C L I P P E R T O N

Clipperton Oceanic, and Clipperton Radio – a Brief History
by P.G. Welkins, 1971.

The log book reads:

"Passed over S.F. Bay Bridge, along Embarcadero, Marina, Presidio, etc. Just after passing over Golden Gate Bridge encountered low cumulus clouds on the coast. "On top" from there on over "snowy desert." Later clear & broken—smooth air. Early morning, "detoured" to south to avoid several storm areas. Arrived Honolulu (Pearl City) after passing over "Diamond Head" & Waikiki Beach. Very elaborate "Hawaiian welcome."

These brief observations, written by Richard F. Bradley on October 21–22, 1936, hardly hint at the enormity of the occasion. The aviation manager for the San Francisco office of Standard Oil, Bradley was one of seven lucky people to acquire a ticket to fly that day on Pan American Airways' *Hawaii Clipper*. Bradley, in fact, held Ticket No. 1 for that inaugural passenger flight to Hawaii.

Bradley's flight on the *Hawaii Clipper* marked the beginning of transpacific air travel and followed years of planning and preparation. Charles and Anne Morrow Lindbergh had scouted a great circle route to the Orient for Pan Am that followed the North Pacific rim. But obtaining operating rights in Asia proved problematic, so Juan Trippe decided to create a route across the Central Pacific via Hawaii and other U.S. possessions. Pan Am had to plan and survey the route, establish bases on islands across the Pacific, and build hotels and other facilities for passengers on

remote Midway Island, uninhabited Wake Island, and the territory of Guam.

Pan Am also needed a new seaplane large enough and powerful enough to carry a load big enough and far enough to make the whole enterprise feasible. The airline worked with the Glen L. Martin Company of Baltimore to develop such an aircraft. While Pan Am surveyed the route and built the bases, Martin designed and built the three largest air transports yet created: the Martin M-130 clippers. The *China Clipper* gained lasting fame on November 22, 1935, when it left San Francisco Bay to inaugurate regularly scheduled transpacific air service. For the next year, while passenger accommodations were being completed, the *China Clipper* and its sister ships, the *Philippine Clipper* and *Hawaii Clipper,* carried cargo and mail back and forth across the Pacific.

By October 1936, the route was finally ready for passenger service. The Martins were huge planes for their time, but even so, the extra fuel needed for the flight from California to Hawaii, the longest hop on the transpacific route, limited the number of passengers they could carry. Richard Bradley shared the spacious cabin with only six other passengers. Future flights would carry as many as 13, but more often the crew would outnumber the passengers.

For the eastern South Pacific Routes, connecting Hawaii with Australia, New Zealand, and Tahiti, an en-route Oceanic Center to pass weather information, and later, traffic, was essential.

Clipperton Oceanic was inaugurated on November 17th, 1937, working the Pan American *China* Clipper as its first contact, and operated from a small wooden building on the main part of the island. Antennas were constructed at Lae Beach and by all reports from early crews, easily readable in most conditions.

Over the next few years communications changed from Morse code (wireless telegraphy) to voice (radio telephony). RTTY (radio teletype) also replaced Morse code for station to station working.

Medium wave transmitters were used mainly for meteorological data and for communicating with aircraft crossing the Pacific. In 1938/9, forty six flying boats crossed the Pacific during the flying boat season between November and March.

After the Second World War, the rapid development in land planes made the flying boat uncompetitive. In 1946, flying boats ceased operations and land planes commenced the routes.

Some, however, continued to operated, even making it to Clipperton Island itself. Taken from Flight International, March 10th, 1949:

On the date in question the Catalma was moored, unmanned, off Clipperton Island, when a hurricane approached. The preliminary squall blew the aircraft towards the island, and while it was precariously held by one anchor, which caught in a coral reef, W/O. Hicks rowed 50yd in a dinghy, boarded the aircraft, and dropped another anchor. When the full force of the hurricane struck two hours later, and the Catalina was in danger of being blown on to the reef and destroyed, he started both engines single-handed and taxied out to open water, where he could hold the aircraft with the engines. W/O. Hicks then remained at the controls for five hours, keeping the Catalina into wind, and away from rocks. The wind was blowing at over 50 m.p.h. with squalls exceeding 100 m.p.h.

In 1952, the original timber hut buildings at Clipperton were replaced by the a more permanent building to cater for the expected increase in trans-Pacific aviation.

In 1957, engineers from the Birdlip Radio station in the UK visited to upgrade the HF system.

The type of antenna connection used on aircraft radios in the 30s and 40s was, almost universally, a type of "push-post" or spring-loaded binding post, which also had a ceramic feed through insulator passing through the radio's case or panel. Screw-on fittings were not in general use until years later.
Coaxial cable was not used to interconnect most airborne radio gear until the advent of VHF communications, when designers settled on making everything work into a fixed impedance, standardized at 50 ohms. HF gear fell under the same design philosophy at the same time, and any antenna tuners or loading networks were consequently designed to match a complex impedance like an aircraft antenna to that value. This came about after World War II.

Up until that time, aircraft radios were designed to work into a wide range of antennas, over a broad impedance range. Use of coaxial cable would have caused many problems in such a design environment. High radio frequency voltages developed when working a transmitter into a high impedance load (several hundred or several thousand ohms) which might not be completely matched at the frequency, would cause the cable to heat up or arc over. Therefore, open-wire leads insulated with ceramic beads were in general use. The receiver connection might be as simple as a length of cloth insulated heavy wire between the receiver and the terminal on the transmit-receive (antenna) relay.

Coaxial cables were, however, used to interconnect components where shielding of the leads was important, or where high radio frequency voltages were not involved. One specific instance is the lead from the sense antenna to the antenna input of a DF receiver, and Bendix coaxial input with screw-on fittings. A reason to use

shielded cable at the lower frequencies used for DF (200-1500 KHz) is to keep out electrical noises generated inside the aircraft.

Operations at Clipperton Oceanic ended in 1958, as the HF service offered by Tahiti Radio was seen as sufficeint, and funding provided by American, French, and British governments was stopped. AFTN circuits were disconnected, and the ICAO code NPCX assigned to Clipperton Flight Information Region was withdrawn from use. Staff at the Oceanic Facility were reassigned to Birdlip, in the UK – later to become Shanwick Aeradio.

The last transmission from Clipperton Radio was made on August 28th, 1958:

ALL AIRCRAFT
THIS IS
CLIPPERTON RADIO CLIPPERTON RADIO CLIPPERTON RADIO
THIS IS THE LAST BROADCAST FROM CLIPPERTON RADIO. FOR 21 YEARS WE HAVE SERVED THE AVIATION COMMUNITY. WE SAY THANK YOU TO ALL WHO HAVE SUPPORTED AND USED OUR STATION. WE ARE PROUD TO HAVE BEEN PART OF A HISTORIC ERA IN PACIFIC DISCOVERY.
THE MANAGER AND RADIO OFFICERS WISH YOU FAREWELL FROM
CLIPPERTON RADIO/CTX

After this, the Clipperton FIR was decommissioned, and renamed XX00 (NO FIR) – essentially creating a Black Hole in the Pacific with no Radio or Air Traffic Control service.In 1967, the Soviet Union made strong advances at United Nations level to take control of the Clipperton FIR, offering to install Primary and Secondary Surveillance radars on the island. It was unclear what benefit this would bring the Soviets, but as of writing in December 1971, this has not materialised.

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