Blindfolded Pilot Stays Aloft, Guided Only by Sounds of Plane

Luis de Florez Flies as Long as 40 Minutes at a Time Without the Use of a Radio—Declares the Plan Is Practical and Will Be an Aid to Commercial Aviation.

Not only can man fly an airplane "blind" by the use of visual instruments in the cockpit, but he can fly safely when actually blindfolded, using the sense of hearing alone. This has been demonstrated in flight, it was ascertained yesterday.

Convinced that the aural sense had been neglected in aviation, Luis de Florez, petroleum engineer and private flier of more than twenty years' experience, put his theories to the test over Long Island. With James B. Taylor Jr., another veteran airman, as check pilot, he has flown for periods of more than forty minutes while blindfolded. There were no instruments in the forward cockpit from which the ship was controlled.

Mr. de Florez, a governor of the amateur fliers' organization, the Aviation Country Club at Hicksville, is a member of the council of the Institute of the Aeronautical Sciences. He will disclose the details of his experiments on Friday during the last session of the annual meeting of the institute which begins at Columbia University tomorrow.

Test Proves Plan Practical.

Relatively crude apparatus, Mr. de Florez explained, developed to test aural control, had demonstrated that the use of sound as a guide was not only practical but, in some respects, easier and more nearly instinctive than the reading of a group of instruments. This knowledge, he feels, may lead to the development of valuable adjuncts to blind flying instruments.

Through the mechanism of the ears, the flier explained, one is able to distinguish at once the minutest differences in the frequency of sound and at the same time the direction of sound through the "binaural" sense. On these two known facts his experiments in the laboratory and over the flying field were based.

The binaural sense is based on the ability of the brain to interpret differences in sound which occur when sound waves strike the ears unevenly. When one wishes to face a sound, the head is turned until the ears receive the sound waves simultaneously and in equal volume. Mr. de Florez found that this sense was effective even though the ears were not equally sensitive.

Simple Apparatus Used.

Mr. de Florez's laboratory apparatus consisted of a six-toothed inductor wheel rotating between the poles of two electromagnets ig a manner to produce alternating currents in the circuits and set up a hum in each of a pair of earphones, the pitch of the sound varying with the speed of rotation.

In the first flying test the plane was first taken to a safe altitude and flown in a normal manner. Then Mr. de Florez was blindfolded and was able to pilot for more than forty minutes. He sat in the forward cockpit without instruments and with his head down. During the first part of the flight the ship climbed gradually from about 1,500 feet to 2,200 feet in a spiral four mile in diameter. Thereafter the spiral widened and toward the end of the flight the plane was flying a fairly straight course.

"I had of course no sense of direction," the pilot explained, "but merely knew whether the ship was turning or was diving or stalling. After completing about half an hour of flying, simply to prove that it was possible under these conditions, turns were made at the check pilot's direction without difficulty.

"During the last ten or fifteen minutes of the flight the ship had climbed into the clouds without my knowledge and was really flying blind. When I learned this I removed the blindfold and continued to fly blind without any visual instruments. Then I was blindfolded again and the ship was put into a spin. Recognizing this only as a violent turn, it was corrected and the ship brought back to normal flight after somewhat more of a dive than usual, the only control used being the rudder."