

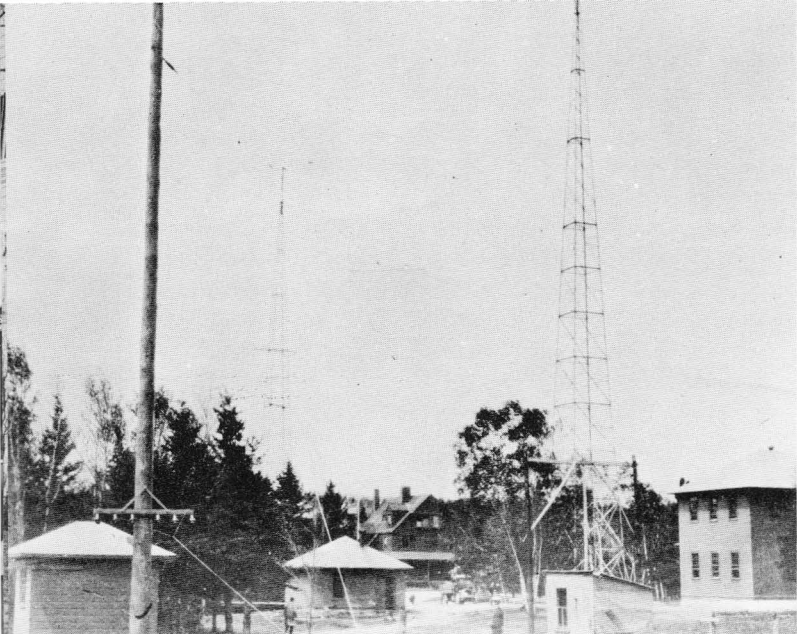
ECHOES FROM OTTER CLIFFS

By Emily Ellsworth

SHIELDED by a cluster of trees at Otter Cliffs in Acadia National Park on the southeastern end of Mount Desert Island, Maine there stands an unimposing boulder with a bronze plaque bearing a brief inscription. This simple memorial is all that remains of Naval Radio-Bar Harbor, which some forty years ago was the busiest radio station in the world and during its operation made radio history. On this site in 1917 an amateur radio enthusiast first fully intercepted the secret code of the German high command, and subsequently turned his radio facilities over to the United States Navy. Crackling in over one of the Navy's receivers here in October of 1918 came Kaiser Wilhelm's radio message to President Woodrow Wilson seeking to negotiate the armistice, which less than two weeks later brought an end to World War I. Through the ship-to-shore circuit at Otter Cliffs, where four of the Navy's best operators worked round the clock translating into words on the typewriter the dots and dashes they heard in their headsets, thousands of American doughboys first informed their families in this country that they were safe and on the high seas coming home. When the Naval airship

NC-4 made her historic flight in May of 1919 from Newfoundland to the Azores, becoming the first airplane to fly the Atlantic from west to east, Naval Radio-Bar Harbor established two-way radio contact with the plane 1250 miles away — longest plane-to-ground communication ever achieved up to that time. In July of the same year, the Otter Cliffs station picked up an S.O.S. and helped "talk" the British dirigible R-34 into a safe landing at Long Island, New York. The station also guided the R-34 on her homeward flight by relaying weather information collected from ships all over the North Atlantic. And it was Naval Radio-Bar Harbor that first tested ship-to-shore radio telephone in communications with the S.S. *George Washington*, bearing President Wilson on his peace mission to Paris in the summer of 1919. During the fourteen months that these events of international importance were taking place the quartet of Navy radiomen at their cliff-top station in Maine handled a record volume of traffic totaling more than 120,000 messages.

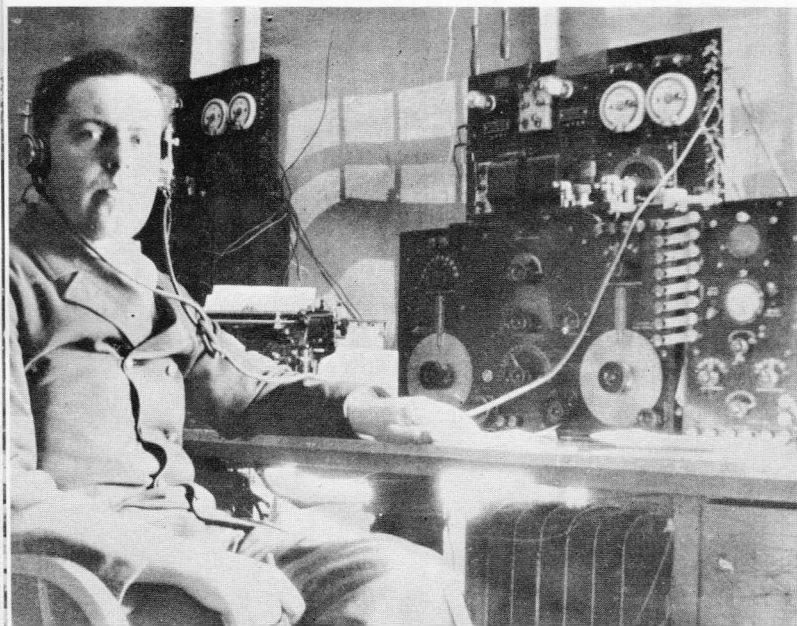
Gone are the towers with their antennae, the radio shacks, the barracks, the administration buildings and



Above — Alessandro Fabbri's transmitting towers at Otter Cliffs. Below — Radio operator Charles B. Ellsworth on duty at Naval Radio-Bar Harbor.

the barbed wire fences that constituted the physical plant of Naval Radio-Bar Harbor. The station was moved to Winter Harbor in the early 1930s. But during the years from 1917 to 1935 the facilities at Otter Cliffs demonstrated that the coast of Maine was the best location in the United States for receiving and transmitting radio messages. It is today, as attested by its active successor at Schoodic Point, Winter Harbor, the satellite monitoring unit at Corea and particularly by the giant naval radio station further down east at Cutler. There are located the most powerful radio transmitters and receivers in the world, capable of communicating with a Polaris missile submarine submerged in any ocean on the globe.

Maine's nearness to Europe on the 40th meridian and extensive mineral deposits in the region make the Maine coast ideal for radio communications. Back in the days when the Otter Cliffs was operating with a \$300 console — compared with the \$70 million console at Cutler today — it picked up clear across the country from the State of Washington a distress signal



from a Navy tug which had lost its tow during a gale in Puget Sound. The Puget Sound Naval Radio only thirty miles away did not hear the message at all. The Maine station telegraphed the Navy Department in Washington, D.C., and the department in turn alerted by overland telegraph the Puget Sound facility.

NAVAL Radio-Bar Harbor came into being because a wealthy steamship line owner summering at his estate at Otter Cliffs was an accomplished "radio ham," and because he entertained as a guest at his home one evening a young Assistant Secretary of the Navy who was cruising along the Maine coast and had anchored at Bar Harbor. The radio enthusiast was Alessandro Fabbri, an Italian and a friend of Guglielmo Marconi, inventor of the wireless telegraph. The Assistant Secretary of the U. S. Navy was Franklin Delano Roosevelt. After supper Fabbri tuned in one of the long-wave radio receivers he had made himself and invited Roosevelt to listen to the signals coming from Nauen, Germany, where the high-powered radio station was making its regular daily broadcast in code to German naval vessels all over the world. The messages came in loud and clear, and Roosevelt excitedly asked Fabbri to copy what the station was transmitting. The host obligingly copied three messages for his guest, and Roosevelt took them back to Washington. There, on orders from President Wilson himself, the Navy had been trying for months to intercept everything transmitted by the German radio at Nauen. Navy technicians had established special stations at Belmar, New Jersey and in Newfoundland, but the two stations could pick up only fragmentary portions of the broadcasts by the German naval command. Now here at Otter Cliffs in Maine, an amateur was intercepting the messages in full.

Within a few days after Roosevelt had delivered his information in Washington, Chief Radioman Ray Cole was on his way to Fabbri's estate at Bar Harbor to test out the equipment. He soon reported back to Admiral Bullard, director of Naval Communications, that Otter Cliffs had the best radio reception he had encountered anywhere in the United States and Canada. Admiral Bullard acted quickly. Alessandro Fabbri was commissioned an ensign in the United States Naval Reserve Forces (he was later promoted to lieutenant) and was placed in command of his own radio equipment. Naval Reserve radio operators at Belmar, New Jersey got orders to transfer immediately to Bar Harbor, Maine. The latest in naval radio equipment was shipped north from Boston, and on August 28, 1917 Naval Radio-Bar Harbor officially commenced service with the call letters "N B D."

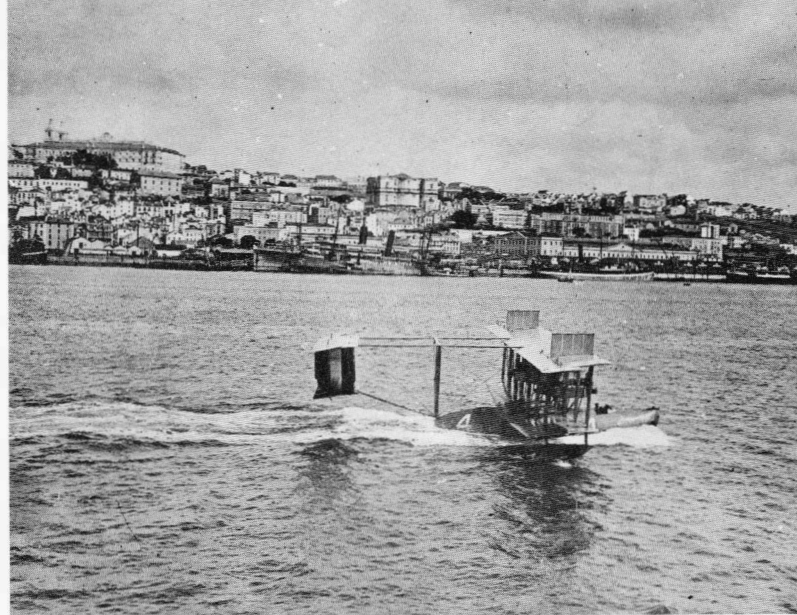
During the first year marine radio traffic at Otter Cliffs was light. Most of the activity consisted of intercepting distress signals from ships being attacked by German submarines and taking an occasional coded

message from naval vessels at sea. Navy engineers used the interval to construct a series of transmitting towers at Seawall, some twenty-six miles south across the bay from Otter Cliffs, and to lay an underwater cable between the two installations. Outgoing messages were to be "keyed" at Otter Cliffs and transmitted at Seawall. Incoming messages were to be received at Otter Cliffs on two 125-foot towers and an ingenious system of loop antennae and counterpoises which Lieutenant Fabbri had devised and built at his own expense.

Although radio traffic was nowhere near as heavy as it was to be within a short time, the base was expanding rapidly. Two new barracks were built, each to accommodate 125 men. A barbed wire fence twelve feet high was erected around the entire area. Fifty Navy enlisted men, most of them fresh out of the Naval Reserve radio training school at Harvard College, arrived to join thirty other enlisted personnel already busy with routine maintenance work. A detachment of Marines was assigned for security protection.

Such was the situation at Otter Cliffs in September, 1918 when radio traffic began to be stepped up, and four top-flight radio operators were selected to handle the ship-to-shore marine circuit. They were chosen on the basis of their previous commercial radio experience and on their speed in receiving code and translating it on the typewriter. One of those picked for this work was Chief Radioman Benny Suetter, USNRF, who held the world's championship for speed in radio telegraph and Morse code. The others were Chief Radioman Charles B. Ellsworth, Radioman First Class Lawrence Dutton and Radioman First Class Ralph Elliott, all reservists.

Other radiomen were assigned to handle the transatlantic circuits. Receivers were housed in small shacks, each with its own antenna and each assigned the call letters of a European station. There was "I D O" for Rome, Italy; "P O Z" for Nauen, Germany; "Y N" for Lyons, France, and others. On October 27, 1918, the shack tuned in on Nauen, Germany, intercepted the message broadcast by Kaiser Wilhelm to

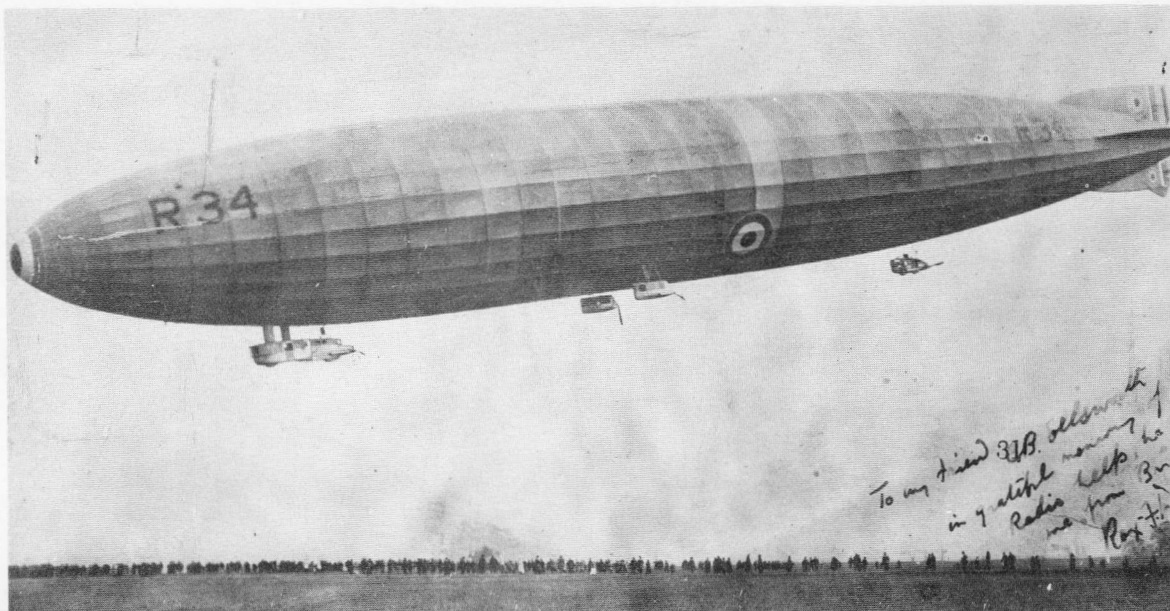


The Naval seaplane NC-4 lands at Ponta Delgada in the Azores at the end of her transatlantic flight.

President Woodrow Wilson asking to negotiate an armistice. Naval Radio-Bar Harbor was the only station in the United States to pick up this message. On November 11, the Armistice was signed.

WITH the end of hostilities in Europe, the ship-to-shore traffic at Otter Cliffs increased tremendously. By January, 1919 radio messages were pouring in at the rate of 400 a day. Some 40,000 European immigrants began taking passage to this country, and by March large ocean liners, such as the *Leviathan*, *George Washington*, *Berengaria* and *Mount Vernon*, started bringing home American troops. The average file from one of the immigrant ships from the time she left the dock in Europe until she arrived at New York or other East Coast ports was between 800 and 1000 radio messages. The file on the troop carriers was even larger — up to 8000 messages from soldiers eager to send word to their families. And this was just the volume of incoming traffic. The outgoing message file from this country to ships was also heavy. Often there were as many

His Majesty's Aircraft R-34 landing at Hazelhurst Field, Long Island after receiving help by radio from the Bar Harbor station.



as eight ships all trying to clear their radio traffic through the naval radio station at Bar Harbor on one or more of three frequencies. The ships would call Otter Cliffs first on 600 meters and send 1000 messages; then to clear the 600-meter band, they would shift frequency to 2100 and 2400 meters to transmit the rest of their radiograms.

The four Navy radiomen assigned to duty on the ship-to-shore circuit stood rotating watches of eight hours each and had two "strickers," or learners, to help with the paper work. There was never a slack moment. Every watch, twenty-four hours around the clock, would be busy. Due to the many ships on the Atlantic at one time all waiting to send their file, the Otter Cliffs station adopted a policy of standing by every two or three hours when handling personal messages, to listen for government and priority messages from other ships. During one of these priority breaks a radiogram was sent from President Woodrow Wilson to General John Pershing on board the *Leviathan* appointing him a full general in the U. S. Army. General Pershing called General Douglas MacArthur and his Rainbow Division to the after deck and informed them of the appointment in a 7000-word speech which was then radioed to Otter Cliffs. The Knights of Columbus had also promised every soldier on the *Leviathan* a free radiogram. Between the time the *Leviathan* left Bordeaux, France until she docked at Hoboken, New Jersey, Naval Radio-Bar Harbor took 6000 messages from the ship and transmitted 2200 more to her. But 1000 messages had not yet been sent when the *Leviathan* closed down her radio an hour after docking. These were taken ashore and dispatched through Western Union Telegraph in Newark.

In preparation for President Wilson's peace mission to Europe in July of 1919, the General Electric Company installed a special five kilowatt, radio-telephone transmitter aboard the S.S. *George Washington* on which the President was to travel. A similar transmitter was also installed at Seawall, the transmitting outlet for Naval Radio-Bar Harbor. It was the first time that radio-telephone equipment had been placed aboard a passenger liner, and radiomen eagerly waited to see how it would work. When the *George Washington* was 400 miles east of Bar Harbor, two-way contact was established between the vessel and the naval radio station. General March, chief of staff with the President, talked to the Maine station, but reception was not good enough to have the President himself hooked up with the White House. Regular radio traffic, however, proceeded without difficulty. Both during her passage to France and on her return home,

the *George Washington* was in constant communication with Otter Cliffs. For their special service during this historic mission, Radiomen Suetter, Dutton, Ellsworth and Elliott received commendations from both the Director of Naval Communications and from President Wilson.

NAVAL Radio-Bar Harbor played an equally important part in the success of two pioneer flights across the Atlantic in 1919, the first by a Navy seaplane and the second by a British dirigible. And during both events the radio station again made radio history.

At 6:07 on the evening of May 17, 1919 three Navy seaplanes, the *NC-1*, *NC-3* and *NC-4* took off from Trepassy Bay, Newfoundland on the last leg of a transatlantic flight, destination Ponta Delgada in the Azores. Navy destroyers were strung out along the 1350-mile route at 100-mile intervals to keep in radio contact with the planes in flight, and to render assistance in case they were forced to land at sea. Bar Harbor Radio, maintaining constant surveillance of the aircraft radio frequencies, intercepted *NC-4* at 6:30 transmitting to the destroyer in her area. When *NC-4* cleared with the destroyer, Otter Cliffs called the plane and made two-way contact. At the time the plane was 1250 miles from the Maine station. A new distance record for plane-to-ground communication had been established; and the record continued to be broken as Bar Harbor radio maintained contact with the planes as they flew eastward at a speed of 75 miles an hour. Through the radio at Bar Harbor the Navy Department was advised of the progress of the flight.

NC-1 and *NC-3* were forced down, but *NC-4* reached Ponta Delgado after some seventeen hours in the air. Just before the plane landed at 9:20 a.m., AST, Bar Harbor radio heard her signal to the destroyer in the immediate vicinity of the Azores. Although designed for a radius of only 75 to 150 miles, the radio on the seaplanes had been successfully picked up at Otter Cliffs at a maximum range of 1900 miles. For the unique service rendered the flight, the four operators at Bar Harbor were forwarded a special Navy commendation.

The second important service to transatlantic flying by the Bar Harbor navy radiomen came in July, less than two months after the *NC-4* episode, during the flight of His Majesty's Airship *R-34* from East Fortune, Scotland to Mineola, New York. Although Naval Radio at Bar Harbor had not been assigned to monitor the *R-34's* flight, Radio Operator Dutton, while cruising the spectrum on the 4 o'clock-to-midnight watch

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AUTUMN IN MAINE ❖

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on July 2, intercepted an "S O S" from the British dirigible. She reported she was running out of fuel over the Bay of Fundy near the Nova Scotia side. Dutton immediately notified the Boston Navy Yard of the distress call. The Navy Yard dispatched three destroyers under forced draft for Nova Scotia, and, with all other radio traffic at Bar Harbor stopped, Dutton continued to monitor the R-34's frequency.

The British dirigible remained in the air, however, and continued its flight against 50-mile-an-hour headwinds. One of the destroyers racing to its aid and expecting it to be forced to land in the sea, advised the commander of the R-34 to drop altitude to 1500 feet. The R-34 complied and discovered it was encountering very little headwind. After passing Cape Sable, R-34 advised Operator Dutton it believed it had enough fuel to continue its flight to New York. The Navy destroyers stayed with the airship until it entered Long Island Sound, and at 2 a.m. on July 6, 1919 the R-34 landed safely at Hazelhurst Field (now Roosevelt Field), Mineola, New York.

So helpful had been the Bar Harbor radio station to the successful completion of the first leg of the flight, that the commanding officer of R-34 asked the station to handle all its radio communications on the return flight to England. On the airship's east-to-west crossing, the radio station at the Brooklyn Navy Yard had been given the assignment, but had been unable to make a single contact with the ship during the entire flight. At 11 p.m. on July 10, R-34 took off, and a few minutes after she was air borne called Bar Harbor and requested the station to relay to her all weather information available from ships on the Atlantic. This was the first time that this method of gathering weather reports was to be employed in a flight operation. Bar Harbor radio made contact with ships all the way from Cape Cod to the English Channel, and all responded with weather data. During the 72 hours of her homeward flight, R-34 was in constant communication with Naval Radio at Bar Harbor, and when the ship touched down at Pulham, England, at 2 a.m. on July 13, 700 weather messages in all had been relayed to the dirigible by the Maine station. Several weeks later the British Air Ministry in London sent a letter of commendation to the Bar Harbor station,

and the officers of the R-34 gave Chief Ellsworth an autographed chart of the flight both ways.

Radio traffic, particularly on the ship-to-shore circuit, increased at Otter Cliffs as more and more ocean liners finished the task of bringing home American troops and returned to their regular transatlantic passenger service. With the disbanding of the armed forces, reservists received their discharges, and regular Navy personnel began arriving at the Bar Harbor station. By late November, 1919 most of the reservists had been released from active duty. Lieutenant Fabbri had been relieved, but before his discharge was awarded the Navy's highest award, the Navy Cross, Lieutenant R. A. Jones became the communications officer and Chief Radioman Luke Defresne, chief operator of the circuit.

Chief Radioman Ellsworth, one of the four key operators who helped make radio history at the station, left Otter Cliffs on December 1, 1919, but returned the following September in the regular Navy. Much had happened during the interval to the volume of traffic. Only 1500 messages a day were being processed, for a new commercial company, the Radio Corporation of America, had been formed and was beginning to handle non-government radiograms. The ship-to-shore operations at Bar Harbor continued to decrease until by the end of 1923, only scattered messages — sometimes but one or two a day — were being received. The principal work for the station had become the giving of position reports to ships at sea by radio compass. The complement of men had been reduced from 100 to 26 men. Even today four of the veteran Navy personnel who played a prominent part in the early history of the station still reside in the Bar Harbor area — Charles Ellsworth, Bud Fisher, Luke Defresne and Hank Grindle. Another, Orrin Dunlap, lives in Great Neck, Long Island, New York, and is the author of several books on radio subjects, including *Communications in Space*.

Late in 1929, John D. Rockefeller Jr. proposed an extension of Ocean Drive on Mount Desert Island to Otter Cliffs. In 1932 the extension was approved by both the Navy and the Department of the Interior, and Bell Telephone Company and Navy engineers began making tests for a new site for the radio station. "Schoodic Point" across Frenchman's Bay east of Winter Harbor was selected, and in the summer of 1934 work crews began dismantling the Otter Cliffs facilities. The Seawall transmitting site was also discontinued. It was turned over to the Coast Guard, which continued to operate it until 1947. On February 28, 1935, the transfer from Otter Cliffs to Schoodic Point was completed. After seventeen years as the Navy's best voice and ear on the east coast of the United States, Naval Radio Bar Harbor had signed off for the last time.



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