

## Airships in the Arctic

*America, Norge, Italia, and Graf Zeppelin* — it was 60 years ago and more that these airships voyaged to the Arctic and explorers such as Walter Wellman, Roald Amundsen, Lincoln Ellsworth, and Umberto Nobile captured the attention of the world. The era of arctic exploration by airship was short, and for most of the adventurers who flew the hydrogen-filled ships it was a glorious return. For others, there was the ultimate price to be paid. But the challenge of the Arctic, of the North Pole, of being the first was irrepensible.

### AMONG THE FIRST TO TRY

The Arctic's icy circle would first be challenged from the air by balloonists, and among the first was the Swedish Salomon August Andrée, chief engineer from the Patent Office in Stockholm, in his hydrogen-filled balloon, the *Eagle*.

He and his two companions, Nils Strindberg, an assistant lecturer at the Swedish Technical College, and Knut Fraenkel, a civil engineer, lifted off from Danes Island, Spitsbergen, on Sunday, 11 July 1897. Their goal was the North Pole. After 65 hours, the *Eagle* was weighted down with ice and mist and the wind was pushing it farther away from the direction of the Pole. They decided to land the *Eagle* on the arctic ice pack. In their attempt to "walk" out, they would perish, their bodies not discovered until 33 years later. Found with the bodies were some 50 exposed photographs, of which 20 were successfully developed. They told a story of an expedition that from the very beginning was fated for disaster.

### THE AMERICANS GIVE IT A TRY, OR TWO

Walter Wellman, an American born in 1858 at Mentor, Ohio, was a well-to-do newspaper journalist, explorer, and adventurer. With the support of his newspaper, the *Chicago Record-Herald*, he cast about for a newsworthy challenge and decided to try for the yet undiscovered North Pole. In 1894, and then again in 1898, he tried to reach the Pole on foot and failed both times. Now he would attempt it in an airship.

Money was the first order of business, and by the end of 1905 he had formed a corporation called the Wellman-Chicago Record-Herald Polar Expedition. Most of the stock was purchased by Victor Lawson, owner of the newspaper, who invested about \$75 000. President Teddy Roosevelt gave his very enthusiastic support for the enterprise.

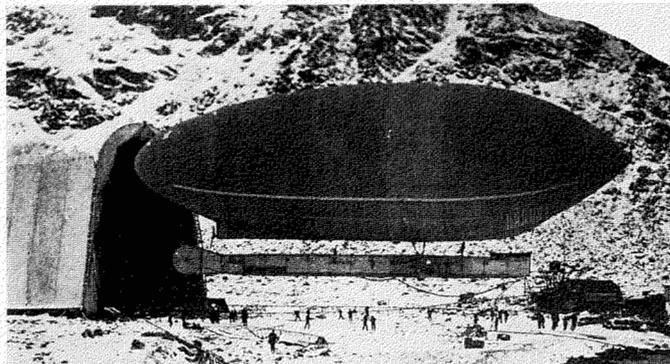
Wellman ordered a large airship from L. Godard, of Paris, which was to be delivered by ship to Wellman's support base at Spitsbergen. He intended to try for the North Pole in the summer of 1906. Named the *America*, the airship was a sausage-shaped balloon, 50.3 m long and 15.8 m at its widest diameter. The envelope was made of a three-ply fabric — two thicknesses of cotton and one of silk — with three coatings of rubber. The envelope had no interior frame or stiffening. Its form was maintained solely by the pressure

of the hydrogen. Able to carry a crew of five, she was powered by three gasoline engines providing a total of 80 horsepower and driving two wooden propellers, one fore and one aft.

On 8 July 1906 the knocked-down *America* finally arrived at Spitsbergen. When the airship's engines were tested, they fell apart. By now it was mid-September, too late to try for the North Pole. Three men were left to spend the winter at the support base, and the rest of the party, together with the uninflated and knocked-down airship, returned by ship to France.

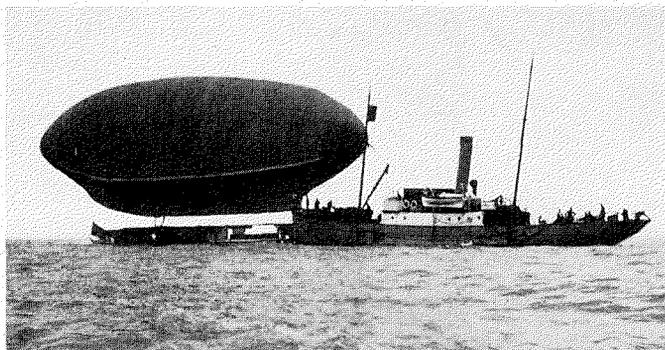
Back in Paris, Wellman had the *America* cut in two and a new 6.1 m section sewn into it. This increased the airship's length to 56.4 m, with a volume capacity for 7700 m<sup>3</sup> of hydrogen gas. A new engine was installed, a 75-horsepower Lorraine-Dietrich, with a supplementary carburetor, permitting it to run not only on gasoline but, at the throw of a lever, on hydrogen drawn from the gas bag itself.

Late in June 1907, Wellman, his party, and the *America* arrived by ship at the support base in Spitsbergen. Promptly, the weather turned terrible and not until 2 September did conditions permit the *America* to be taken out of its hangar. It was too late in the season to attempt the 2307 km round-trip flight between Spitsbergen and the North Pole. At its best speed of 29 km per hour, it would take five days for the voyage. But Wellman, perhaps frustrated by his previous attempts, decided to try for the Pole.



The *America* starting on her voyage, 1907 (from Wellman, 1911).

And so, on the same day the *America* had been "walked" out of its hangar, Wellman started her engines and she lifted off. With the 49-year-old Wellman were Melvin Vaniman, a young American mechanic and balloonist, and as the expedition navigator, Felix Reisenberg, of Columbia University. For the first few kilometres everything went fine. Suddenly a squall blew up, buffeting and driving the *America* back toward Spitsbergen. Wellman knew that to avoid a crash he must bring the ship down. The hydrogen was released and the airship collapsed in a heap on the ice. Once more Wellman loaded the *America* on a ship for transport back to France for repairs.



The Norwegian steamer *Farm* rescuing the *America*'s crew, 1909 (from Wellman, 1911).

Two years later, in July 1909, Wellman and the rebuilt *America* were back at the Spitsbergen support base. By mid-August, the *America* had been inflated and made ready for the voyage. At 10 a.m. on 15 August 1909, the airship took to the sky. The crew consisted of four men: Wellman, Vaniman, the Russian balloonist and aristocrat Nicolas Popov, and Louis Loud, a farm boy from Illinois and the brother of Vaniman's wife. Also aboard were fuel, oil, water, and dogs, sledges, a boat, and enough provisions for a year's survival on the ice if forced down.

For the next two hours everything worked perfectly, the sun shone, and there was even a light tail wind. Trailing beneath the *America* was a 37 m long, 20 cm diameter leather and metal-studded flexible tube filled with ballast (actually reserve food). Called an "equilibrator," this device was designed by Wellman to be dragged over the ice pack to maintain the airship's altitude. Suddenly, after having traveled 64 km from the support base, the leather skin of the equilibrator tore apart, the 448 kilos of ballast crashed onto the ice, and the *America* shot up to an altitude of 1524 m. Hydrogen was valved off to bring the airship down to a lower altitude, and while tempted to continue to the Pole, Wellman knew that once again he would have to abort the voyage.

Ever the optimist, Wellman ordered work started to lengthen the hangar at Spitsbergen — he intended to build a larger airship and have it ready for a 1910 attempt. However, upon learning of the claim of the Pole's discovery by Dr. Frederick Albert Cook, Wellman decided against another flight to the North Pole. Instead, he would bring all the equipment back from Spitsbergen and attempt to be the first across the Atlantic Ocean.

As Wellman was denied the North Pole, so too was he denied the Atlantic crossing. On 18 October 1910, three days after lifting off from Atlantic City, the *America*'s engines failed, the weather thickened, and the airship was forced down at sea about 644 km due east of Cape Hatteras. Fortunately, Wellman and the entire crew, including the cat, Kiddo, were safely rescued by the steamer *Trent*. The *America* was set adrift and, relieved of the weight of the crew, the airship rose high into the air and soon disappeared in the distance, never to be seen again.

For Wellman it was the end of his airborne adventures. In the years that followed he would write voluminously about his exploits and explorations. He lived quietly in New York

as a transportation engineer and consultant on urban rapid transit. He died in 1934 at the age of 75.

#### THE NORWEGIAN AMUNDSEN TRIES

The Norwegian explorer Roald Amundsen, who in 1911 had discovered the South Pole, wrote (Huntford, 1987:197):

An ambitious dream had taken hold of me; to fly from continent to continent across the Arctic. . . . The Pole itself held no interest for me — Peary's brilliant deed in 1909 had destroyed its value for all subsequent explorers.

Amundsen tried twice to fly across the Arctic in heavier-than-air craft. His first attempt, in 1922, was from Wainwright, Alaska, and it ended in a crash before he even started. The next, in 1925, was with Lincoln Ellsworth, son of an American millionaire, and it, too, failed. After his two failures, Amundsen decided to use for his next attempt a lighter-than-air craft.

Lincoln Ellsworth, who would later make his own mark as one of the great explorers of the Antarctic, readily put up \$100 000 toward a trans-arctic airship flight under the command of his hero, Amundsen. Their first choice for a lighter-than-air craft was the Italian airship *NR-1*.

Designed by the Italian Army Colonel Umberto Nobile, an aeronautical engineer, the *NR-1* was a small, semi-rigid airship. She was 106 m long, with a hydrogen gas capacity of about 14 000 m<sup>3</sup>. She had three 250 horsepower engines, giving her a maximum speed of 114 km an hour. Normally, she cruised at about 80 km an hour, using only two of her engines.

When contacted by Amundsen, Nobile was enthusiastic about using the *NR-1* for an arctic flight, since he had been considering just such a venture. In June 1925, Nobile travelled to Norway to meet with the 53-year-old Amundsen and Lincoln Ellsworth. The 41-year-old Nobile told them that Premier Benito Mussolini was pleased to donate the *NR-1* to the arctic project — which meant, of course, that the *NR-1* would be flying the Italian flag. Emphasizing that the trans-arctic flight was a joint Norwegian and American project, Amundsen offered to purchase the airship, including paying for modifications for the arctic trip, for the sum of \$75 000. The offer was soon accepted by the Italian government, and Amundsen went to Rome in August 1925 to sign the contract. For \$10 000, Nobile would accompany the arctic flight as the airship's pilot. The Norwegian Aero Club heartily embraced the arctic project and underwrote the construction of a roofless airship hangar at Kings Bay, Spitsbergen.

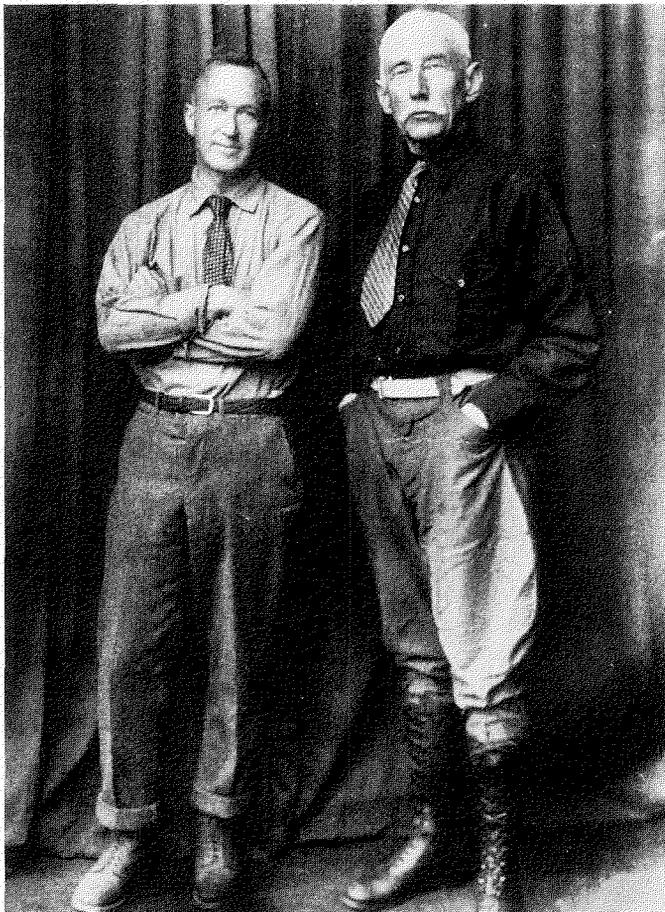
On 29 March 1926, Amundsen and Ellsworth were in Ciampino, Italy, to accept the *NR-1*. In an elaborate ceremony Mussolini formally transferred the airship to Amundsen, and she was renamed the *Norge* ("Norway"). Amundsen and Ellsworth soon left by sea for King's Bay, leaving Nobile to follow with the *Norge*.

*Norge* arrived at King's Bay on 7 May amidst a rival group of American airmen intent on becoming the first to fly over the North Pole. On 9 May, while the *Norge* was being serviced in her roofless hangar, American Navy Lieutenant Richard E. Byrd took off in a Fokker ski plane. Fifteen and a half hours later, Byrd was back in King's Bay reporting

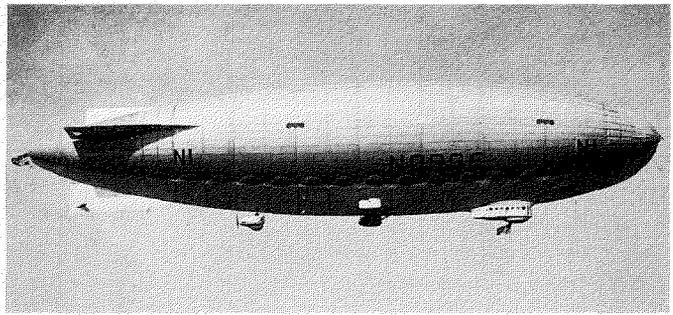
that he had successfully reached the North Pole. Many doubted Byrd's claim, believing that his Fokker airplane lacked the range to make such a round-trip flight. Meanwhile, in Point Barrow, Alaska, an Australian, George Hubert Wilkins, was getting ready to attempt a flight over the North Pole from the opposite direction. Amundsen now rushed to achieve his ultimate objective, "to fly from continent to continent across the Arctic."

On the morning of 11 May 1926, sixteen men boarded the *Norge*: eight Norwegians, including Amundsen, Hjalmar Riiser-Larsen (who had piloted Amundsen's Dornier Wal airplane in the failed attempt of 1925 to fly across the Arctic), and Oscar Wisting (a petty officer in the Norwegian Navy); one American, Ellsworth; one Swede; and Nobile and five other Italians. At approximately 10 a.m., they lifted off. Sixteen hours later, after battling wind, cold, snow, fog, and frozen water in the engine fuel lines, the *Norge* reached the North Pole. Descending to 183 m, Amundsen and Ellsworth dropped small Norwegian and American flags. Nobile, much to the irritation of the others, unfurled and dropped a much larger flag of Italy and then wrote in the ship's log: "Planted the Italian flag at the Pole."

The *Norge* then pushed on across the Arctic, the crew near exhaustion; the small control car was cold, crowded, and littered with dozens of Thermos bottles. Nobile (1961:67) recorded in his diary: "there stuck out picturesquely



Lincoln Ellsworth and Roald Amundsen (from Amundsen and Ellsworth, 1925).



The *Norge* (from Amundsen and Ellsworth, 1925).

Amundsen's enormous feet, with his grass stuffed shoes." At last the *Norge* made landfall near Point Barrow and groped its way south through fog and violent crosswinds toward Nome, Alaska. Nobile, however, decided to bring the *Norge* down near the small Eskimo settlement of Teller, Alaska. The airship voyage across the Arctic had covered 5117 km and taken 70 hours and 40 minutes. The *Norge* had traveled at an average speed of 72 km per hour. Amundsen was not the first to reach the North Pole, but he was the first to fly across the Arctic. However, he and Wisting became the first men to reach both the North and South poles.

From Teller, Amundsen and Ellsworth headed for Nome by dogsled. Nobile, meanwhile, stayed behind to deflate and dismantle the airship for eventual shipment back to Europe. At Nome, Amundsen was disappointed by the small crowd that had gathered to greet them. Much to his chagrin, he watched a much larger and enthusiastic crowd welcome Nobile.

Nobile, as the airship commander, continued to attract the greater public attention and acclaim. Before leaving America, Nobile was widely interviewed by the press, and he was received at the White House by President Calvin Coolidge. In Rome, he was given a tremendous reception, and Mussolini promoted him to general.

The rivalry between Amundsen and Nobile intensified. Each one minimized the role played by the other in the expedition. In his autobiography, *My Life as an Explorer*, Amundsen (1927) devoted 95 pages to attacking Nobile. He characterized Nobile as the "hired skipper of a Norwegian ship owned by an American and myself" who was seeking to "usurp honors that do not belong to him." He wrote that during the flight Nobile was jumpy and almost dangerously panicky: that "the ship would have flown into an iceberg if Riiser-Larsen hadn't torn the elevator wheel out of the hands of the weeping and hand-wringing Nobile."

#### NOBILE AND THE AIRSHIP *ITALIA*

Nobile, frustrated by Amundsen's attitude and treatment, announced that he would make another polar flight, this time under the Italian flag. Amundsen sarcastically predicted it would fail. Benito Mussolini, eager for more Italian exploits, agreed to provide a new airship and crew, with Nobile's native city, Milan, paying the expenses. Nobile would supervise the airship's design and construction. The Italian Royal Geographic Society lent its prestige as a sponsor of the expedition and, much to Amundsen's chagrin, the

Norwegian Aero Club allowed Nobile the use of its roofless hangar at King's Bay.

In March 1928 the new airship *Italia* was officially delivered. While similar in size to the *Norge*, Nobile had incorporated many improvements, including an enlarged control gondola and much more equipment and supplies in case the airship was forced down. Nobile and his crew were received by the king and queen, Mussolini, and Pope Pius XI, who presented them with a 2 m long oak cross to be dropped at the North Pole.

Because of all the public acclaim and attention, Nobile had made powerful enemies, the most prominent being Italo Balbo, one of the founding fathers of Italian Fascism and Mussolini's Undersecretary of Air. Balbo firmly believed Italy's future was with the airplane, and he had no use for airships or Nobile. Slowly, Balbo turned Mussolini against Nobile. Another enemy was the Italian Naval Captain Giuseppe Romagna Manoja, a dedicated Fascist and commanding officer of the ship *City of Milan*, which was en route to King's Bay as Nobile's support vessel.

On 15 April 1928 the *Italia* departed Milan with Nobile and 19 other men on board. With stops at Stolp, Germany, and Vadso, Norway, the *Italia* eventually reached King's Bay on 4 May. Upon arrival at King's Bay, Captain Romagna refused to allow his sailors to assist in the *Italia*'s landing.

Finally, on 23 May 1928, at 4:28 a.m., the *Italia* set off for her run to the North Pole. On board were Nobile, 11 crewmen, 3 scientists, including Swedish meteorologist Finn Malmgren, and one journalist. Nobile hoped to be able to make a landing at the North Pole for oceanographic observations. After 20 hours, the *Italia* reached the North Pole, but strong winds and fog prevented a landing. Nobile dropped the Italian flag, then a flag of Milan, and, last, the oak cross. Radio messages were flashed to the world, and the news media of Rome proudly announced to the world that the Italians had again conquered the North Pole.

On board the *Italia*, after considering Finn Malmgren's weather forecast (which would prove faulty), it was decided to return to King's Bay, Spitsbergen, rather than fly on to Alaska. This, at least, would allow Nobile time to prepare for another trip to the Pole before the expedition ended. The decision was also based on the belief that the head winds would abate and the weather improve on the flight back to King's Bay. This belief was wrong. The *Italia* struggled against strong winds, fog, and the added weight from ice buildup. Ice was also jamming the controls and making handling more difficult. The *Italia* was heading down. Even the engines at full speed could not halt the descent, and the crew braced for the crash. At about 10 a.m. on 25 May, the *Italia* hit the ice. Her control gondola and stern engine compartment were torn from the hull. Suddenly lightened, the *Italia* soared upward and disappeared forever, with six men still aboard.

The crash left ten men on the ice. One was killed and four injured, including Nobile with a broken right arm and leg. Enough survival equipment had spilled out to last for about 45 days and, most important, the emergency radio was operable. The survivors were about 290 km northeast of King's Bay, but the distress calls being sent out, faint as they

were, did not get through to Nobile's support ship, the *City of Milan*. The radio operators on the *City of Milan* were busy sending home personal messages and lengthy stories from the journalists at King's Bay! To make matters worse, Captain Romagna had decided that a continuous radio watch was unnecessary. When a junior radioman did pick up one faint SOS, his report was brushed aside by Romagna. In fact, Romagna, as well as the regime in Rome, already believed the airship had perished with all hands.

Twelve days after the crash, a Russian farmer picked up the distress signal on his ham radio. At last the world knew, and seven nations were ready to assist in the search and rescue of Nobile and his remaining men. Norway dispatched a ship, Sweden sent a ship with three aircraft aboard, and the Russian icebreaker *Krassin* departed from Leningrad. Two Italian aircraft flew to King's Bay to participate in the search operations.

Amundsen, too, came out of retirement to help. When he heard the news that Amundsen was on his way, Nobile wept. Nobile radioed the *City of Milan* that Amundsen should be allowed to direct the rescue operations "because he is the only expert collaborating with you" (Nobile, 1961:219). Putting aside old animosity, Amundsen took off from Tromso, Norway, in a French flying boat and was never seen again.

On 20 June, an Italian plane at last spotted Nobile's red-striped tent. The next day Swedish pilot Einar Lundborg managed to land on the ice. Lundborg convinced the reluctant Nobile that he should be the first to fly out, to better coordinate the rescue efforts from King's Bay. Once on board the *City of Milan*, Nobile had to contend with an outwardly hostile Captain Romagna, deteriorating weather conditions, and faltering rescue operations. The Russian icebreaker *Krassin* was running low on coal and other rescue ships were ice-locked. Ice conditions at the crash site had become too dangerous for planes to try to land. Amundsen and his French crew were presumed lost, a Russian pilot was missing, the Swedish pilot, Lundborg, had crashed while attempting another landing at the *Italia* survivors' site, nothing had been heard of the three *Italia* crewmen who set out on foot for King's Bay, and no one had yet sighted the gondolaless *Italia*, which had drifted away with six men trapped on board.

Almost three weeks after Nobile had been flown off the ice, the *Krassin* sighted and rescued two of the three men who had struck out on foot; the third had died, and it was rumored his body was cannibalized. Soon after, the *Krassin* reached the ice camp of the remaining *Italia* survivors. They had survived in the arctic wilderness for 49 days. Nobile was overjoyed, but the criticism against him began to mount. The press accused him of cowardice in consenting to be evacuated before his men. The Italian government held him responsible for the crash, charging him with poor judgement and operation of the airship. The Fascist press did all it could to blacken Nobile's name, even suggesting that he be court-martialed and shot. Disgusted, Nobile resigned his commission and accepted an appointment in Russia to work with that country's nascent airship program. In 1939 he emigrated to the United States and settled in Chicago, where he taught aeronautical engineering. After World War II, he returned to Italy, and before his death in 1978 he had the

satisfaction of having his name cleared and his polar achievements recognized.

#### THE GERMAN AIRSHIP *GRAF ZEPPELIN*

In 1928, construction was completed on the German airship *Graf Zeppelin*. She was a remarkable ship and very quickly captured the world's attention. She was 235 m long, with a hydrogen gas capacity of more than 84 000 m<sup>3</sup> and accommodations for 20 passengers and a crew of 40. Her maiden voyage to Lakehurst, New Jersey, marked the first trans-Atlantic crossing by an airship with paying passengers. In 1929 the *Graf Zeppelin* successfully completed the first and only round-the-world flight by an airship, a voyage sponsored and funded by newspaper publisher William Randolph Hearst. The following year she made the first of many regularly scheduled round-trip flights between Friedrichshafen, Germany, and Rio de Janeiro, Brazil.

The man who brought the *Graf Zeppelin* into being was Dr. Hugo Eckener, director of the Zeppelin Airship Company, and in 1931 he was ready to take his famous airship into the arctic region. In 1926 the famed polar explorer Fridtjof Nansen founded an organization with the lengthy name International Association for Exploring the Arctic by Means of Airships, called Aeroarctic for short. Nansen contacted Eckener in 1928 and requested the use of the *Graf Zeppelin* for a journey of exploration in the Arctic. A meeting was held with Eckener, Nansen, and the well-known polar explorer from Australia Sir George Hubert Wilkins. Eckener was enthusiastic, convinced that an airship was the best vehicle for such an expedition, but other projects were first in priority. With the sudden death of Nansen in 1930, the board of directors of Aeroarctic offered Eckener the position of president of the association. Eckener accepted and, knowing that he was now committed to an arctic flight, he began to look for money.

Sir George Hubert Wilkins had flown with Eckener on the *Graf Zeppelin's* circumnavigation flight, and now he told Eckener he was ready for another great challenge. He planned to acquire a surplus U.S. Navy submarine, sail submerged under the arctic ice pack to the North Pole, and then, like a mole, gnaw his way up through the ice to the surface by means of an ingenious ice-auger. Lincoln Ellsworth would be aboard the submarine and the project was being labeled the Wilkins-Ellsworth Trans-Arctic Expedition. Wilkins proposed to Eckener that the submarine, renamed the *Nautilus*, and the *Graf Zeppelin* rendezvous at the North Pole. As Eckener later wrote in his autobiography (Eckener, 1980:120): "I replied calmly, 'Why not? Provided you make it to the North Pole and really can bore your way up!'"

Wilkins then approached William Randolph Hearst, and Hearst was intrigued enough to offer the following agreement to Eckener (1980:120-121):

If the airship and the submarine succeed in meeting at the North Pole and in exchanging passengers and mail, the Hearst Corporation will pay \$150,000 for reporting rights on board the airship. If the airship and the submarine merely succeed in meeting at the North Pole, the Hearst Corporation will pay \$100,000. On the other hand, if there is merely a

meeting somewhere in the Arctic, the corporation will merely pay \$30,000.

Eckener signed the agreement and tremendous advance publicity was generated. This resulted in an extensive sale of stamps to collectors, a source of income that in itself was almost sufficient to finance the cost of the flight.

Unfortunately, or perhaps fortunately, the *Nautilus* was plagued by mechanical problems and got no farther than Trondheim. However, Hearst was still interested in an arctic project, and the agreement with Eckener was altered for a meeting between the *Graf Zeppelin* and the large Russian icebreaker *Malygin*, which would be conducting scientific research near Franz Josef Land. The Russian government agreed both to the rendezvous and an exchange of mail. Again, stamp collectors from around the world responded.

On 24 July 1931, Eckener flew the *Graf Zeppelin* from Friedrichshafen to Berlin, where the ship was topped off with fuel and gas. The next day the airship journeyed to Leningrad, where she was met by a great crowd. Besides refueling the ship, the Russians contributed to the ship's galley several hams and a large amount of packed caviar. Toward 9 a.m. on 26 July, the fully loaded airship took off on her journey to the Arctic — the late start was because of prolonged celebrations the night before.

Forty-six men were on board the airship, including Lincoln Ellsworth from the aborted *Nautilus* expedition, two journalists (one of whom was the young German reporter Arthur Koestler), and one Swedish cameraman. The scientific party was composed of a dozen scientists from four countries, including Lieutenant Commander Edward H. ("Iceberg") Smith, of the U.S. Coast Guard. Largely in acknowledgement of its investigations of icebergs in the western North Atlantic, especially regarding the International Ice Patrol, the U.S. Coast Guard had been invited to participate. Leading the scientific group was Russian Professor Rudolf Samoilovich, who had been on board the icebreaker *Krassin* and had helped lead the rescue of the *Italia* survivors in 1928. The finely appointed passenger cabins had been stripped down to provide room for the scientific equipment, survival gear (in case the ship was forced down), and supplies.

Thirty-six hours after departing from Leningrad, the *Graf Zeppelin* sighted the Russian icebreaker *Malygin* at Franz Josef Land. Using inflated rubber pontoons, the airship gently set down on the surface of the water about 450 m from the Russian icebreaker. A small boat pushed off from the *Malygin*, carrying visiting passengers and sacks of mail. On board the *Graf Zeppelin*, Lincoln Ellsworth was shocked to see sitting in the boat's stern his companion from the *Norge* expedition, the ill-fated commander of the airship *Italia* now living in self-imposed exile, Umberto Nobile. It was an emotional moment for Ellsworth and Nobile as they grasped hands through the airship's gondola window. Eckener was not as moved, since he apparently did not respect Nobile's airship handling skills. Eckener (1980:129) later noted that

In the spring Nobile had offered to accompany me as a "Polar expert" when he heard of our plans. I declined with thanks, for we did not intend to accumulate experiences on a cake of ice. So he had gone with the *Malygin*, perhaps in the rash

hope of finding traces of his comrades possibly carried off to Franz Josef Land with the wreck of the airship.

Mail was quickly exchanged. About 240 kilos were turned over to the *Malygin*, and in return the airship took on board 100 kilos. In all, the *Graf Zeppelin* would carry more than 50 000 pieces of mail, enough to cover most of the major expenses of the trip. Eckener soon grew concerned over the many cakes of ice drifting nearby, since there was danger that one might knock a hole in one of the engine gondolas. After only 20 minutes on the surface, Eckener gave the order to take off, leaving Nobile and the other men in the boat to wonder at the abruptness of the airship's departure.

Now began the principal task of the expedition: photographing by means of aerial mapping cameras the little-known islands of Severnaya Zemlya and Novaya Zemlya, north of the Siberian land mass. After completing the scientific part of the expedition, the *Graf Zeppelin* headed home to Friedrichshafen, with a intermediate stop at Berlin.

Berlin was a ceremonial occasion, and hundreds of thousands of people surrounded the airfield at Tempelhof. Loudspeakers had been set up, and when Eckener's turn came to speak, the crowd waited for him to recount the horrors and dangers he had faced in the Arctic. As Eckener (1980:138) later recounted:

They [the crowd] did not get what they expected, for I told them that the terrors and hair-raising dangers of the Arctic, to which the Nobile expedition supposedly had fallen, made [for us in the *Graf Zeppelin*] a pleasant trip above the ice-fields in the clearest sunshine with all kinds of good things to eat and drink, and that in my opinion such excursions would enjoy great popularity in the future.

The *Graf Zeppelin* finally reached Friedrichshafen shortly after 4 a.m. on 31 July, exactly a week after take-off for the arctic flight. In all respects, the era of airship expeditions to the Arctic drew to a close.

The *Graf Zeppelin's* arctic voyage was the last of what her crew referred to as "circus" flights. She resumed her

service as a trans-Atlantic passenger airship, and when she was finally put out of service — a victim of the airship *Hindenburg* disaster in 1937 — she had an unequalled record of service. In the nine years she operated, she crossed the Atlantic Ocean more than 100 times, traveled more than 1.5 million km, and safely carried more than 16 000 passengers.

Today, there is a growing interest in lighter-than-air craft. A host of companies have purchased blimps and sent their advertising message aloft in many major cities of the world. Westinghouse Airships Incorporated envisions many other potential uses for lighter-than-air craft, including long-range surveillance, at-sea search and rescue, coastal surveying, fishery and marine mammal assessment studies, and, of course, exploration. So, perhaps Hugh Eckener spoke with some prescience when, more than 60 years ago, he told the crowd at Tempelhof that an airship arctic excursion "would enjoy great popularity in the future." It might yet happen — "Up Ship!"

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