

8 MILES HIGH

By WILLIAM S. IVANS, JR.

On December 30, 1950 the author reported reaching an indicated altitude of 42,000 feet above sea level in his Schweizer 1-23 sailplane, after an altitude gain of approximately 30,000 feet. The flight was made in the vicinity of Bishop, California, in strong standing wave updrafts formed in the lee of the Sierra Nevada range. This flight, when homologated by the F. A. I., should establish new International soaring records in both Absolute Altitude and Altitude Gain categories.

A group of us had arrived at Bishop nearly a week beforehand with the intention of spending the Christmas holidays in altitude soaring attempts. Until December 30th, however, the weather proved unfavorable for soaring, though otherwise very pleasant. Marion Duiker, Irving Gere and I had driven up from San Diego, trailing my 1-23 behind Dean Morehead's powerful Hudson.

Great excitement marked the morning of December 30th; a high white lenticular cloud and lower altocumulus roll cloud were visible at daybreak, sure signs of the long-awaited standing wave. As we were hurriedly dressing, a pounding on the door announced Bob Symons, impatient for us to be off. Five minutes later, Allan Langenheim pounded at the door, with the same message. Skipping breakfast, we hastened to the airport for a check on the winds aloft. The morning pibal (single theodolite) gave the following information:

Height	Direction	Velocity
4118 ft.	280	03 knots
5000	220	02
6000	170	08
7000	160	17
8000	170	18
9000	180	15
10000	180	11
12000	220	11
14000	350	17
16000	350	35
18000	340	61
20000	340	78
25000	350	80
30000	260	65

Certainly an odd wind behavior with respect to direction, though the velocities were high enough.

Dave Boone, of San Diego, was the first to take off. By the time Bob Symons had returned in the big red BT-13 towplane I was sealed in the cockpit of my 1-23, barographs ticking, ready to go. Bob landed, taxied to the end of the towline, then jumped out of the BT and hurried over to my ship for a last minute briefing. He reported leaving Dave in "better than 1500 ft./min up", and said that turbulence was not excessive. Shouted back through the canopy that I would call him from Salt Lake City. Bob laughed and wished me luck, then went back to the BT.

Takeoff was at 0945, PST. The tow progressed in a southerly direction from Bishop, along the eastern border of the Owens Valley. As altitude was gained, turbulence of increasing intensity was noted, although at no time did it reach a dangerous level. When approximately 12 miles southeast of Bishop, the towplane turned into the wind, in order to pass under the largest of the altocumulus clouds, which were continuously forming and dissipating in a line along the center of the valley. Increasing turbulence, along with more sustained updrafts and downdrafts, was

encountered during the final phase of the tow. I noted accelerometer readings of maximum positive $3\frac{1}{2}$ g and maximum negative 2 g. This was a peculiar turbulence, rather like driving over a very rough road at high speed; the individual "bumps" occurred so rapidly and in such random fashion that the controls could at best establish only an average flight altitude, and I began to worry about the 300 feet of frayed $\frac{1}{4}$ inch nylon which connected my ship to the towplane. The average rate of climb while under the roll cloud was quite low. Shortly after passing to the windward of the cloud, strong smooth lift was encountered. I pulled the release knob, and Bob at the same instant dived for the deck. Release was at 1005, approximately 12,000 feet above sea level.

Climb was smooth and rapid for the first few minutes following release; a steady 2400 ft./min. was indicated. I maintained a position in front of the roll cloud during the climb, while putting on my oxygen mask, checking for mask leaks, and checking operation of the blinker type oxygen flow meter. After the first few minutes, the climb rate gradually decreased, reaching zero at an altitude of 30,000 feet. A light coating of frost had begun to form inside the canopy shortly after release; this coating grew more dense as the flight progressed, cutting off vision except through "clear vision" ports of double-thickness plexiglass (an Irv Prue idea). Flying southward above and to windward of the roll cloud (which extended in depth from 18,000 feet to about 23,000 feet ASL), an area of weak lift was encountered which yielded a top altitude of 33,500 feet. At this time, a fairly thin layer of stratus began to drift across the valley, and finally drifted into the area in which I was flying. I turned on the electric bank-and-turn gyro and flew blind for several minutes, peering out at the wings occasionally for signs of ice (there was none). After breaking out into clear air, I found that wind drift had carried me to a position somewhat downwind of the roll cloud, although the cloud tops were still far below me. It was necessary to dive at high speed into the wind, in order to regain the lift area; some 8,000 ft. of altitude was lost in the process.

Regaining this lost altitude proved to be a slow process, as no updrafts of noteworthy intensity were encountered during the remainder of the flight. The next hour and 20 minutes were spent in cruising along the western boundary of the Owens Valley, over a stretch of perhaps 70 miles, from Bishop to somewhat south of Mt. Whitney. I found that the strongest lift could be found to windward of the roll clouds which showed a very steep leading edge, seemingly independent of the actual size of the cloud. After the altimeter once again indicated over 30,000 feet, I began to feel hopeful once more, and began to look for other signs of lift which might boost me still higher, after first turning the pressure breathing regulator to the

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