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Chester A. Charles

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I RUN A PRIVATE AIRPORT*

CHESTER A. CHARLES†

Delaware, geographically, is one of the smallest states, but nevertheless, one of the biggest from the standpoint of aviation interest and progress. It is a state with a definitely constructive attitude toward aviation—one which believes that it is constructive or destructive by its presence or absence in the aeronautic picture—one which feels that it would not be continuing to do its part in the growth of this infant industry if it did not provide representation when the first opportunity arose to take even a small part in the activities of this gathering here in Miami.

Commonly associated with Delaware is the great industry within its borders, an industry whose leaders have not failed to keep abreast of the progress of aviation; an industry contributing to that progress by the manufacture of materials for aircraft builders, and by chemical research for the discovery of better materials and processes. Prominent among the industrial leaders of Delaware is the DuPont family, a family with the distinction, of particular interest to you and me, of probably having a greater percentage of its members actively interested in aviation than any other family in the world. This interest is reflected by their personal activity in every phase of aviation—piloting (both airplanes and gliders); airline transportation; the manufacture of aircraft and aircraft materials; aeronautical radio; and the ownership and operation of DuPont Airport at Wilmington, an airport engaged in almost every form of commercial airplane operations, including airplane and aircraft radio sales and service for an area of five states.

I have been included on the program for this morning to talk to you on the subject, "I Run a PRIVATE Airport," but, in order to properly comply with the request for the story and history of DuPont Airport, I would prefer the title of my paper to be, "I Run a COMMERCIAL Airport, Privately Owned." This for the reason that the former suggests a sort of aviation country club, catering solely to a small selected membership group of local airplane owners, whereas our operation is decidedly a commercial venture, seeking

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† Manager, DuPont Field, Wilmington, Delaware.

to establish a model airport for the use of both local and transient private flying public.

It was ten years ago last May when Henry B. DuPont inaugurated aeronautical activities on the present site of DuPont Airport with a Buhl Airster (one of the first airplanes with brakes and an Approved Type Certificate); and a small 40 x 50 foot wooden hangar on 45 acres of ground. Additions to the landing area and the airport plant were made from time to time as the use of the field increased, until today it totals over 100 acres of all-turf landing areas in four directions NE-SW and NW-SE, 3200 and 2700 feet long, respectively. The very year following its opening, the second hangar was built, and the rotating beacon and the first field lighting were installed. This second hangar was destroyed by fire in 1933 and rebuilt. Last year the original wooden hangar was moved to the rear of the present hangar line, and advantage taken of the slope of the terrain adjacent to the landing area to erect a two-level hangar in its place. The lower level or basement of this new hangar opens to the rear and is reached by a curved ramp leading from the upper or field level.

This is the only hangar exactly of its kind we know of, and it is unique in that it makes available much additional space at little extra outlay, and that it permits the segregation of all maintenance and overhaul work in the lower level where it is out of sight from the field proper.

In a lean-to on the side of one of the hangars are located the radio and chart room, a suite of offices, and clean and neatly furnished men's and ladies' rest rooms.

Adjacent to this lean-to, on a grass island formed by a curving driveway, stands the 125 foot tower which supports the rotating beacon and some of the radio antennae. What is usually an unsightly affair of steel and cement is transformed by lawn and shrubs into an attractive unit that blends into the landscape in a pleasing manner. We believe that an airport can be made *attractive* with a reasonable amount of forethought and planning.

One of the most interesting aspects of the airport is its radio equipment. This is complete and of the latest type manufactured by RCA. It includes a radio range station operating on the airport traffic control frequency of 278 kilocycles. A 15-watt traffic control transmitter and the radio range equipment are located on a site a quarter of a mile from the field and are remotely controlled from the airport radio room. The 15-watt output may be increased to

125 watts for emergency operation. The call letters are "WDUP" and the range identification signals are "DP."

The original airport transmitter, an AVT 1, installed early in 1934, is located in one corner of the radio room and is maintained for use in emergencies, and when the main station is shut down or routine servicing or repairs.

An AVT-2 high-frequency transmitter having three frequencies is used for long-distance communications. Last week this transmitter was used for two-way voice communication between the airport and one of our ships up to the time it landed at Atlanta, an air-line distance of approximately 650 miles. The airplane was transmitting on the itinerant frequency of 6210 kilocycles with only ten watts of power, and there is no reason to believe that unusually good radio communication conditions existed during the periods the contacts were made.

There are four AVR-11 airport receivers mounted in special cabinets with crystal control for guarding the itinerant and various airline frequencies. Except for the one-hour period between six and seven a.m., a continuous listening watch is maintained on 3105 and 6210 kilocycles, and also on TWA and Eastern Air Line frequencies. All of the airport personnel have third-class radio telephone licenses.

A simple but efficient hangar and aircraft inspection and maintenance system is in effect. The system is automatic and provides for a monthly chart of flying time on the bulletin board in the radio or chart room, on which the ship owner and/or pilot records the flight time for the individual airplane at the end of the day's flying or at the termination of a lengthy cross-country flight, and, also write remarks concerning any improper condition or malfunctioning of any part of the airplane and engine. Such remarks will cause the immediate grounding of the airplane with a red tag on the throttle until the faults have been corrected and the airplane released as airworthy, after a flight test if the nature of the work makes this necessary.

From the flying time entries, a clerk each day maintains a cumulative flight record for each airplane and engine on blackboards in the maintenance department. These records include total airplane and engine time, time since last engine checks and oil changes, time since last periodic 100-hour inspections, and date of last weekly inspections, and this record is the authority for maintenance work to be performed and inspections to be conducted by the mechanic personnel at the proper times. Appropriate entries

are made in the airplane and engine logs by the licensed mechanic who performed the work.

We believe that proper working conditions and limited hours of labor contribute to a marked degree to the efficiency, happiness and contentment of our personnel. We have provided what we believe to be the last word in working conditions; we have instituted a 44-hour work week.

Without a doubt, much of the success and safety of our operations can be attributed to the following factors:

First: The selection of properly qualified personnel to perform the duties assigned to them.

Second: The close supervision and constant education of this personnel.

Third: The publication and enforcement of simple but adequate field rules.

Fourth: The fire-resistant type of buildings, the provision of fire-extinguishing equipment beyond the insurance agencies' requirements.

Fifth: The installation of an efficient airplane and hangar inspection and maintenance system, including the daily inspection of gasoline tanks for water.

Sixth: The posting of a daily flying weather map and hourly weather reports.