

PAPERS AND DISCUSSIONS, DES MOINES MEETING

(Continued from April BULLETIN, p. 96)

A two and a half hour session on Saturday afternoon was largely devoted to a most interesting set of papers on aeronautical meteorology. The first paper, by C. G. Andrus, "Ice Formation on Airplanes," which was read by title, has been published in the *Monthly Weather Review*, for January, 1930, (pp. 22-24). The second paper, by Wesley L. Smith, opened the session.

WEATHER PROBLEMS PECULIAR TO THE NEW YORK-CHICAGO AIRWAY ¹

By WESLEY L. SMITH, Supt. Eastern Division, National Air Transport, Inc., Chicago, Ill.

Weather still interrupts flying schedules in the following ways:

1. By cutting down visibility so that planes may not land and take off safely at airports. The landing speeds of nearly all commercial airplanes are in the neighborhood of 60 miles an hour, so that visibility is a very necessary thing whenever contact is to be made with the ground.

2. By coating planes with ice, which is apt to set up terrific vibration on the struts and wires, and may even cause structural failure, which would end the flight; or, by overloading the plane with ice and at the same time decreasing its forward speed by increasing its head resistance, so that the plane will actually fall out of the air if the pilot has not been wise enough to land before this moment arrives.

3. By giving head winds, which subtract from the speed of the plane to such an extent that flying is no longer faster than other means of transportation.

4. By carrying the plane off its course with cross winds when flying through clouds out of sight of landmarks.

Ground fog—a shallow layer of fog in contact with the ground—is a more serious handicap of aviation a few years ago than it is today. Nevertheless, the pilots of N. A. T. are on the alert for ground fog at the terminal station whenever the radio weather reports from there show that the dew point of the air is within 5 degrees of the current temperature.

"Ground fogs," Mr. Smith states, "are more prevalent during the early morning hours and disappear as the sun climbs above the horizon. By providing our planes with fuel sufficient for at least five hours of flying, and by the use of the radio-beacon and weather broadcasting, it is often possible for the planes to hover over their destination, flying in large circles awaiting the dissipation of the ground fog and landing as soon as the fog lifts sufficiently to permit this.

"Safe landings at large airports may be made at night through fog that is not more than 500 feet thick by the aid of the boundary light and red fuses strung across the field. Such landings are possible at night when they are not possible in the daytime, because the lights will show vertically upward through the fog. In order to make such a landing the pilot needs to have the very latest barometer reading, so that he may correct his altimeter accordingly, and this can be furnished by

¹ Full paper published in *Monthly Weather Review*, December, 1929, pp. 503-506.