold that it did not bother us much. We were also very well dressed. Some of us wore complete Eskimo costumes, others partly civilized clothing. My experience is that in these parts in winter the Eskimo dress is far superior to our European clothes. But one must either use it alone or not at all. Any combination is bad. Wool underwear gathers all perspiration and will soon make the outside clothing wet. Dressed entirely in reindeer skin, like the Eskimo, and with the clothing loose enough on the body to let the air circulate between the layers, one will as a rule keep the clothing dry. If one is working so hard that the clothing becomes damp in spite of everything, skin dries much easier than wool. Also wool clothing becomes dirty easily and loses its warmth. Skin clothing keeps nearly as well without washing. A further great advantage of skin is that you feel warm the moment you put it on. In woolen things you have to jump and dance like crazy before you get warm. Finally, skins are absolutely wind-proof, which is of course a very important point."

In the summer of 1905 the *Gjøa* was made ready for continuing her journey and if possible completing the Northwest Passage. On August 13 she left the now ice-free Gjoa Haven and set her course toward the unknown west. Ice, fog, and shoals endangered the progress, the sounding lead had to be used continually and often there was hardly a foot of water under her keel. However, the *Gjøa* advanced and on August 17 she dropped anchor at Cape Colbourne, the easternmost point that had been reached in these waters by any ship coming from Bering Strait. The Northwest Passage was completed. A few days later, on August 26, the first ship was

sighted, the *Charles Hansson* of San Francisco, commanded by Captain J. McKenna, who was the first to congratulate Amundsen on his success.

Amundsen, of course, hoped to reach Bering Strait and civilization that year, but ice conditions were bad. As early as September 2 progress was stopped at King Point, near Herschel Island, and within a week it was evident that another winter had to be spent in the Arctic. This time the *Gjøa* had much company because no fewer than 12 ships had been caught at Herschel Island.

The magnetic recordings were continued at King Point, and during the winter Amundsen travelled to Eagle, Alaska, in order to send telegrams from the expedition to the outside world. He made the trip in company with the skipper of the shipwrecked *Bonanza*, Captain Mogg, of whose accomplishments as a traveller by dog team Amundsen had a very low opinion. On his return to King Point Amundsen learned the sad news that Wiik had been taken ill and died.

By the middle of August 1906 the *Gjøa* could resume her journey. She reached Nome on the 31st, where she was given a reception worthy of the adventurous and boisterous gold seekers who at that time were making Nome famous. From there on the trip back to Norway was a triumphant journey that brought Amundsen full compensation for his worries and difficulties during the trying years of preparation. The *Gjøa* was however not returned to Norway. She was presented to the city of San Francisco and was in 1909 placed in Golden Gate Park. She deteriorated badly, but was restored in 1948.

Plans for crossing the Arctic Ocean

For two years following the return of the *Gjøa* Amundsen was engaged in writing and lecturing in order to improve his shaky finances. He hated the lecture trips on which he had to place himself in the hands of a manager and sell his freedom of action to a person whose publicity schemes he disliked but could not avoid. Little wonder then that he soon worked on a new plan, which he presented to the Norwegian Geographic Society in the fall of 1908. He proposed to use Nansen's ship, the *Fram* and repeat Nansen's famous drift across the Arctic Ocean. The main purpose would be the repetition of the oceanographic work of Nansen, using better equipment and new and greatly improved instruments. Nansen had not been prepared for the great depths he discovered and was not equipped with adequate sounding lines and the deep-sea oceanographic work was consequently much handicapped. Furthermore, the available deep-sea thermometers and other instruments were inaccurate. By ingenious interpretation of the imperfect observations Nansen had been able to recognize the main features of the oceanography of the Arctic Ocean, but in spite of his brilliant analysis several points remained in doubt on account of the deficient data. In the years since the return of the first *Fram* expedition Nansen himself had contributed much to the improvement of

instruments and methods. By using the new technique Amundsen hoped to expand and confirm Nasen's results. Nansen was much interested in Amundsen's new plans and gave them his wholehearted support. Private and public funds were obtained and the outlook for the expedition was bright. A great deal of the public interest in the expedition was based on the assumption that Amundsen would make a dash for the North Pole and it was confidently expected that he would succeed and become the first man to reach that coveted spot. There is no doubt that Amundsen wanted to have a try at reaching the Pole, although he never said so directly.

That the public was more interested in the spectacular aspects of the expedition than in its laborious scientific work became evident when support failed in the early summer of 1909 after it was learned that both Frederick A. Cook and Robert E. Peary claimed to have reached the North Pole.

The South Pole

These events led to a complete change in Amundsen's plans for his contemplated drift across the Arctic Ocean. The public interest in his expedition dropped off, the contributions ceased, and it appeared hopeless to equip the *Fram* for 5 years. He also felt that to maintain his name as explorer he had to accomplish a sensational feat. Without informing more than three of his closest associates he decided to try to reach the South Pole. When the *Fram* left Norway in June 1910 the official plan was that she should sail around Cape Horn, continue north through the Pacific and enter the Arctic Ocean through Bering Strait in the summer of 1911, but from Funchal, Madeira, Amundsen announced that he was instead heading for the Bay of Whales in the Ross Sea and from there was trying to reach the South Pole.

Amundsen's message reached Captain Robert Scott as he was ready to leave New Zealand to establish a base in McMurdo Sound, about 350 miles to the west of the Bay of Whales, from where he intended to reach the South Pole. Severe criticism was directed against Amundsen on the basis that he had entered a race against Scott, but it has gradually been admitted that Amundsen could not be blamed for attempting to reach the South Pole by a route different from that selected by Scott and using a different technique. Amundsen and four companions reached the Pole on December 14, 1911, Scott on January 18, 1912, but Scott and his brave comrades perished on the return journey.

The Northeast Passage

As soon as Amundsen was back in civilization he resumed his plans for the drift expedition across the Arctic Ocean. The *Fram* had taken him and his party on board in 1912 and gone to Hobart, Tasmania, from where Amundsen sent his first brief report. From Hobart the ship had continued to Buenos Aires for overhaul. After supplementing her equipment she was

to return to the Pacific and sail north to Bering Strait. In 1913 when Amundsen was lecturing in the United States it was suggested to him that the *Fram* might be permitted to go as the first ship through the Panama Canal. Amundsen was anxious to take advantage of this opportunity and ordered the *Fram* to Colon. However, after having waited in vain for two and a half months she had to be sent back to Buenos Aires with orders to go around Cape Horn and on to San Francisco. The bottom of the ship had become so badly fouled that the trip to Buenos Aires took too long to make it possible for the *Fram* to reach San Francisco in time to continue to Bering Strait in the summer of 1914. Amundsen decided to have the *Fram* return to Norway and start from there in 1915 by following the north coast of Siberia to the east as Nansen had done in 1893. The *Fram* arrived in Norway only two weeks before the outbreak of World War I, which temporarily stopped Amundsen's plans. They were still more seriously upset when it was found that the *Fram* had been damaged beyond repair by dry rot during the long stay in the tropics.

At this point it should be mentioned that Amundsen had long contemplated the use of airplanes in arctic exploration, thus pioneering a development that was to revolutionize arctic work. As early as 1909 when he was making his first preparations for the drift expedition he had negotiated with one of the early aviators about participation in the enterprise, and in 1914 he had bought a Farman biplane in the United States and shipped it to Norway where he himself obtained a certificate as pilot and where he gave it to the Norwegian Government at the outbreak of the war.

The war and the loss of the *Fram* did not make Amundsen abandon his plans. He invested his accumulated funds in shipping stock, doubled his capital and contracted in 1916 for the building of a new ship, which still left him enough money to finance the long-postponed drift expedition. His new ship was launched in June 1917 and named the *Maud* after the Queen of Norway. The *Maud* had been designed by the yacht builder Chr. Jensen and was built along lines similar to those of the *Fram*, but she was even more bowl-shaped. Her over-all length was 120 feet, her beam 40 feet and in any vertical section, lengthwise or athwart ship, the line of the hull was part of a circle. From the outer side of the ironwood ice-sheathing to the inner side of the inner sheathing the sides were nearly three feet thick. Inside the hull was strengthened with vertical and inclined stanchions that were tied with naturally-grown knees of oak. Her shape made her behave excellently under heavy pressure from ice, but in the open sea she rolled like a wash basin.

During the winter 1917-8 Amundsen equipped the *Maud* for a five-year journey, obtaining provisions from the United States under special license. On July 18, 1918 the expedition sailed from Vardö, Norway with a party of nine. This number was increased to ten when a Russian-Norwegian engineer was added at Kharborovo. The party included Helmer Hansen as captain, who had been with Amundsen through the Northwest Passage;

Oscar Wisting, first mate, who had been to the South Pole; and among the three tenderfeet was Dr. H. U. Sverdrup, in charge of scientific work.

The *Maud* expedition met with many difficulties. In September 1918 progress was stopped some 10 miles to the east of Cape Chelyuskin, where the *Maud* stayed a full year. That period was used for carrying out scientific observations and charting the northernmost peninsula of the continent.

In the summer of 1919 the ice did not break up around the *Maud* and only on September 12, after much blasting and advancing foot by foot did the ship reach open water and could continue to the east. Here two men, Knudsen and Tessen, were left behind. They had volunteered to return to Port Dickson with the records of the year's work. They had a number of dogs and provisions for a year and had the choice of leaving in the fall or waiting until the following spring. They left in the fall but failed to reach their destination.

The *Maud* sailed to the east but the season was too late to penetrate to the north and start the drift. An attempt to turn away from the coast east of the New Siberian Islands failed and on September 21 all progress was stopped. Winter quarters were established on the open coast of Ayon Island about 600 miles west of Bering Strait. During the winter Sverdrup left the ship and stayed for eight months among the Reindeer Chukchi.

In July 1920 the journey east was resumed and on July 28 the *Maud* reached Nome. Amundsen thus completed the Northeast Passage that had been navigated for the first time by A. E. Nordenskiöld in the *Vega* from 1878 to 79 and for the second time in 1914-15 by the two Russian icebreakers *Taimyr* and *Vaigach*, the latter sailing from east to west.

In Nome Amundsen announced that all his companions were free to leave the expedition, which had already been in the Arctic for two years without having started its actual task, the drift. Four of the eight remaining in the party decided to return to Norway. Since no new men could be found in Nome, the *Maud* left with only four men on board, including Amundsen. His plan was to return to the Siberian coast, take some natives on board and attempt to start the drift. However, the ice conditions were worse than before and after a long struggle in which the propeller shaft was damaged, it became necessary to go into winter quarters only 25 miles from the place where the *Vega* stayed in 1878-9.

During the winter Amundsen decided that next year he would leave it to Wisting and Sverdrup to have another try at the drift if they were willing and that he himself would return to his old plans for the use of airplanes in the Arctic. Consequently the *Maud* was taken to Seattle in the summer of 1921 for repairs. She left again for the Arctic in June 1922 with a crew of eight, including a native boy from Siberia and finally succeeded in getting away from the coast. She became fast in the ice east of Wrangell Island but was not carried across the Arctic Ocean as had been hoped. After two years she got out of the ice north of the New Siberian Islands and tried, according to Amundsen's directions, to return to Bering Strait, but she had to spend one more winter on the Siberian coast near

the Bear Islands off the mouth of the Kolyma River. The *Maud* and her crew finally returned to Seattle in October 1925 with a wealth of observations that made the expedition a scientific success.

Difficulties

During the years from 1922 to 25 Amundsen experienced the bitterest disappointments, but also the most spectacular triumph of his varied life. In 1922 he had bought a Junkers plane, which the *Maud* took to Point Hope, Alaska, where it was transferred to the *Holmes*, which unloaded it at Wainwright. Amundsen with Oscar Omdal as pilot hoped to fly from Wainwright to Spitsbergen in the spring of 1923, but when spring came it was impossible to get the plane off the ground with the necessary supply of fuel and the plan had to be given up.

After returning to Norway in 1923 Amundsen found himself at the lowest ebb in his career. He had hoped to raise funds for an airplane expedition to start from Spitsbergen, but he found himself blocked in every direction. From the public point of view the *Maud* Expedition was a failure and furthermore it was considered that Amundsen should have stayed with the ship instead of trying ventures, which were called stunts that were unworthy of being taken seriously. All sorts of rumours were being circulated reflecting not only upon Amundsen's intentions as serious-minded explorer, but also upon his morals. On top of all that Amundsen found his finances in a hopeless tangle. On previous occasions he had often been close to bankruptcy, partly because he was so engrossed in his undertakings that he always was convinced that somehow the funds would be forthcoming. So far his optimistic calculations had been successful because help had always arrived when it was most needed, but in 1923 no help was in sight. His debt had increased steadily, partly because some of his trusted friends had been far too optimistic in their dispositions. His only asset, the *Maud*, was drifting in the ice north of Siberia and nobody knew if she ever would return. The most distressing blow came from his own brother who had lent him money and now feared that everything would be lost. When the brother demanded payment, Amundsen had to let himself be declared bankrupt. Amundsen might have been careless in financial matters but to acknowledge bankruptcy was to him equivalent to admitting that he had been guilty of criminal conduct. The bankruptcy was a blemish on his name that had to be removed and he would not rest until he had paid the last penny of his debt.

The flight to 88° North

Amundsen went again lecturing to the United States in 1924, but there the interest in his activities had also faded. Discouraged to the point of despair he figured that at the rate he was going then he would need 60 years to accumulate enough money to pay his debts and finance his new

expedition. But a miracle happened. Lincoln Ellsworth called on him, introduced himself as a person Amundsen had met in France in 1917, told him that he was interested in arctic exploration and offered to assist in financing a flight from Spitsbergen. Amundsen accepted with enthusiasm and thus an intimate co-operation and a warm friendship began.

Two Dornier-Wal flying boats, N-24 and N-25, were purchased and taken to Spitsbergen, where they started from the fast ice in King's Bay in latitude 79°N. on May 21, 1925, each carrying three men. The plan was to fly to the vicinity of the Pole and return by a slightly different route in order to explore geographically the region north of Spitsbergen. The chances were that nothing would be seen but ice, but ascertaining that no land existed would in itself be a valuable contribution.

Before the planes reached the northern islands off Spitsbergen fog shrouded the land, and for two hours the planes continued their course above the fog banks. After the fog had been left behind nothing but a monotonous expanse of sea ice could be seen. The first open leads were observed in the very early morning of the 22nd and shortly afterwards while Amundsen's plane, N-25, was circling to look for a place to go down for a position check, one of the engines failed and it became necessary to land. Both planes were brought down, but the N-24 was damaged and had to be abandoned. It was commanded by Ellsworth and had landed less than a quarter of a mile from the N-24, but the ice was so broken and treacherous that only on the fifth day could Ellsworth and his two companions, Dietrichson and Omdal, reach Amundsen's party. While struggling over the ice with heavy loads both Dietrichson and Omdal fell through, but were saved by Ellsworth's heroic efforts.

The N-25 was in grave danger because the temperature was so low that ice formed rapidly on the leads and the pack ice was in constant motion and might at any time crush the frail craft. By their combined efforts the six men succeeded in hauling the N-25 to comparative safety on a thick ice floe. Now they had a choice between trying to get the one plane into the air or working their way across the ice to the coast of Greenland, 400 miles away. Their chances of reaching Greenland were slim indeed and Amundsen decided to make every effort to prepare a runway on the ice and take off from it. For three weeks the men toiled on short rations and with inadequate tools. Leads opened and floes broke. Again and again they had to save the plane from almost certain disaster and to see their work ruined. Finally on June 6 Riiser-Larsen and Omdal found a floe large enough for take-off and on the next day the weary men went to work with new zeal. Clearing a runway of soft snow by shoveling was back-breaking, but Omdal had the bright idea of tramping the snow down. For four days the six men stamped up and down the runway. A frost on the 14th helped to harden the surface and when on the following day the weather cleared the desperate attempt had to be made. All unnecessary gear was left behind and with the six men on board and fuel for 8 hours Riiser-Larsen managed to get the plane into the air. Eight hours later he

set it safely down on the water off the north coast of Spitsbergen. The men were soon picked up by a sealer, which took them to King's Bay, where they found to their amazement a flotilla of small ships and a few planes ready to start a large-scale search for them.

During their journey along the coast of Norway Amundsen and his companions were everywhere greeted by flying flags and cheering crowds and the enthusiastic receptions reached their climax when the party arrived in Oslo on July 5. The city went wild. Amundsen had previously returned from expeditions that had given far greater results, but never from one that had appealed more to the public. What a contrast to the sneers that had met him only a year earlier!

The first flight across the Arctic Ocean

Even now Amundsen did not rest on his laurels. He had one more task to accomplish: the crossing of the Arctic Ocean. The possibility of using a dirigible had been discussed during the stay at King's Bay before the flight of 1925 and on that occasion Riiser-Larsen had directed Amundsen's attention to the Italian airship N-1 that appeared particularly well suited. In August 1925 its designer, Colonel Umberto Nobile, came to Oslo for a conference with Amundsen and Riiser-Larsen at which general agreement about the purchase of the dirigible was reached. Ellsworth helped finance the enterprise, the contracts were signed and Nobile was engaged as captain of the airship. Extensive preparations were made, including the erection of mooring masts at Oslo and Vardö and the building of a large shed at King's Bay. All went according to schedule and on May 7, 1926 the N-1, renamed the *Norge*, reached King's Bay.

At that time Byrd had already arrived in King's Bay in order to attempt a flight to the North Pole in the *Josephine Ford* airplane. Many people were wondering if there would develop a race between the airship and the airplane and if Byrd and Amundsen would both jealously hasten their last preparations in order to get off first. Actually there was no rivalry and Amundsen was happy when Byrd successfully carried out the flight to the Pole on May 9, two days before the start of the *Norge*. This attitude of Amundsen was in keeping with his previous non-committal stand in regard to the old Peary-Cook controversy.

On May 11, 1926 the *Norge* lifted her great bulk from the snow-covered slope at King's Bay and set course for Point Barrow, Alaska by way of the North Pole. The party on board numbered 16 men and included Wisting, Amundsen's companion on the journey to the South Pole, and shipmate in the *Maud*. In the early hours of May 12 the Pole was reached, where the flags of Norway, Italy, and the United States were dropped.

Between the North Pole and Point Barrow the route crossed the largest unexplored region of the Arctic, passing over what Stefansson has called the "Pole of Inaccessibility", but Amundsen preferred to refer to as the "Ice Pole". In 1911 the expert on tides, Rollin A. Harris of the U. S. Coast

and Geodetic Survey, had advanced the hypothesis that large land masses should lie in that very region. His conclusions were based on a study of the then available tidal observations, but during the *Maud* Expedition, during which comprehensive records of tides and tidal currents were obtained, it was found that Harris had reasoned from incomplete data, and that contrary to his opinion the character of the tides on the coasts of Siberia and Alaska indicated waters of great depth in the unknown region.

During the flight of the *Norge* the latter conclusion was confirmed, although the airship flew partly through fog and clouds and thus the ground could not be observed continuously. For some time the fog and clouds caused so much icing that the situation appeared critical, partly on account of the added weight and partly on account of the danger of the hull being torn by pieces of ice thrown off the propellers. Several holes were cut in the hull, but they could be repaired and the *Norge* got out of the icing zone without having suffered serious damage.

In the morning of May 13, 46 hours after the start, land was sighted, which turned out to lie just west of Point Barrow. The next 24 hours were the most trying of the whole trip. The main purpose had been accomplished and exhaustion and lack of sleep now made themselves fully felt. Still, it was necessary to travel farther south, preferably to Nome, but navigation was difficult owing to poor radio communications, reduced visibility, and, when the clouds broke, lack of landmarks in the monotonous northern landscape. Course had to be changed repeatedly, but on May 14, 72 hours after the departure from Spitsbergen, the *Norge* landed safely at Teller, Alaska, about 60 miles northwest of Nome.

On the return trip to Norway through the United States Amundsen and his companions were again hailed by great crowds, and on arriving in Oslo their enthusiastic reception equalled that of 1925. Amundsen had brought with him the Norwegian flag that the *Norge* had flown on the flight across the Arctic Ocean. When he had to speak to the thousands who had gathered to greet him he said: "Many have asked me what has spurred me to start out again and again." Unfolding the flag he went on: "Here it is. This flag has always spurred me on." Everybody who knows Amundsen also knows that this was not an idle phrase and that love for and pride of his country were parts of his being.

After the flight of the *Norge* Amundsen declared that he would no longer take an active part in exploration, but would always be at the disposal of anybody who might wish to benefit from his experiences. He wanted to live in peace at his beloved home outside of Oslo, the home which one of his friends and admirers had bought from his bankrupt estate and had placed at Amundsen's disposal for life. However, he did not find immediately the peace he had been looking for. There arose an unfortunate conflict between him and Nobile, who considered himself coleader of the *Norge* expedition, whereas according to the contracts he had been the paid captain of the airship. In his autobiography Amundsen denounced Nobile's attitude and took opportunity to give vent to some of his bitterness against

other persons who had hurt him or whose opinions he was violently opposed to.

The last flight

Amundsen's autobiography stirred up some dust and before this had had time to settle Nobile had started an expedition of his own with a sister ship of the *Norge*, the *Italia*. After a flight from Spitsbergen to Severnaya Zemlya (North Land), which did not reach its objective, the *Italia* attained the Pole on May 23, 1928, but on the return trip she was forced down and wrecked. No accurate information as to where the disaster had happened was available, but rescue operations had to be started right away. Amundsen offered his services, hoping to be put in charge of the operations to be undertaken by the Norwegian Government, but airplanes had to be used and the only suitable ones belonged to the Norwegian Navy. It was considered that they could not be commanded by a civilian and to Amundsen's great disappointment Lieutenant Riiser-Larsen, his companion in 1925 and 1926, was put in charge. Amundsen was still eager to take part in the search and he gladly agreed to go to Spitsbergen with a French plane of the Latham type, piloted by Gilbaud.

Amundsen had still one great worry left, his debts from the unfortunate years 1923-5 had not yet been paid in full. He had planned to sell his many gold medals to cover the remaining amount and before he left Oslo to join the Latham his last words to his attorney were: "Make me a free man". Before leaving Tromsø he got word that the Historical Museum of Oslo had been able to buy his collection for a sum that was barely sufficient to satisfy his creditors. He was again a free man.

Experts were convinced that the Latham was not suitable for the purpose, but time was short. Wisting and Dietrichson should both have gone with Amundsen, but there was room for only one of them and the choice fell on the flyer, Dietrichson. On June 18 the Latham left Tromsø. For a few hours radio contact was maintained between the plane and Tromsø, then silence followed. When the plane failed to reach Spitsbergen at the calculated hour, it was feared that it had been forced down at sea and that Amundsen and his companions were lost. Extensive search operations were undertaken, but only some wreckage of the plane was found. It was never learned exactly how Amundsen met death, but all that needs to be known is that he closed his career in an attempt to rescue a fellow explorer.

Appraisal

Amundsen said of himself that he never became an arctic explorer, because since he was fifteen years old all his thoughts and his energy had been directed toward one goal—the expansion of our knowledge of the polar regions. Circumstances made it necessary for him to change plans and make detours, but after he had sailed through the Northwest Passage,

his one all-absorbing idea from 1908 to 1926 was to cross the Arctic Ocean and reach the North Pole. The attainment of the South Pole was incidental.

Amundsen was not a scientist and he never claimed to be one. He was interested in securing accurate information wherever he travelled and in giving specialists opportunities to carry out observations on his expeditions, but he cared little for their conclusions and even less for their theories. When he talked about men of science he had met, he would stress their personal characteristics and not their scientific accomplishments.

Thoroughness in planning, meticulous attention to details, and nearly fussy orderliness combined with bold initiative laid the foundations for Amundsen's success. To this should be added his ability to select suitable companions and to gain their unqualified confidence in his leadership. In selecting his men he apparently looked for one particular characteristic: resourcefulness. When preparations were still in progress, he might ask a question about a difficult task or give a man an impossible assignment. If he got the answer "it can't be done" he was through with the man then and there, but if the man later returned to the matter and explained how he had tried to tackle the problem, Amundsen was satisfied even if the result was entirely negative.

On his expeditions Amundsen demanded of his men a punctuality and orderliness corresponding to his own. During the *Maud* Expedition he himself worked as cook for two years with the members of the party alternating as mess boys. Never was the galley more shining and orderly, with every pot and other utensil in its proper place. He established a strict daily routine broken only by festive occasions during which he more than anyone else knew how to create a congenial atmosphere. His men loved him.

Amundsen's financial troubles stood in sharp contrast to his meticulous orderliness in other matters. His apparent carelessness in handling money probably stemmed from his attitude that regarded money as a necessary evil of no value of its own. To this must be added that, like many other great explorers, he believed in his own mission, and when funds were not forthcoming from expected sources he was inclined to ascribe this to lack of appreciation or even to take it as a personal affront. His belief in himself was his greatest strength, without which he could not have attained his goals. This belief combined with his great sensitivity was also a weakness that in the course of time made him a bitter and lonely man. Occasionally he was imposed upon by publicity seekers and such experiences made him suspicious of anyone who approached him. He had to pay a high price for his success: his faith in human nature. Still, to his few personal friends he was the most warm-hearted, hospitable, generous, and charming person.

Few men have during their whole life followed a single line with greater perseverance or greater success. The glory of his death together with the brilliancy of his many achievements have placed Amundsen forever in the foremost rank of the great explorers.

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