

# Glider School

Sanford, Fla.

By Marion Hart

Reprinted by permission of  
AIR FACTS

**T**HE Kirby Kite is a lovely creature with long, slender, arched wings and gentle as a doe. She even stalls without any trembling, just bows her head softly and starts slowly down. Flying her is like something you've never done before; like those dreams where you float, swaying peacefully through the air.

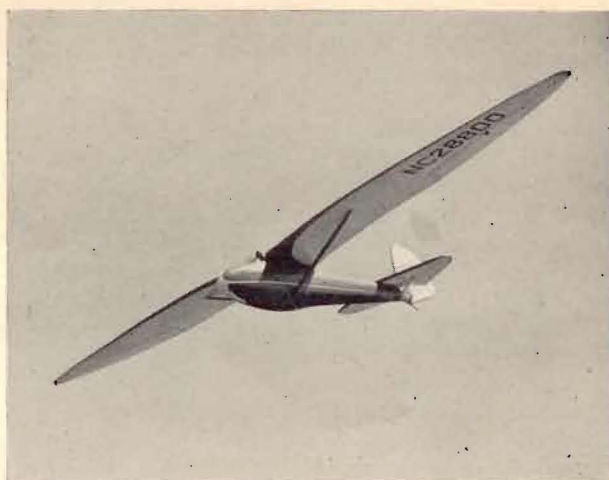
Not that soaring is like that most of the time. But we'll get to that later.

The Kite is also equipped with the necessary instruments; air speed, sensitive altimeter, needle and ball (from which Steve Bennis removed the needle in order to encourage ambitious students to keep out of clouds), and a super-sensitive rate of climb called the Robinson variometer.

This consists of two little glass tubes, about one-eighth inch in diameter. One contains a tiny green ball made of pith and the other has a red ball. They are connected up so that when the ship is climbing the green ball rises in the tube, and when the ship is sinking the red ball goes up. This is what you are conscious of when you are soaring, not scenery or poetry of motion or beautiful thoughts about this and that. The most beautiful thing a soaring pilot hopes to see is the green ball staying at the top of that tube; that and the altimeter winding rapidly upward.

Of course, when you are in "red air" and gliding downward you can take a look at the world. But you are not looking at scenery. No sailplane pilot would dream of looking at scenery unless mixed with buzzards, brush fires, or other evidences of lift. And this brings us to the subject of thermals.

There is a belief current among the more experienced pilots that you soar better if you have theories about thermals, so even though I am, at present, of the opinion that thermals are where you find them and that the whole problem is too complex to be solved in the few minutes it takes to come down from two thousand feet, I will give my own ideas on the matter. These are my own and not necessarily those of the Sanford Gliding School or the Bennis family.



Martin & Kelman

## THE KIRBY KITE IN FLIGHT

There are two kinds of lift, mechanical and thermal. Mechanical lift is produced when wind blows against a hill and is forced up. The lift keeps on as long as the wind blows from the right direction and all the pilot has to do to remain aloft is to keep flying back and forth along the ridge. There is no science to it. This is the kind of lift that made Elmira famous, and what enabled the Franklin to soar there for five hours.

Thermal lift is much more fancy. There are two sub-species of it; dry thermals and cloud thermals, depending on whether the hot rising air is moist enough and rises high enough to produce cumulus clouds.

Let us take dry thermals first. When the ground is warmer than the air the surface air becomes heated and rises. Certain types of ground cover such as ploughed fields, cement runways, etc., get quite a lot hotter than their surroundings and the air in contact with them is heated enough to start a circulation which draws in air from the sides, like a fireplace and a chimney.

On a still, hot day, when the circulation has a chance to get established, the upper air will be scattered through with these "chimneys" producing frequent areas of good lift while the lower air will, of course, show nothing.

When the wind blows and turbulence is present, which is the normal case, the smooth circulation is disturbed; the chimney, we may say, ceases to draw. Then the column of heated air is intermittently detached from its base and drifts off to leeward, free to take what shape circumstances dictate. The lower air over the thermal "furnace" in the course of time produces another chimney and the cycle repeats itself.

Thus the sky to leeward of a thermal producing area contains a series of what the soaring pilot calls "thermal bubbles." These frequently seem to be rotating in so far that if you circle in a lift area in one direction you get a rough ride with poor control, stalling, and so on, while if you reverse your direction so as to fly "upwind" in the thermal you have a smoother and steadier lift. It is for me, somewhat difficult to see how a rotating