

A Glimpse of the Future

By JAMES & RITA SIMPSON

Of all aircraft, the sailplane embodies the highest developments in aerodynamic and structural design; and of all forms of flight, soaring requires the best meteorological knowledge and the most advanced flying technique. To study the achievements of sailplane pilots is to obtain a preview of aviation progress.

SPEAKING at the close of the 1932 season on the Wasserkuppe, a leader of the movement noted that no records had been broken that year, and concluded that the days of phenomenal progress in gliding were at an end . . . future enthusiasts must be content to raise the standards of the average pilot to the pinnacles reached by the record holders of that day. No new sources of energy for soaring flight were to be found, he said, and the era in which progress was achieved by the discovery of new flight possibilities had passed.

Since then, due to the discovery and use of wind thermal and standing wave conditions, and to the tremendous increase in the efficiency of sailplanes, the duration record has been doubled and the altitude and distance records tripled. Such is the fate of one who attempts to predict the future of this sport.

Nevertheless, the temptation to make such predictions is very great. Is it possible to do it scientifically, by studying past records?

Soaring records, which are not very important in themselves, do show performance trends, and throw an interesting sidelight on the state of the art. Thus it is worth while to study records of the past in attempting to predict performances of the future.

The easiest way to do this is by means of graphs, on which the record flights are plotted against the year in which they are made. If the points fall across the graph in haphazard fashion they tell us little; but if they lie on a smooth curve it is reasonable to suppose that this may be extrapolated, or projected into the future, to give us some idea of what lies ahead. At least a standard may be established against which we can judge future flights. The graphs reproduced below

show the international records since 1921, when soaring for pleasure began.

Consider first the duration records, shown in figure 1. In the early years duration attempts were the most important flights of all, and sailplanes were designed primarily with low sinking speed for slope soaring. As time went by, duration flights became less important, but still there were hardy souls to be found, sitting out the hours in the grim solitude of their glider cockpits, and steadily pushing up the record time, until these flights became more a matter of physique than performance. It is said that Ernst Jachtmann made many long preliminary flights to harden himself before establishing his astonishing 56 hour record in September, 1942.

Although a straight line fits the points on this graph fairly well, and shows that the time has increased by about $2\frac{1}{2}$ hours each year, it does not seem possible that this can go on much longer, and the peak has probably been reached. What pilot will want to hill soar for more than $2\frac{1}{2}$ days?

Altitude records are plotted in figure 2. It was not until thermal soaring attempted by Kronfeld in 1929 that these records began to climb, but since then there has been an ever greater increase each year, the curve being of parabolic form. Altitude flights, which also require gliders of low sinking speed, have recently been made in atmospheric standing waves. A flight to 40,000 feet under such conditions was recently reported from Grunau, where the 1941 record was established, but as it was not recognized by the FAI it is not shown on the chart.

What does the future hold? There is no sign that the altitude curve has reached a peak; in fact, it is now
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