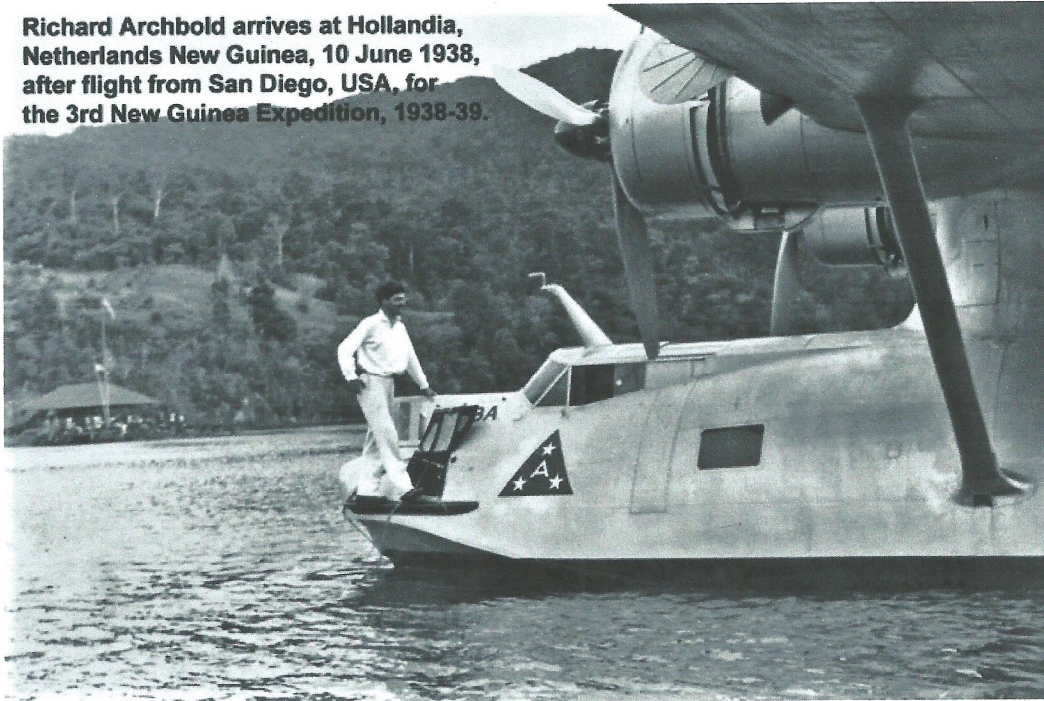


SHORTWAVE HISTORY

CONQUISTADOR OF SCIENCE: SHORTWAVE'S VITAL ROLE IN THE 3RD ARCHBOLD NEW GUINEA EXPEDITION

Richard Archbold arrives at Hollandia, Netherlands New Guinea, 10 June 1938, after flight from San Diego, USA, for the 3rd New Guinea Expedition, 1938-39.



By Andy Robins

"SEAPLANE ALIGHTS ON LAKE TWO MILES UP" read the headline in the July 24th, 1938, edition of the New York Times.

The article it led had been sent by shortwave radio to report the initial success of the third Archbold Expedition to New Guinea.

Described by others as a "young millionaire", Richard Archbold's formal title was Research Associate in the Mammalogy Department at the American Museum of Natural History in New York. He had explored parts of New Guinea during two earlier expeditions; but the third was to be the most ambitious, ending with a record-breaking flight around the world. And from the moment Archbold and his five-man crew took off from San

Diego, California, in their twin-engine Consolidated "Catalina" flying boat Guba, the expedition was in constant touch with home via shortwave radio.

Archbold realized the vital role airplanes and radio communication could play in the exploration of one of the most remote and mysterious places on earth. During his

second expedition in 1936, he used an amphibious Fairchild airplane dubbed Kono equipped with two-way radio to explore the region around the Fly River in Papua. The plane overturned and sank during a sudden midnight storm while anchored at Daru harbor, but not before Archbold decided that his next expedition would be supported by an even larger plane, also radio-equipped. The storm even gave the new plane its name: the word "guba" means "fierce storm" in Papuan.

In early June 1938, Archbold and crew took off from San Diego Bay for the eighteen-hour flight to Hawaii. Among those seeing them off was Barney Boyd W6LYY. As the big flying boat flew across the vast Pacific, stopping first at Honolulu and then remote



Wake Island, Boyd was in constant radio contact with Archbold, relaying news of his progress to reporters.

Three days after leaving Hawaii, Guba and her crew touched down safely in the harbor at Hollandia in Dutch New Guinea, a place now called Jayapura in the Indonesian province of Irian Jaya. There, an advance party had built a large base for the expedition which was to last nearly a year. It included an amateur radio station, PK6XX, and another station, PO6ZA, that maintained contact with Guba and small exploration parties in the bush.

Archbold used his new airplane for a series of preliminary flights over the largely unknown territory the expedition would cover. He flew over a giant river valley, previously unknown to the outside world, inhabited by at least 60,000 people – making it the most densely populated area in the world's second-largest island. Archbold also made a test landing on Lake Habbema, a large body of water high up in the Snow Mountains, about 200 miles from Hollandia, where he hoped to set up an advance camp.

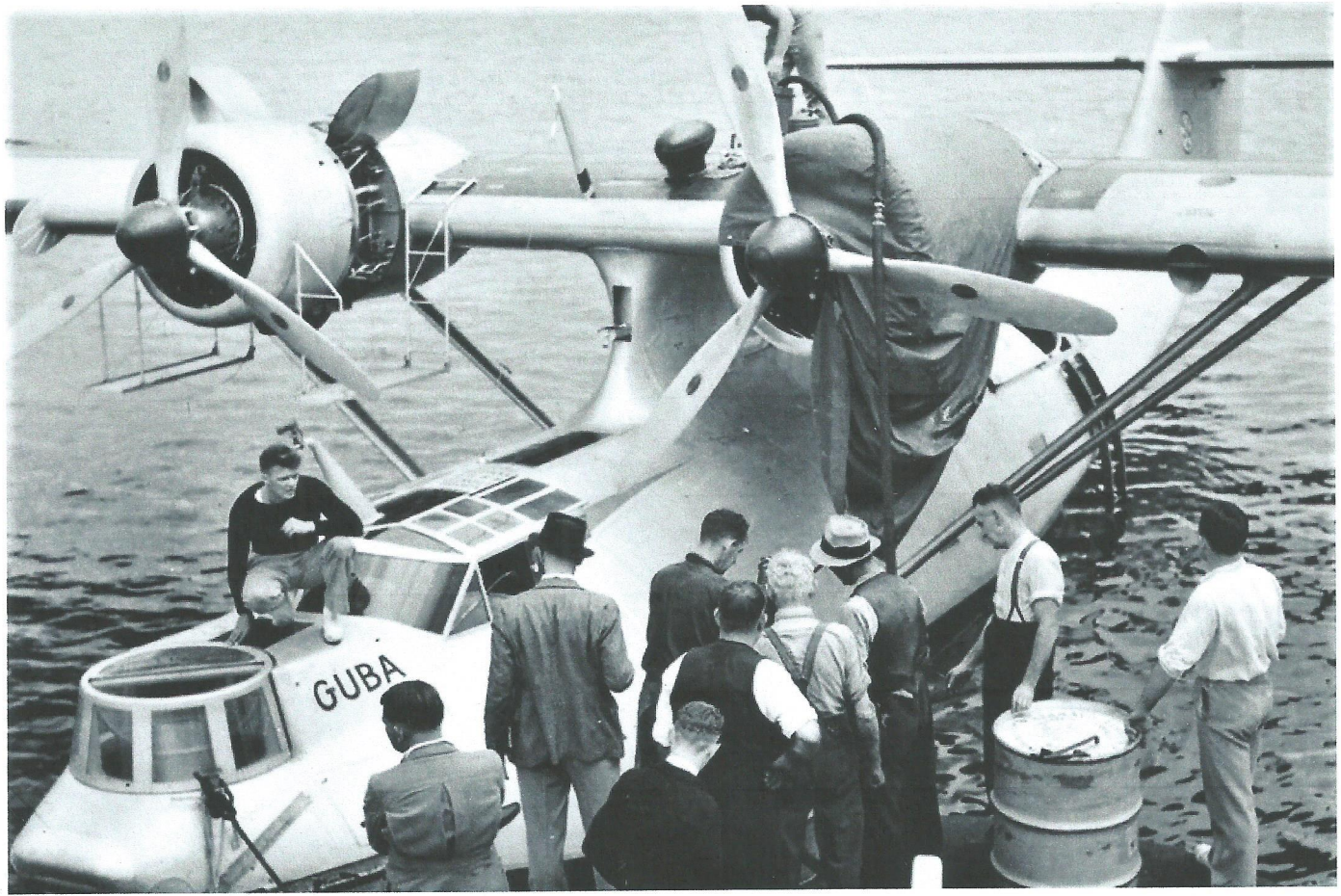
Guba's crew was apprehensive about this landing; no one had ever landed so large a plane and taken off again at an altitude of 11,000 feet. But the rarified air proved no

problem for the twin 900-horsepower engines and the 13-ton flying boat was airborne again in under 30 seconds. Just in case, however, Archbold brought a portable radio station and food for a month. It would have taken a rescue party that long to cover the distance from Hollandia to the lake on foot. The same trip took only two hours by air. Radio operator Harold Ramm fired up PK6XX on its primary frequency – 14,009 kHz – and Archbold himself dictated a dispatch reporting the successful landing to The New York Times. Barney Boyd picked up the transmission back in San Diego and passed it on.



While Ramm stayed behind at Hollandia with the "ham" station, the expedition's second radio operator, Raymond Booth, went with the airplane as it ferried about 130 men and tons of equipment to the base camp at Lake Habbema. The thin air kept activity to a minimum for several days as the party acclimated to the altitude. Several of the Dyak carriers brought from the jungle island of Borneo to the north of New Guinea never did get used to it and had to be taken back on stretchers.

Exploration and collection of specimens got underway as soon as possible while Archbold and several others made plans to scale the 15,600-foot summit of nearby Mount Wilhelmina (now called Puncak Trikora). Although surrounded by thousands of square miles of steaming tropical rain forest, the



"Guba," the Consolidated Model 28 used by zoologist Richard Archbold to explore New Guinea, pays a call at Rose Bay, in New South Wales, Australia, in 1939. (Australian National Archives)

mountain was often covered by snow and obscured for days on end by freezing mist and rain. Temperatures at the base camp regularly fell below freezing at night. The mountain party set up a base camp near the foot of the peak where botanist Dr. L. J. Brass later reported excellent radio reception and transmission conditions. Unfortunately the small, gnarled trees at that altitude did not yield enough wood to build a proper antenna mast. So Guba co-pilot Russell Rogers flew over and delivered a load of bamboo from the coast by parachute. Brass noted that everyone except the radio operator was far more interested in the box of fruit Rogers thoughtfully included with the other cargo.

Bad weather forced Archbold to break off the attempt to reach the mountain's summit but the important scientific work continued. The

Lake Habbema camp was in constant touch by radio with Guba, the main base at Hollandia, and with a smaller advance camp near the Idenburg River.

Small exploration parties led by Dutch military officers attached to the expedition also had portable radio sets so they could coordinate supply drops from the flying boat. With help only from aerial photographs taken by Archbold, these men cleared the way when the main group broke camp at the lake and began moving overland toward the giant Balim River valley – at that time uncharted territory.

Near the end of World War Two, three survivors of a plane crash in the same area walked out of the jungle and reported harrowing adventures among the primitive people living in what the newspapers

dramatically called a "Shangri-La" never before seen by Europeans. An irritated Archbold was not impressed, pointing out to reporters and the military that he had charted the very same valley not so many years before.

The Archbold expedition slowly moved to a series of new camps, sometimes carried by the flying boat. The scientists had many friendly encounters with the natives along the way. In a gorge cut by the Bele River, people from villages for miles around gathered to initiate the white visitors into the tribe by sprinkling them with the blood of a pig slaughtered for the occasion. When the party moved on a few days later, the scientists watched as the Papuans "looted" the camp where a lot of unneeded equipment and supplies had been left behind. An hour down the trail they were overtaken by natives carrying sacks filled with their former belongings while other booty went speedily to other villages in all directions.

The main goal of the Archbold expedition was to collect examples of the exotic animal and plant life for the American Museum of Natural History in New York, where some of the material went on public display in a special section of the museum devoted to the flora and fauna of the Snow Mountains region. Through it all, PK6XX and W6LYY maintained a regular schedule. Each Saturday night at 10:30 Pacific time, Boyd went to his radio shack to call New Guinea on 14,204 kHz (or "kilocycles-per-second", as it was then known). PK6XX answered on either 14,009 kHz or 14,340 kHz. The stations were also used for "live" radio broadcasts from New Guinea that were carried on local U.S. stations.

The expedition's internal radio system was more complex. Archbold and Ramm built a base transmitter adapted to the special conditions imposed by the tropical climate of

coastal New Guinea. The 400-watt P06ZA transmitter at Hollandia was crystal-controlled with plug-in coils to change frequencies within the range of 500 kHz to 15 MHz.

Hollandia communicated with Guba on a number of frequencies. The plane was equipped with a 100-watt main transmitter using 500 kHz; 3,105 kHz; 6,210 kHz; and 12,420 kHz for either voice or CW. Guba's 40-watt back-up transmitter, for CW only, used those frequencies as well as the longwave channels 333.3 kHz and 375 kHz.

Out in the bush, the advance exploration parties were equipped with portable sets made by Amalgamated Wireless (Australasia), Ltd. These had an output power of 10 watts on 6,425 kHz but they were "portable" in name only. It took five native carriers to haul the transmitter, receiver, batteries, and charging motor. However, the small sets worked well despite their low power.

On Mount Wilhelmina, Archbold found that a special one-watt CW transmitter kept him in reliable contact with P06ZA on the coast more than 200 miles away. The mountain party used the same batteries for three weeks to make radio contact daily every 30 minutes.

Using the portable sets, the remote camps were almost continuously in contact with Hollandia base - a reassuring link when faced with unknown territory and natives whose friendliness could never be taken for granted.

As if there wasn't adventure enough, Archbold volunteered the use of Guba to help find a missing Pan American Airways Martin M-130 flying boat that vanished somewhere between Manila and Guam only a few days after the scientific party arrived in New

Guinea. After learning that the large, four-engine Hawaii Clipper had apparently crashed, Archbold radioed his offer of help from Hollandia. But Pan Am officials politely declined, saying that U.S. Army Air Corps bombers based in the Philippines could do the job. They were wrong. To this day the airliner's fate remains a mystery.

Closer to the expedition's backyard, the Guba crew brought a thousand pounds of food and water to about 40 people stranded when a Dutch patrol boat ran aground 75 miles from Hollandia. Learning by radio that the nearest ship was

at least a day away, Archbold took off six of the vessel's passengers, including one with a serious case of pneumonia, and flew them to his base where medical help was waiting.

When the New Guinea expedition drew to a successful close in the spring of 1939, the Australian government chartered Guba for a flight to survey air routes between Western Australia and East Africa over the Indian Ocean. Radio again played an important role. Joined by the famous Australian aviator Sir Gordon Taylor, the flying boat's crew homed in on a radio beacon but failed to find the lonely Cocos (Keeling) Islands because of bad weather and were forced to divert to Batavia (now Jakarta), the colonial capital of the Dutch East Indies. However, the flight to the islands went off without a hitch the following day.

This was a prelude to the similarly uneventful flight to Mombasa on the coast of British Kenya. The survey flight now over, Archbold and his crew continued on across Africa, stopping in the Belgian Congo and

Dakar on the Atlantic coast of French West Africa. After one more stop at St. Thomas in the Caribbean, Guba and her crew landed in New York and a heroes' welcome on July 1st, 1939, that included a reception at the World's Fair.

During the thirteen months since she had left California, Guba had covered 40,000

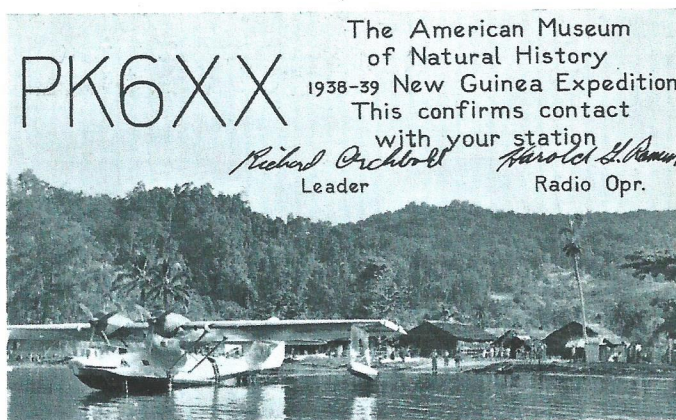
miles and spent 700 hours in the air. In the process she became the first seaplane to fly around the world and the first airplane of any kind to do so at its greatest circumference. The expedition's scientists collected 6,000 kinds of plants, hundreds of

birds, and a species of giant rat over three feet long. Some of these were unknown to science before the expedition.

Archbold planned to return to New Guinea in Guba for a fourth expedition but the Second World War intervened. Japanese forces later overran much of the territory Archbold had surveyed. As the tide of war turned in the Allies favor, General Douglas MacArthur used Hollandia as his headquarters during the long march back to the Philippines.

Archbold sold his flying boat to the British government in 1940. After serving with the Royal Air Force, Guba was stripped of useful equipment and scuttled at sea shortly after the war ended.

Archbold went on to found the Archbold Biological Station in Lake Placid, Florida, in 1941 where important research continues today. Before his death in 1976, Archbold was said to be fond of regaling friends and colleagues with stories about his aerial



adventures in the southwest Pacific so many years before.

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