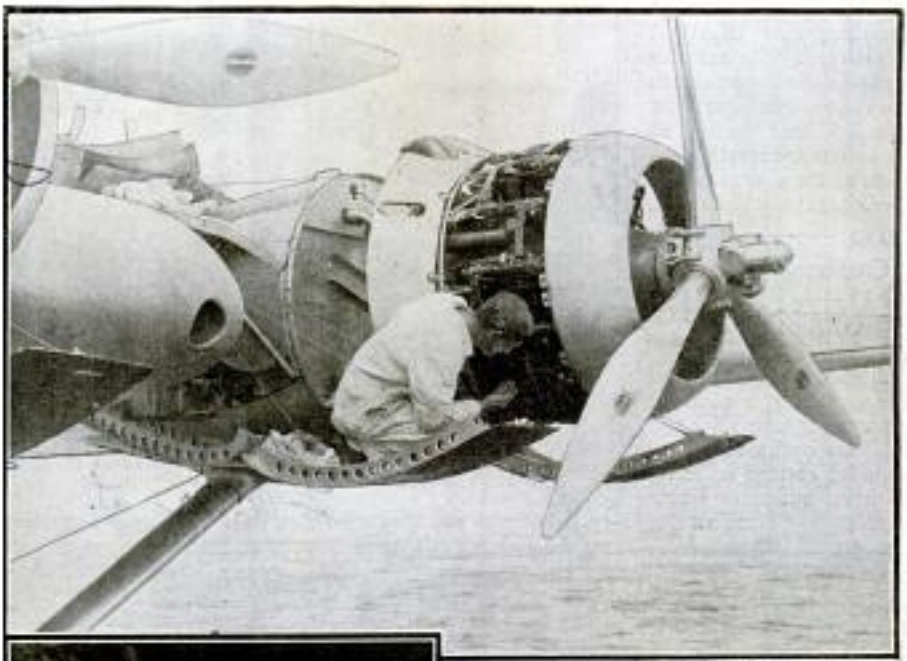
LEARNING *to* FLY



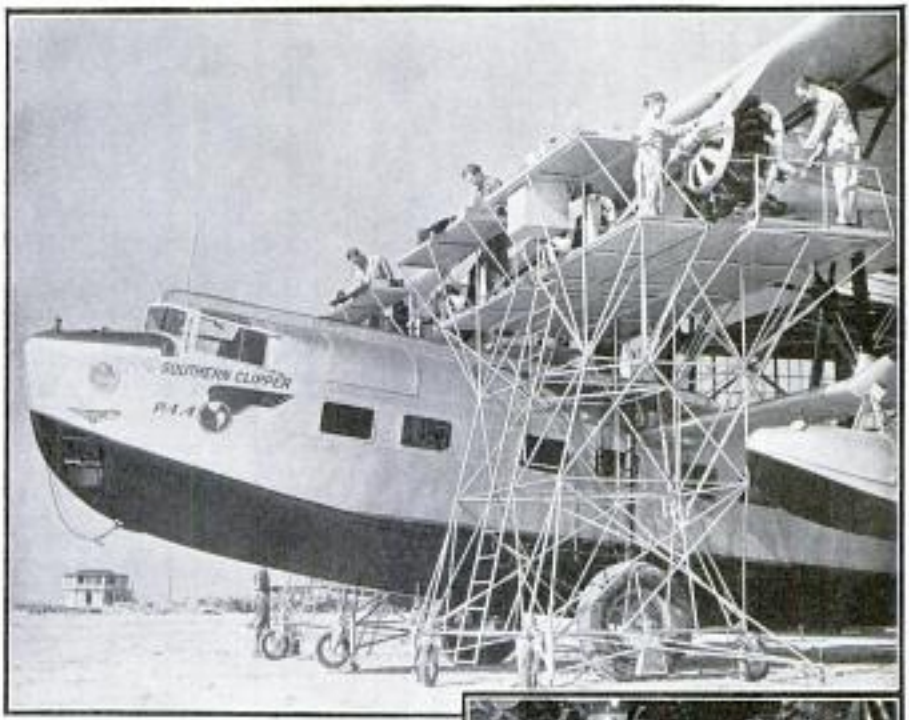
Junior officer, top, working on one of the clipper engines and, below, a student studying the mechanics of a clipper power plant

SUPREMACY on the ocean airways lies in the hands of a small band of airmen, the most skillful transport officers in the world.

Flying crews for Pan American clippers pass through the most intensive training ever given to men in charge of land, sea or air craft. Now five years old, the first ocean-flyers' school was organized by Col. Charles A. Lindbergh and other ranking officers of P.A.A. The school began in the Caribbean area, but now its operations have been extended to the Pacific, and soon they may include the Atlantic.

Anticipating a boom in transoceanic passenger, express and mail service, the company is training enough officers to handle the clipper ships when they are ready to go. More than 100 men already have taken their final examinations for responsible posts. They are the nucleus of a small army of expert pilots, engineers, radio operators, mechanics and navigators who will be in charge of America's destiny on

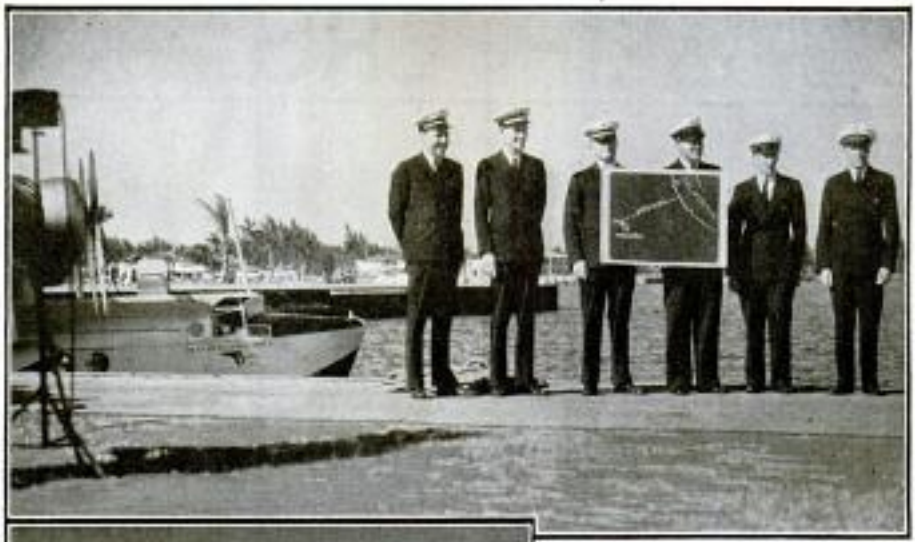
the CLIPPERS

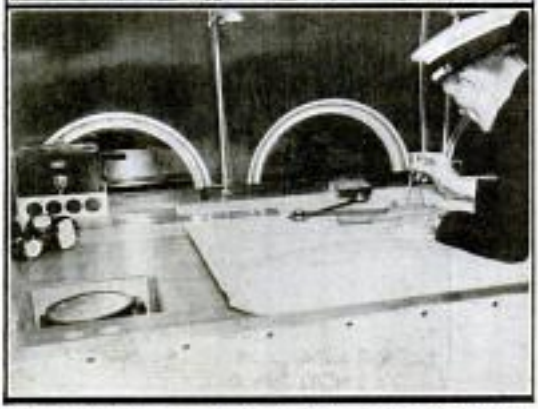


the ocean airways. Five years ago, engineers of this international air line were convinced that long-distance ocean flying was not only practicable, but that it would become an accepted fact within a relatively short period. That was when Col. Lindbergh and his associates mapped out a course of training for ocean flyers. They worked out the first conception of a flying boat crew as it is known today: captain, co-pilot, navigator, radio officer and flight engineer. All must be specialists in their chosen field, but in addition, they must be interchangeable. At a moment's notice, one officer must be able to assume complete responsibility for another's duties.

This is like having a train conductor who can drive an engine, and an engineer who can pinch hit as a conductor. To train men so exhaustively, schools were set up at divisional headquarters. Pilots, no matter how extensive their experience, passed

Crew servicing a clipper ship with the aid of a portable scaffold and, below, pilot and radio operator in cabin of clipper



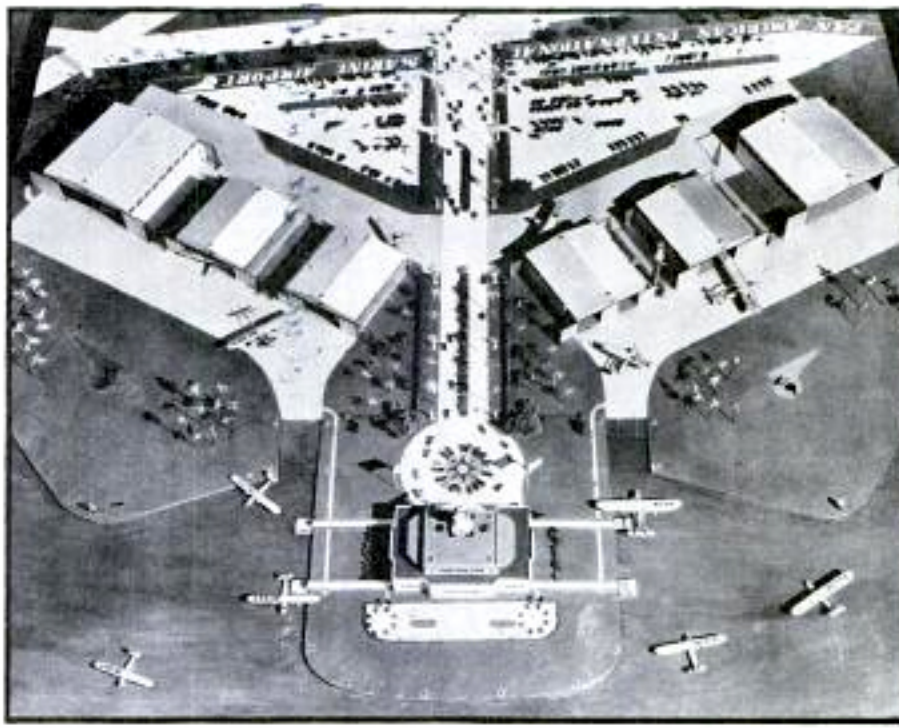


Trim clipper ship crew, at top, ready for a flight. Center, two of the engines of a clipper. Bottom, officer in navigation room of clipper ship

through instruction in blind flying, and were given a chance at the controls of all the common types of aircraft. All flying personnel took courses in meteorology, navigation, and radio. New pilots were given long training periods in engine shop work. For years after joining the line, they served as assistant pilots, as junior officers, and clerks in charge of every detail of clearing cargoes and caring for passengers.

The requirements for becoming an apprentice pilot in the ocean-flying school are unusually high. To qualify for training, a candidate must be a graduate aeronautical engineer, the holder of a transport pilot's license, and not over twenty-four years old. If he passes the preliminaries, he receives a thorough education in the international transport business. This takes in a lot of ground. It begins with traffic handling and clearances, then leads to radio construction, radio operation, engine mechanics, airplane mechanics, and piloting.

To become a finished clipper-ship officer, he is also schooled in foreign languages, international



law, international maritime law, seamanship and kindred subjects. If these courses are passed, the candidate is in line for a rating as junior pilot. This rating implies he is a qualified traffic man, a licensed engine mechanic, a radio operator, a licensed mariner and a master seaman.

The next rating is flight engineer, for which the requirements are still higher. To become a first officer on an ocean clipper, you need at least 5,000 hours of transport flying and at least three years of service with the company. You must also have a supervisory knowledge of engines, airplane mechanics and radio operation, besides being a graduate navigator. The next highest rating, captain, requires 7,000 hours of experience in transport flying and four or five years with the company.

Officers who give evidence of superior judgment and ability, and who have all the foregoing qualifications, are in line for the highest rating—master of ocean flying boats. This title implies the holder knows how to man every post on an ocean clip-

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An international airport where clipper ships land and depart and, below, signal light for an approaching clipper.

Learning to Fly the Clippers

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per. The preliminary air-mail clipper service across the Pacific has been utilized primarily for the training of personnel. Six clipper ship crews already have been prepared for their difficult duties, and four of these crews will be assigned permanently to service in the Pacific division. To date, they have safely covered more than 200,000 miles without a mishap.

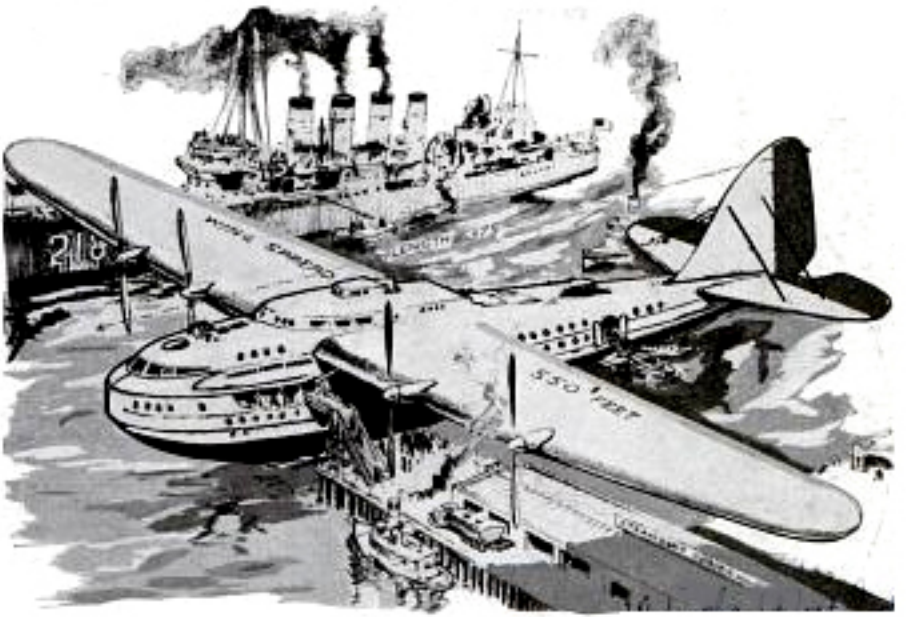
The flying personnel are not the only men trained especially for duties connected with the running of an ocean air line. There are scores of men in the ground crews—meteorologists, radio operators, operations men and inspectors. More and more, the air-transport business is becoming a complex organization whose activities call for the best men and the highest possible skill. Stations in such remote spots as Midway, Wake, and Guam are wholly or partly dependent upon supplies from the outside. But soon the land surrounding these newly established bases will be yielding fruits and vegetables the year round. Hundreds of tons of rich soil have been carried to the islands.

The success of this first ocean air line is largely due to the intensive training and rehearsal of the men in their assigned duties. After Captain Edwin Musick had made two round trips across the Pacific, he turned his command over to Captain Sullivan who had served under him as first officer. The other officers were also rotated from trip to trip, until six full crews had been trained for manning the twenty-five-ton Martin clippers. These men have amazed the world by the precision and near-perfection of their performance across the globe's widest ocean. When new lines shoot across the Atlantic, you will find these graduates of the ocean-flying school manning the new clippers.

Long before the twenty-five-ton Martins had begun to fly across the Pacific, the officers had been rehearsed and drilled for their respective duties. This is illustrated by a remark which First Officer Sullivan made to Captain Musick on their first actual crossing.

"Old stuff, this," said Sullivan. "We've flown this route so many times in training that I've recognized every cloud we've passed since leaving 'Frisco."

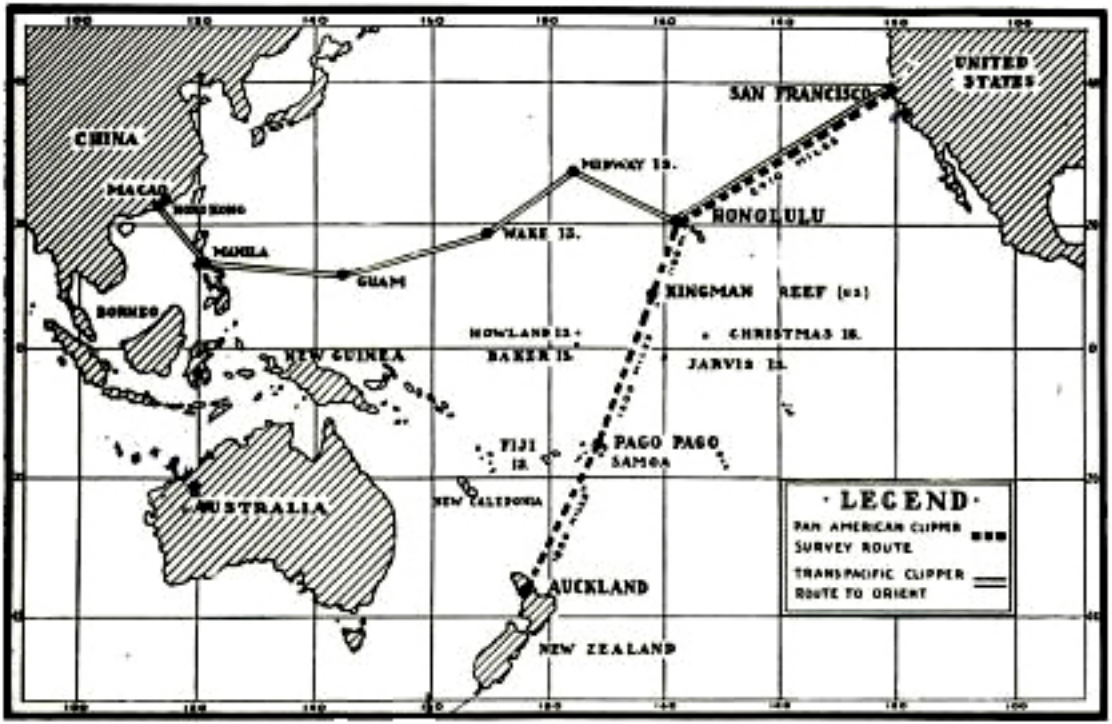
Ocean Air Liner Big as Destroyer Predicted



Here is the designer's idea of how the giant transatlantic air liner of the future will appear. Note the great wing spreading over the dock. Destroyer in the background helps to illustrate the plane's size

Capable of carrying 500 passengers, the flying boat of the future will be as large as a destroyer, according to Schuler Kleinhans, designer for one of the leading aircraft companies. More than 375 feet long, with a wing spread of 550 feet, the 1,500-ton air liner would be powered by a 200,000-horsepower engine system which would propel the craft at 300 miles per hour at an altitude of 12,000 feet. Such a plane could cross from New York to Liverpool in eleven hours. It would be multi-decked, deep hulled. A crew of 100 would be required, according to the designer, who has prepared a sketch of the flying boat. This sketch pictures the liner hawsered to a steamship dock, with a destroyer of about the same length in the background to give some idea of the size of the flying boat. Powered by four engines, possibly of the Diesel type, the craft would cost about $20,000,000.

Clippers Pioneer Air Trail to New Zealand



Dotted line traces projected Pan-American Airways route between San Francisco and Auckland, New Zealand, blazed by clipper ship on pioneer flight. Stops are planned at Kingman Reef and Pago Pago

Pan-American clipper ships are blazing a new trade route through the air between the United States and New Zealand. The first "hop" of this 7,000-mile route is already a part of the trans-Pacific lane, the 2,410-mile flight from San Francisco to Honolulu. Thence the clippers would fly 1,100 miles to Kingman Reef, another 1,600 miles to Pago Pago, and a final 1,800-mile lap to Auckland, New Zealand.