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mechanism during the flights; Lieutenant J. A. Macready, Acting Chief of the Flying Section, who piloted the plane, and Captain A. W. Stevens, photographer, who made a remarkable series of photographs of the dusting plane in action.

War on a Night-Flying Moth.

Originally it was planned to conduct the test in the spring of 1922 against the canker worm in the vicinity of Cleveland, Ohio, but almost simultaneously with the completion of plans for co-operative work with McCook Field, a much better opportunity for the test presented itself in the shape of an outbreak of the Catalpa Sphinx (*Ceratonia catalpae* Bvd.) at Troy, Ohio, some twenty miles distant from Dayton.

The Catalpa Sphinx is, in the adult stage, a large night-flying moth which lays its eggs in pearly white masses on the leaves of the catalpa tree. These eggs within a few days give issue to tiny larvæ which feed upon the foliage and upon reaching maturity are as much as three inches long. They then pass to the ground, burrow down about three inches and transform to the pupal stage.

From these pupæ emerge the adult moths, which proceed to lay their eggs for another brood of destructive caterpillars. Only about a month is required to pass through the stages from egg to moth.

Last year there occurred in Ohio three full broods or crops of the caterpillars, each sufficiently numerous to defoliate completely the grove in which they appeared. Some groves put on three full crops of foliage and each in its turn was wholly consumed by the ravenous worms.

Our work was directed against the second brood of caterpillars working on the second crop of foliage.

Poison Powder in a Dense Cloud.

The plane used was a Curtis J N 6 equipped with a hopper for carrying and liberating the poison powder. This hopper was secured to the fuselage of the plane by the side of the observer's seat. It consisted of an irregularly shaped flat metal box with a capacity for holding a little more than 100 pounds of dry arsenate of lead powder.

At the bottom was arranged a sliding gate, operated by a handle accessible to the observer in the plane. At the top of the hopper was a crank, connected by a sprocket chain to a revolving mechanism in the bottom, which when placed in motion dropped the poison powder through the previously opened sliding gate.

Immediately upon leaving the hopper the dust dropped into the "slip stream"—the violent air current set up by the revolving propeller—and was thrown into violent agitation in a dense white cloud which trailed out behind the moving plane as if the machine were on fire and belching large volumes of white smoke.

The catalpa grove in which the dusting was done was situated on level ground and had been planted for the growing of post and pole timber. It was a rectangular plot 800 feet long and 325 feet wide and contained approximately six acres. The trees, 4,815 in number, were from 25 to 30 feet tall.

The poison was applied between 3 and 4 o'clock on the afternoon of August 3, 1921, under almost ideal weather conditions. The atmosphere and sunlight were excellent for photographing and there was a steady wind varying from eight to eleven miles an hour. The direction of the wind is indicated by the arrows on the photographs.

Every Tree Sprinkled with Poison.

The plane flew at a speed of eighty miles an hour at an altitude of from 20 to 35 feet and in a line 53 yards to the windward and parallel to the grove. The dense cloud of