

First Flight over the South Pole

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Today, a flight to the South Pole is no longer a novelty. Yet, as recently as 15 years ago, no one had landed there, and the number of flights over that remote spot could be counted on the fingers of one hand. Forty years ago, no one had ever seen the South Pole from the air, until Admiral (then Commander) Richard E. Byrd did so on November 29, 1929.¹

The plane selected for the flight was a modified Ford Tri-motor that Byrd had named the *Floyd Bennett* after his friend and pilot on the North Pole flight of 1926. To save weight, some 564 pounds of nonessential fittings were stripped off; and to increase the total horsepower, the standard 220 hp. Whirlwind in the nose of the plane was replaced with a Wright Cyclone 550 hp. engine. The standard Whirlwinds were retained under the wings. Bernt Balchen, along with Floyd Bennett, who unfortunately died before the expedition sailed, tested various types of airplane skis in Canada.

Planning for the flight went on all during the winter night. All factors were carefully weighed and discussed by the aviators and the mechanics—and then reweighed and rediscussed. Byrd once commented that he had never before seen so many pages covered with figures. They calculated that, if they took off with 14,500 pounds gross weight, enough fuel would be consumed by the time they reached the Queen Maud Mountains to allow the *Floyd Bennett* to climb to 11,000 feet—enough to slip through the pass at the head of the Axel Heiberg Glacier and out onto the polar plateau.

Although Byrd delayed the selection of the chief pilot until almost the day of the flight—he finally chose Balchen—the others of the flight crew he had selected earlier. They were Harold I. June, copilot and radio operator, and Ashley C. McKinley, aerial photographer; Byrd himself would serve as navigator. The inclusion of McKinley effectively disposes of the allegation, occasionally made, that the South

Pole flight was purely a stunt. McKinley, with his aerial camera and necessary survival gear, added 600 pounds to the load. This additional weight made it impossible to fly round trip, and forced upon the expedition a hazardous flight to lay a fuel cache at the foot of the Queen Maud Mountains.

For weather forecasting, Byrd had the services of an expert meteorologist, William C. Haines, at Little America. Haines' observations were supplemented by those radioed from a geological party, led by Dr. Laurence M. Gould, which was making its way towards the mountains to the south. Gould would also be able to assist if the aircraft were forced down over the ice shelf. Once in the mountains or beyond, the flight crew, in event of mishap, would have to depend on itself and its survival gear.

On November 18, 1929, the base-laying flight was carried out but not without incident. The landing was rough and Byrd reflected on the advantages of the long, broad skis chosen for the *Floyd Bennett*. Shorter ones, he felt, might have smashed on the "razor-back" sastrugi. He also had an opportunity to examine the rugged mountains over which he would have to fly, including the Axel Heiberg Glacier. As he looked, Byrd began to have doubts about his chosen route. On the return flight to Little America, an unsettling incident occurred. Fuel consumption was greatly in excess of what the computations had shown, and the *Floyd Bennett* was forced to land 100 miles short of Little America. Fuel was flown out to the stranded men, and after some difficulty in starting the engines, they completed their journey.

Although in his book Byrd merely states that the mechanics made the necessary adjustments, we know from Balchen's account that the whole incident worried him, as was perfectly natural. After the mechanics completed their work, an annoying spell of poor weather delayed the takeoff. Byrd had to have clear skies over the plateau if he were to locate the South Pole and, what was more important, find his way back to Little America. Finally, during the evening of November 27, Gould reported excellent weather over the mountains. Haines' observations were also favorable, and he told Byrd something to the effect that, if the flight were not made then, so favorable a chance might not reoccur.

The entire population of Little America turned to and loaded the plane. At this point, one of the few discrepancies in the primary sources occurs. Byrd states that an extra 100 gallons of gasoline were put aboard, while Balchen fails to mention the fuel but says that Byrd, at the last minute, added 300 pounds of food as a safety precaution.²

¹ For accounts of the flight, see R. E. Byrd, *Little America*, p. 326-345; R. E. Byrd, *Conquest of Antarctica by Air*, *National Geographic Magazine*, vol. LVIII, no. 2, p. 127-227; and B. Balchen, *Come North With Me*, p. 186-191. Although varying in details, these accounts are in general agreement.

² Byrd, *Little America*, p. 327; Balchen, *Come North With Me*, p. 187. Byrd makes no mention of the food.

At 1529 (GMT) on November 28, Thanksgiving Day, Balchen eased the plane into the air. The hour had been carefully chosen so that the sun would be on the beam when going in both directions in order to obtain better results from the sun compass. Also, as the South Pole was approached, the sun would lie about south of the plane's course, and the lines of position from solar observations would run east and west, facilitating the determination of latitude.³

After flying for a few minutes through an overcast, the *Floyd Bennett* broke into the clear. Course was set for the mountains, following closely the route used by Amundsen in 1911 and that being pursued by Gould at the moment. At 2045, they sighted the geological party, and dipped low over it to parachute some supplies, messages, and aerial photographs taken by McKinley during the depot-laying flight of November 18. They would prove of value to Gould in carrying out his investigations.

As the mountains drew near, McKinley started up his camera, and Byrd moved up to the cockpit where he stood beside Balchen, peering at what lay ahead. Although something was known of the Axel Heiberg from Amundsen's description—for example, that the high point of the pass on the "hump" as Byrd called it, was 10,500 feet—Amundsen had not looked at it from the viewpoint of a pilot and had indicated neither the width of the pass nor the violence of the downdrafts flowing from the high peaks that flanked the glacier on either side. Ten days before, when laying the cache, Byrd had been favorably impressed by the Liv Glacier, which was slightly west of the Axel Heiberg and seemed to be wider and not so high at the summit. (Balchen states that they estimated it at 9,500 feet.)

The moment came when a choice had to be made between the known quantities of Axel Heiberg Glacier and the unknown ones of Liv Glacier. What seems to have determined the decision was the appearance of a cloud at the head of the Axel Heiberg, although it may have been only the snow surface; they were not sure. Their margin of altitude over the hump was so slender that clouds meant real trouble. No such phenomenon could be observed on Liv Glacier, and the plane was headed that way.

While Balchen opened the engines to full throttle and McKinley took pictures, June calmly opened fuel cans, poured the contents into the main tank,

and dropped the empty two-pound tins overboard.⁴ As the *Floyd Bennett* flew upward above the glacier, it encountered the down-currents from the mountains on either side and bounced about like a cork. Balchen did a wonderfully skillful job of flying close to the mountain sides, where the wind was less violent, but soon he faced another problem. Try as he might, he could not bring the aircraft to the height of the pass. It was evident that they must either turn back or jettison something. June moved over to the main fuel tank and put his hand on the dump valve. A little pressure would release 600 gallons of gasoline, but if that were done, their chance of returning from the plateau were slim indeed. Byrd thought for a moment and then directed that a bag of food be dropped. McKinley had anticipated the order and was standing by the trap door with a bag at his feet. He let it go and the plane responded immediately. Again, however, the *Floyd Bennett* reached its ceiling unable to cross the hump. Balchen demanded that more be jettisoned and McKinley dropped a second bag.⁵ This one he saw land and scatter over the ice. This time sufficient altitude was attained, and the aircraft crossed the high point with 500 feet to spare.

From there on, Byrd had smooth flying. The plateau slopes downward from the mountains to the Pole. On the return, enough gas would have been consumed so that the hump would cease to be an obstacle.

For a time, the mountains that Amundsen had described in 1911 were visible in the east. Finally, they passed from sight, and the *Floyd Bennett* flew on over the featureless plain. At 0038 on November 29, Byrd obtained a sun shot that showed his position to be 55½ miles from the Pole, and at 0114, he radioed Little America that the South Pole had been reached. First, Byrd dropped an American flag weighted by a stone from Floyd Bennett's grave. Then, he directed the plane on various courses out from the estimated position of the Pole, to ensure that it passed over or very close to the actual spot.⁶

⁴ Byrd, *Little America*, p. 332, but in the *National Geographic Magazine*, vol. LVIII, no. 2, p. 211, he gives the weight as one pound.

⁵ The weight of these bags is uncertain. Byrd gives two figures, 150 pounds each, in the *National Geographic Magazine*, vol. LVIII, no. 2, p. 212, and 125 pounds, *Little America*, p. 336. Balchen gives 150 pounds, *Come North With Me*, p. 189. Balchen also states that June dropped the food. Byrd states that he told June, who relayed the order to McKinley.

⁶ Aerial navigation by solar observation is far from a precise science. The wisdom of this precaution was underlined 26 years later, when the South Pole construction party was landed eight miles from its destination even though the navigators had more complex instruments than those used by Byrd.

³ Neither Byrd nor Balchen mentions this factor, but see H. E. Saunders, The flight of Admiral Byrd to the South Pole and the exploration of Marie Byrd Land, *Proceedings of the American Philosophical Society*, vol. 82, no. 5, 1940, p. 803.

As they flew home, those aboard the aircraft experienced an emotional let-down. Byrd decided that what counted was not reaching the Pole, but the effort to get there. Balchen felt that their presence in this eternally white world seemed a symbol of man's vanity and that the sound of the engines profaned the silence.

Rather than return by the route they had come, Byrd directed the pilot to fly down the Axel Heiberg Glacier. This change was adopted to give McKinley the opportunity to photograph as much new territory as possible. Because more than enough fuel to reach the cache remained when they had descended the glacier, the aircraft turned eastward in search of Carmen Land, the existence of which Amundsen had reported. They failed to find it, and concluded that the great Norwegian explorer had been deceived by a mirage or some other natural phenomenon. The correctness of their conclusion was confirmed by Gould who, later in the season, examined the area on foot.

At 0447, the *Floyd Bennett* landed beside the cache. There followed over an hour of arduous labor. Fuel cans had to be broken open and handed up to June, who poured the contents into the tanks. They were all thoroughly weary when they again took off at about six o'clock. After an uneventful flight over the Ross Ice Shelf, the aircraft landed at Little America at 1008 on November 29. They had been away 18 hours and 39 minutes, of which 17 hours 26 minutes had been in the air, while covering a distance of approximately 1,600 miles.

The men at Little America gave them a rousing welcome which reflected the feelings of their countrymen at home. The *New York Times* had picked up the radio signals directly from Byrd's plane and spread the good news to the crowds in Times Square by means of loudspeakers. The average citizen felt immensely proud that an American in an American-built machine had been the first man to fly over the South Pole. To use a present-day phrase, each felt vicariously that he had a piece of the action. From the rest of the world, congratulations came pouring in. Byrd had become more than ever an international as well as a national hero.

In *Little America* (p. 345), Byrd modestly attributes the success of the flight to his crew mates: Balchen, McKinley, and June. They richly deserved all the praise they received, but Byrd was being more than a little unfair to himself. Flying over a trackless, unknown waste without electronic aids is a test for any navigator. The distance to be covered and the range of the aircraft can be calculated in advance. It may reasonably be assumed that, if the aircraft is in good condition and the weather conditions acceptable, the flight will be successful, provided that

the navigator can keep the plane on course. A mistake may have fatal consequences. Byrd, who had participated in the development of both the bubble sextant and the Bumstead sun compass—indispensable tools of polar navigation—met the challenge of the South Pole flight superbly. No one doubts that the *Floyd Bennett* reached its objective. On the return trip, Byrd found the Axel Heiberg Glacier and located the cache. Without his competence in the art of navigation, the flight would have been impossible.

Even more significant was the fact that he had conceived it; in planning, no matter how much skillful assistance he received, it was he who had to make the decisions. His remark that the effort to get there was more important than the actual arrival at the South Pole does much to reveal Admiral Byrd's nature. Like Amundsen before him, he was a meticulous planner who left nothing to chance if it could be avoided. He was not one, however, to panic if plans went awry or if the situation turned out to be different from that expected. If a chance had to be taken, he accepted the risk, as witness the decisions to fly up Liv Glacier and to drop overboard precious food.

The question remains just how important was the flight. Captain Harold Saunders, a lifelong friend of Byrd's and a cartographer, was very much impressed by McKinley's 250 aerial photographs. In 1940, from the perspective of 11 years, he summarized the significance of the flight as follows:

From this flight Byrd brought back the honor of having first carried the flag of any nation to both poles, and of having first flown over both ends of the earth by airplane. However, of far more importance to the world and lasting value to science, he came back with the knowledge that vast stretches of rugged unknown country could be safely flown with the proper preparation, and he brought back the information necessary to correlate all other discoveries in the region. Strangely enough, these include not only the previous discoveries by other explorers, and the more recent work of his own men, but the work of many others who will tramp these wastes and fly these routes in the years to come.⁷

Yet, Saunders stated, and Byrd agreed, that from the viewpoint of science and exploration, other flights made by the expedition, notably those over Marie Byrd Land, were more productive. Byrd, however, like other antarctic explorers and, for that matter, pioneer aviators—he was both—faced a perpetual problem of raising funds. Prospective donors were

⁷ H. E. Saunders, Byrd's flight to the South Pole . . . , *Proceedings of the American Philosophical Society*, vol. 82, no. 5, p. 809.

apt to be more interested in the spectacular gesture than in the pursuit of science. Even more than the man in the street, they felt that they had a piece of the action if the gesture was successfully pulled off. The South Pole flight had to be made if Byrd were to pay off his debts and continue his exploring.

It is noteworthy that, on his second expedition, Byrd confined his activities to science and exploration. But by then, the situation had changed, a change largely brought about by Byrd himself. When he returned from Antarctica in 1930, he received a hero's welcome. His books and articles were read, his movie attended, and his lectures listened to. Almost single-handed, he had made the Antarctic part of the American consciousness, and it was the flight over the South Pole that first awakened the interest of his countrymen.

During the next decade, Byrd managed to mount his second expedition and then to elicit Government support for an antarctic venture. From those events grew the post-war expeditions *Highjump* and "Windmill", led in the field by men whom he had trained, and finally United States participation in the antarctic activities of the International Geophysical Year and in today's permanent antarctic research program.
