

# THE OSTIV CONGRESS

*Technical Accompaniment to the World Gliding Championships*

THE international scientific and technical organization of the gliding movement (OSTIV) holds a biennial congress at the same time and place as the World Gliding Championships. Many delegates come especially to attend the congress, but others who are concerned in the championships as meteorologists, sailplane designers and even pilots and crews, are able to contribute papers and join in the discussions. The sixth congress of OSTIV was held at St. Yan, France, from July 6 to 13. Two halls were available in the village, half a mile from the airfield, and on several days papers on meteorology and technical matters were being presented simultaneously.

**Meteorology.** The meteorological contributions covered three main subjects—jet stream and squall lines, thermal convection, and atmospheric waves. In each section, papers were presented by professional meteorologists developing the theory of the phenomena and presenting observations by the usual tools of synoptic charts and soundings. The contributions of the glider pilots—often the only direct experimental evidence available—were invaluable. Dr. Paul MacCready, who became World Gliding Champion during the week and is a professional meteorologist as well as a pilot, presented a paper on "Research on the transport of freezing nuclei and on atmospheric turbulence by means of a sailplane."

Observations by amateur meteorologist-pilots were equally well received. Hanna Reitsch described a flight beneath a powerful squall-line in Germany, and Philip Wills his flight to 30,000ft in the atmospheric wave over Mount Cook in New Zealand. Betsy Woodward, of the U.S.A., holder of the world height record of over 40,000ft for women glider pilots, is also a meteorologist working at Imperial College, London. She described experimental sailplane flights made through cumulus clouds in tests to throw light on the structure of these clouds. Similar tests in the United States, in which powered aircraft (equipped with sensitive and very responsive thermometers and hygrometers) had been used, were described in a paper by Dr. Cunningham.

Dr. Joachim Küttner (U.S.A.) presented another film showing the work of the Sierra Wave Project in California. This magnificent enterprise, now concluded, has revealed the extent of the extreme turbulence in certain wave systems and the very large up- and down-motions in these waves. Flight traverses by B-29 and B-47 aircraft had shown vertical deflections of the air of more than 5,000ft. A pilot unappreciative of the situation might easily find a mountain top in his path in such conditions, and the air safety organizations have rightly publicized these findings. To the glider pilot, of course, this free power supply is welcome—provided that he knows enough to avoid the dangerous parts of the wave.

A description of a smaller project at St. Auban in the French Alps was given by M. Gerbier, of the French S.F.A.S.A. It was appropriate that several of the pilots competing in the World Championships reached heights of over ten thousand feet above St. Auban in these very waves—a happy marriage of theory and practice.

**Technical.** On the technical side, contributions covered a wide range. There were specialist papers on metal construction, boundary-layer suction, total-energy variometers (Frank Irving), short wave radio, and training methods in Britain (Ann Welch). Wider interest was aroused by papers on the development of certain sailplanes. By chance, the two speakers on this subject were Mr. Fred Slingsby, whose T.42 won the two-seater championship and whose Sky and Skylark 3 sailplanes flew so well in the single-seater class, and Messieurs Cayla and Cartier of Bréguet, who were responsible for the Bréguet 901, one of which was flown in the championships by Paul MacCready.

A joint session with the meteorologists was held to discuss the progress toward a stratospheric sailplane. Many sailplanes have now exceeded 40,000ft and have there found upcurrents of more than 1,000 ft/min. There is some evidence that upcurrents may be strong enough to sustain a glider at very much greater heights—in fact, the low wing-loading of the sailplane may enable it to exceed the present height record of powered aircraft. The next step is clearly a pressurized cabin, and several design studies have been made; at least one pressurized sailplane is under construction.

**Technical Publications.** The Congress papers will be published in due course. Most of the meteorological papers will appear in the specialist meteorological journals, although off-prints will be available from OSTIV. The technical papers have hitherto been printed and published in one volume by OSTIV. This process has taken about two years, and the papers read at Buxton at the fifth congress in 1954 have only recently become available (price 9s from the British Gliding Association).

In future, the technical papers are to be published in *Swiss Aero*

*Review*, the official organ of OSTIV. Papers in French or German will appear in the general text, but there is also to be a monthly four-page insert called *OSTIV News*. This will contain the text of papers written in English and will also provide a regular newsletter from OSTIV. The editor is Betsy Woodward, Imperial College, London, S.W.7, and *OSTIV News* will present regular bibliographies and summaries of papers of interest to gliding published all over the world. OSTIV will eventually bind the off-prints to form a record of the congress.

**Officers.** The officers and board of the Organization were elected at St. Yan as follows: *President:* L. A. de Lange (Holland). *Vice-President:* Dr. W. Eichenberger (Switzerland). *Board:* M. Agésilas (France), Dipl. Ing. Boris Cijan (Yugoslavia), Wolf Hirth (Germany), Dr. W. B. Klemperer (U.S.A.), Alan Yates (Great Britain). The secretary is C. Slikkerveer (Holland) at Kanaalweg 3, The Hague, Holland.

**Future World Gliding Championships.** The Gliding Commission of the F.A.I., meeting at St. Yan during the World Championships, made some important decisions concerning the future organization of world gliding.

At present there are two championship categories, one for single-seaters and one for two-seaters. There were 45 and 13 sailplanes respectively in these classes this year. The Gliding Commission has decided to abolish the two-seater championship in future contests. Any multi-seater sailplanes entered, whether flown by one or more pilots, will have to compete on equal terms with the single-seaters. Although the two-seater is bigger and heavier and usually inferior in performance, there are compensations in having a second crew-member. Navigation, radio operation and the calculations needed for maximum performance can all be taken from the pilot so that he is able to concentrate on the flying.

There may, however, still be a second championship. The F.A.I. Gliding Commission asked OSTIV to recommend rules suitable to define a *Restricted Class* of sailplanes. The aim is to encourage the construction of sailplanes which are cheap and easy to operate. Many of the new sailplanes at St. Yan were extremely expensive in construction and were quite unsuitable for club or private owner operation. Nevertheless, excellent performances are possible with simpler designs, and the F.A.I. wishes to encourage their construction and entry to World Championships.

OSTIV organized a special meeting on this subject at St. Yan, and many smaller discussions between designers took place. As a result, the Board of OSTIV have sent to F.A.I. recommendations proposing a 15-metre class for single-seaters (18 metres for two-seaters). Flaps and certain other expensive aids would be prohibited. Clearly, any rules must be capable of being checked quickly, and OSTIV has avoided complicated limitations. Much will depend on the willingness of designers to act in accordance with the spirit of the proposal. In addition to success in the restricted-class championship, the designer would be eligible for the cup which the F.A.I. hope to award for the most meritorious design as selected by a jury.

We have got so used to 18-metre single-seaters and even larger two-seaters that some observers consider that top-class performances would not be possible in a restricted class. This view was undermined at St. Yan by the success of the British 18-metre T.42 in competition with several expensively exotic two-seaters, and by several brilliant flights by the pre-war 15-metre Meise-Olympia. The restricted class will add considerable interest to future World Gliding Championships.

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## NEW BRITISH STANDARDS

RECENTLY published British Standards include the following (obtainable at the prices shown from the B.S.I. Sales Branch, 2 Park Street, London, W.1): B.S. 2G 113, manifold pressure gauges for aircraft (2s); B.S. SP 115 to 117, three specifications for aircraft lubricating nipples of the hydraulic type (embodied in one document, 3s); B.S. 2A 113-114 and 2A 170, revised standards for aircraft bolts with mushroom heads and unified threads (2A 113-114, 4s each; 2A 170, 3s); B.S. A 173-5, three new standards for 100 per cent countersunk head steel bolts (unified threads) for aircraft (6s each); B.S. 2G 112, specification for air-driven directional gyroscope (3s); B.S. S500 and S510 to S523 (inclusive), relating to inspection and testing requirements for steel sheets and strips used in the manufacture of aircraft (S500, 7s 6d; others 2s); B.S. 2715, internal combustion engines incorporating a coupling flange, for use with rigid and flexible shaft couplings, or where interchangeability of mating flanges is necessary (2s 6d).