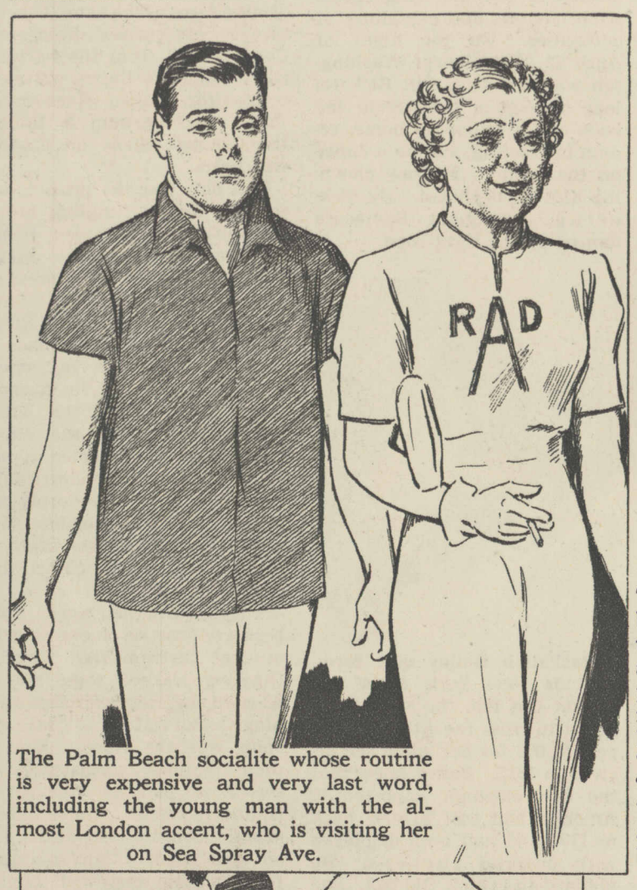
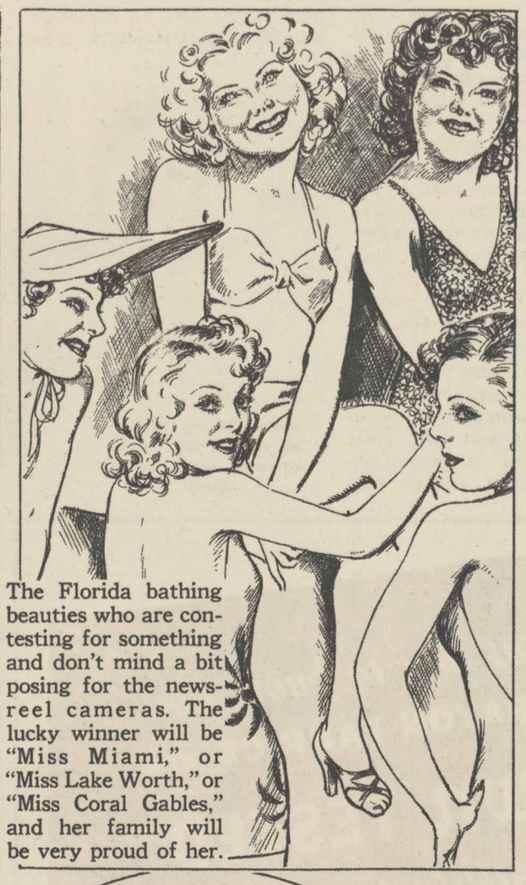
FLORIDA GALS

By W. E. Hill



The Palm Beach socialite whose routine is very expensive and very last word, including the young man with the almost London accent, who is visiting her on Sea Spray Ave.



The Florida bathing beauties who are contesting for something and don't mind a bit posing for the newsreel cameras. The lucky winner will be "Miss Miami," or "Miss Lake Worth," or "Miss Coral Gables," and her family will be very proud of her.

The Hialeah gals who follow the ponies. They dress so you can see them coming a long way off. That goes for Harry, their boy friend, too.

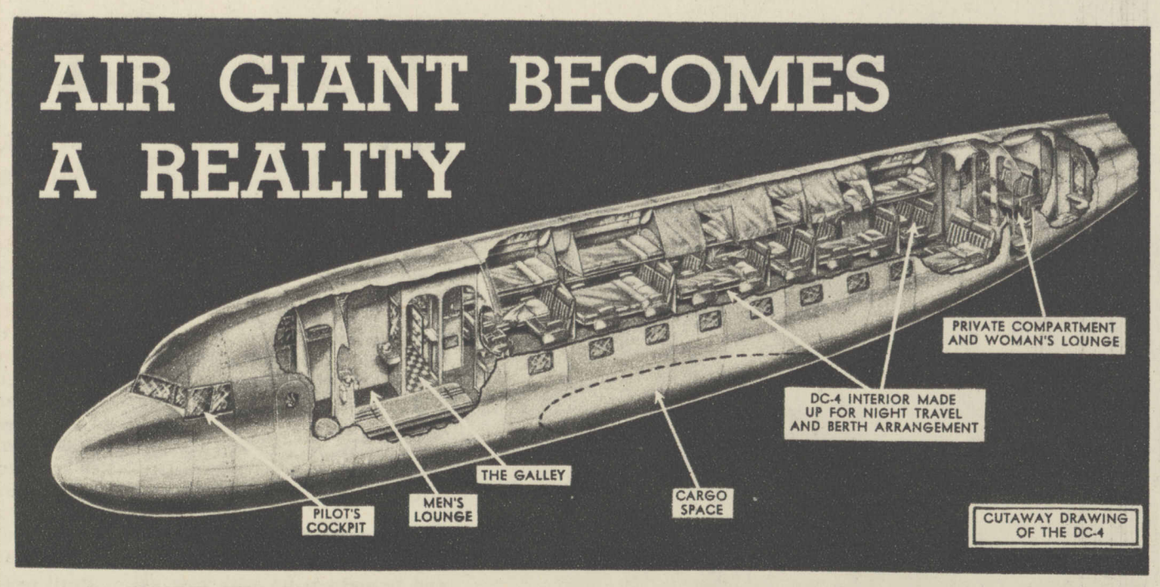
One is from Portland, Me., and the other comes from Bismarck, N. D., and they are wintering at St. Petersburg. Nothing pleases them more than letters from home telling about snowdrifts and icy blasts.

Lovely Sarasota girl student from the Ringling School of Art. Wonders whether she will do her next palm tree after the manner of Cezanne, Gauguin, or Marie Laurencin. (The package down by her tootsies is lunch.)

Hattie, the popular chambermaid at a Florida hotel, dressed up fit to kill at the end of the season, after the guests have presented her with this and that. Things they don't want to take back home with them!

Elsie, the curb service gal, is appreciative of the customer's little joke. Elsie has heard it before, but she's kind-hearted.

Florida hostess and guest. They are driving around Ormond and the hostess is showing her the Rockefeller house, etc. The guest is admiring everything so hard her eyes are popping from the strain. (She's the kind of guest who brings all the wrong clothes and has to borrow.)



AIR GIANT BECOMES A REALITY

By WAYNE THOMIS

THE Douglas Aircraft company of Santa Monica, Cal., announced not a great while ago that fully 90 per cent of the engineering and construction work on the new Douglas DC-4 had been completed. By the time this article appears in print the assembly of this new commercial airliner, the largest to be built in America up to this time, should be virtually completed. The plane is expected to make its first test flight some time during the latter days of this month.

The latest information concerning the DC-4 revises somewhat earlier stories regarding this great ship which have been printed by this department. For instance, instead of having a gross weight of 60,000 pounds the machine will gross at 65,000 pounds, or 32.5 tons. With a 20,000-pound pay load the range, instead of being 1,900 miles, will be 2,200 miles. The top speed will be 240 miles an hour at the most efficient altitude instead of 225 miles an hour, and the plane is expected to cruise at 210 m.p.h.

The designed sea-level landing speed is 68.5 miles an hour, but the federal bureau of air commerce regulations now permit landing speeds as high as 70 miles an hour for airplanes the size and weight of the new Douglas. Tests with smaller craft have shown that speeds as high as 80 to 90 miles an hour will not be excessive for large craft fitted with the new safety nose wheel landing gear which the Douglas company is pioneering in its DC-4 design.

Harry H. Wetzel, vice president and general manager of the Douglas plant, says that a total of 500,000 engineering hours will have gone into the construction of the first DC-4 when the prototype plane is finished. The time consumed in developing this giant airliner from the drawing board to the finished product, according to Wetzel, represents not so much the difficulties and problems of constructing large-size planes as it does the careful research and testing of parts and new features the DC-4 incorporates.

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A testing laboratory in charge of outstanding engineers was kept busy for more than two years hunting information on materials and designs. Most of the important parts of the plane were built and then deliberately and scientifically destroyed in the testing laboratory to prove the calculations of engineers and designers. Special machinery and fittings were designed and built at the Douglas plant to carry out these tests.

In all more than 100 major structural tests were conducted, requiring 21,000 engineering and shop hours, to prove and check engineering designs and stress calculations. One of the most important dealt with the attachment of the outer wing sections to the broad center section. The original built-up section was destroyed half a dozen times before the strength was approved by the engineers.

Parts of the tests on the wing involved the use of flush-type rivets, which are more expensive in production than the ordinary rivets with small protruding heads. Wind tunnel tests, however, disclosed that the flush head added considerable to the performance of the big plane, so this type of rivet was adopted and a number of tests were made to check its strength and to perfect tools which will enable it to be used with almost as much speed as the older type.

Also a part of the engineering tests on the wing involved the building in of strips of metal for the de-icing shoe or boot. The wing on the prototype machine will be so constructed that the curve of the leading edge will be virtually the same with the de-icer boot attached or off. All present machines lose a substantial portion of their efficiency when the boot is attached for winter operations, because the pure wing curve is changed. Not so the DC-4.

In building the new ship it was necessary to find and test a number of new materials as well. Separate, independent systems for supplying electricity, cooling, heating, and control operations had to be designed and created. It was necessary, for instance, to design and build special locks for all the control surfaces of the DC-4, inasmuch as it will be too large for any hangar now in existence and consequently must be left outdoors.

This was a greater problem than at first may appear. The need for the locks was great. So large are the control surfaces — ailerons, rudders, and elevators — that they might be seriously damaged if banged around by gusty winds. The locks had to be strong enough to resist the wind forces, yet weak enough to be overridden by the pilot should a takeoff be made with the controls locked.

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The Douglas engineers wanted no repetition of the disaster that overtook the Boeing company's first 299 flying fortress bomber when it crashed at Wright field, Dayton, as two army pilots took it off with the controls locked. This problem finally was licked, but it involved more hours of engineering work.

Because the airplane is so large, because it is being equipped with a separate pair of motors for generation of electricity, with a new type of heating and ventilating unit, with valves which will enable the operators to supercharge the cabin at will for high-altitude operation, many special problems were met which have not hitherto been encountered. One of the most difficult involved a study of vibration of the various parts for all the different speeds and conditions which might be met in operation.

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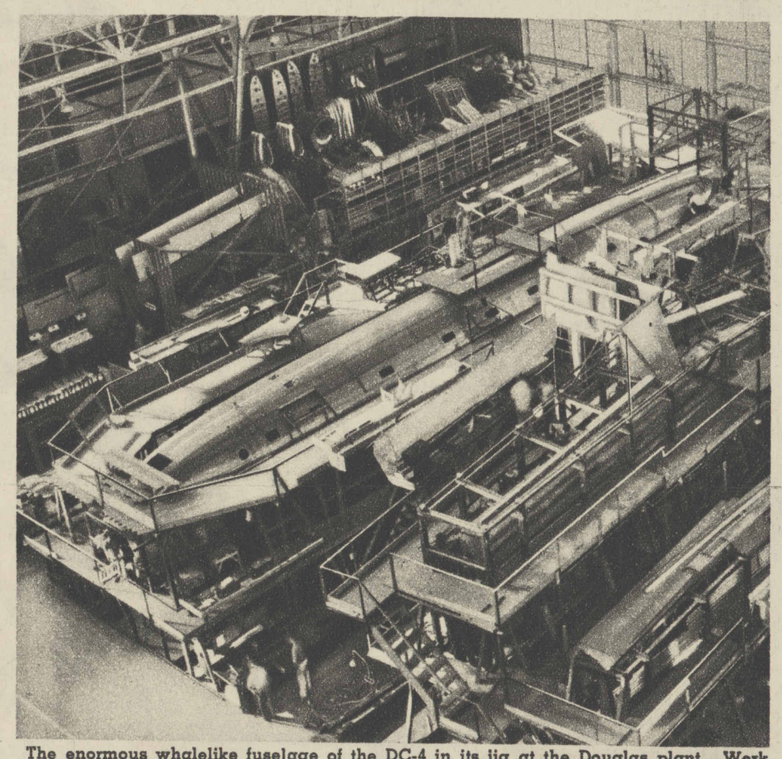
Vibration of metal wings, spars, skin, etc., causes fatigue. Fatigue weakens structure and has caused accidents. The crash of Northwest Airlines Lockheed 14 in Montana last January was most probably the direct result of a structural failure caused by vibration.

All told the DC-4 will have cost $1,500,000 by the time the No. 1 ship is completed. This cost is jointly borne by the Douglas company, United Air Lines, Transcontinental and Western Air, American Airlines, Pan American Aviation Supply corporation—a subsidiary of Pan American Airways system — and North American Aviation, Inc.

The dimensions of the ship may well be repeated here: Wings will span 138 feet 3 inches; the fuselage will be 97 feet 7 inches long. On its tricycle landing gear, which will keep the ship in a level attitude even on the ground, it will stand 24 feet 6 inches above the ground. Entrance door to the cabin will be 9 feet 6 inches off the ground when the ship is at rest.

The photographs and drawing reproduced on this page indicate the vast size of the DC-4 better than any words. It may well be said, however, that the DC-4 will be approximately three times as large as the DC-3. Visitors to the International Air show at Chicago last month will remember the size of the DC-3—largest plane on exhibit there.



The enormous whalelike fuselage of the DC-4 in its jig at the Douglas plant. Work on this section of the ship has been completed and it now is being assembled with the wings for a test flight soon.

Exact scale model of the DC-4 as it will appear when finished. Note the nose wheel and the main landing wheels' place far back of the motors. The machine is balanced so that its center of gravity will be well ahead of the rear wheels.