

obtain the "C" certificates); the Autumn period is mainly for advanced training of "C" pilots.

The weather at Bezmiechowa in Spring is mostly calm with weak winds, very suitable for schooling. Autumn brings just the opposite conditions, giving good opportunity for advanced training.

In the autumn of 1930, a high performance machine was used at Bezmiechowa for the first time. This was a two-seater C.W. IV designed by W. Czerwinski, and on it Grzeszczyk established several new Polish records: 2 hrs. 30 mins. in solo flight; 1 hr. 2 mins., and 1,700 feet above starting point, with passenger. But these were only the first trial flights. The machine was not completely finished at that time, and returned later to the site. However, Grzeszczyk, who had completed his studies a few months earlier, had to return to his work.

#### New Machine Types and Some Records.

During the Spring session of 1931 we received a new type of primary type glider, a CZAJKA, designed by A. Kocjan, of the Aeronautical Students' Association in Warsaw, where it was built.

For primary training we use the CZAJKA III with short span, and for C certificate flights the CZAJKA I with normal span. After a total of 5 hours' flying time our pupils are transferred to the CZAJKA II, which is the Mark I with nacelle.

The Lwów Aeronautical Students' Association also worked, and redesigned the very good C.W. III into a new type C.W.J.—a collaboration of W. Czerwinski with W. Jaworski. The new machine is much smaller, lighter, and cheaper, but as good for primary training as the original C.W. III.

Autumn, 1931, gave several Polish records. On the third day of the training period Capt. Jack flew for 3 hours 12 mins., while three days later, a young aeroplane pilot, Janikas, when flying for his C certificate, remained in the air for 5 hrs. 8 mins. Both flights were on the CZAJKA I. Three days later the writer flew a CZAJKA II for 5 hrs. 56 mins., reaching a maximum height above the starting point of about 2,300 feet. Four days later Grzeszczyk came to Bezmiechowa with a high performance glider of his own design called the LWOW. He flew from Warsaw via Lwów to the site, a distance of about 300 miles, towed by an aeroplane. The day after his arrival he beat the record by flying for 7 hrs. 52 mins. During the last two hours of this flight there was no wind, and he soared exclusively in thermal currents. For the first few hours he flew along the North face using a North wind, but this died away. In the evening, on the opposite slopes of the mountain, he found good thermal currents over a forest, and there he soared for the last two hours. When the wind was still strong, the writer soared a CZAJKA I, and as Grzeszczyk often pushed out from the hillside and lost height before returning to it, I sometimes found myself above him. Seeing him making turns below me, I was amazed that his 55 feet span LWOW was no less manoeuvrable than the CZAJKA I of 35 feet span, the latter being, I should say, very controllable, even for its small size.

The configuration of the ground at Bezmiechowa is such that our designers must pay special attention to the manoeuvrability of gliders before we begin to think of thermal flights.

In the same year the Aero Club of Lublin built two gliders, one primary and one high performance type, both designed by A. Nowobny, a companion of Czerwinski, in collaboration with J. Nalerzkiewicz. With the primary and with an old C.W. III (of the Aero Students' Association of Lwów) this Club organised a training period at Usbjanowa, some ten miles south-east of Bezmiechowa, on the same mountain range. This ground is as good, and sometimes even better than ours for soaring, but is very difficult for training. Nevertheless, 7 A, 7 B, and 7 C certificates were obtained. Lieut. Kurowski, the chief instructor, who learned gliding at Bezmiechowa the previous spring, accomplished a flight of 3 hrs. 58 mins. at Usbjanowa.

In the Aero Club of Lwów we believe that even Bezmiechowa is too difficult for primary training, and we now



The "Czajka II" designed by A. Kocjan. This machine is popular in Poland as a training sailplane.

use for this purpose some hills near Lwów, where our pupils fly every week-end in winter. Those who obtain B certificates spend two or three weeks at Bezmiechowa for further training.

Our capital, Warsaw, has no grounds in proximity even for primary training, so the local Aero Club uses, during the summer holidays, the grounds at Polichno, near Kielce, which belong to the Aero Club of Kielce, and both clubs organise courses there at regular intervals during spring and summer. The site is very suitable for primary training and, for advanced work, their pupils come to Bezmiechowa.

#### At the Wasserkuppe.

During the past few years Polish gliding leaders have taken part, as visitors, at the Rhön gliding competitions. At last we came to the conclusion that for further development it was necessary to go to the Rhön as competitors. Therefore we arrived at the Wasserkuppe with two sailplanes: LWOW to take part in the training contest, and for the performance contest we presented an entirely new machine, the S.G. 28, also designed by Grzeszczyk. The latter was finished only a few hours before leaving Warsaw, and only two short glides had been made on it. The flights on this glider at the Rhön were, therefore, of rather an experimental character.

There was no time for varnishing, and the wings, in consequence, were badly doped, considerably reducing the efficiency of the machine.

Some weeks before the Competition, Grzeszczyk had a serious accident while taking off at Bezmiechowa, his machine, the LWOW, being badly damaged, and the pilot seriously injured; he was still suffering from the effects while at the Wasserkuppe.