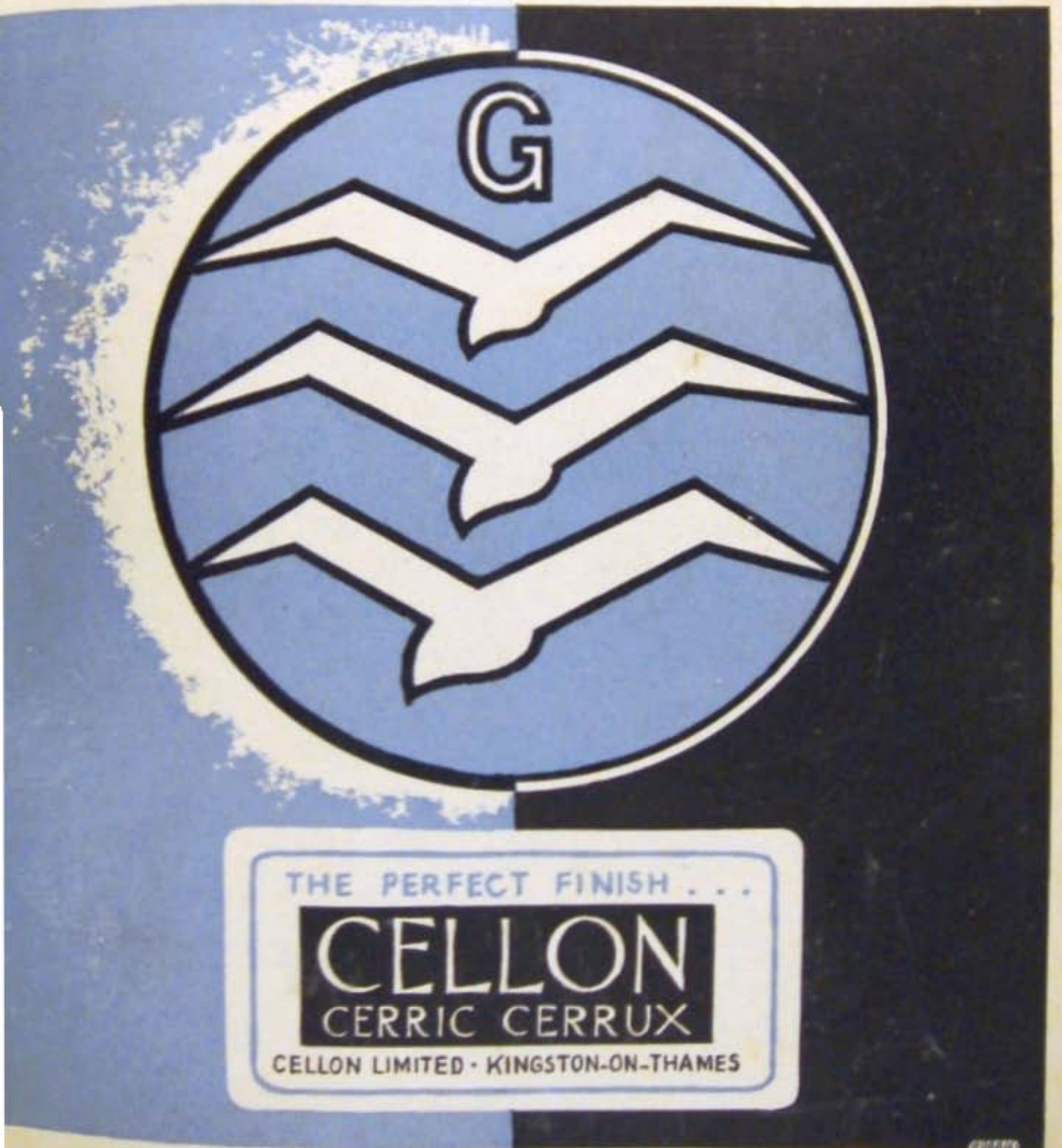
SAILPLANE AND GLIDER

AUGUST 1944
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The First Journal devoted to Soaring and Gliding

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ALAN E. SLATER, Associate Editor

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Phone: CEN. 7081

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HERE AND THERE

FROM time to time we have noticed in the German Press accounts of the progress of Soaring and Sailflying in France. There seems to be a good deal of Soaring activity, and although no world's records seem to have been claimed—the Germans (who have founded their own organisation instead of the Federation Aeronautique Internationale) would be the last people to acknowledge any French claims—it is stated there has been an unprecedented number of Silver "C's" gained in France. This would be interesting at any time, but the circumstances surrounding the present outburst of Soaring enthusiasm lend it more significance.

Since the Armistice of June 1940 private flying has been both forbidden, and, because of the shortage of fuel, impossible, in France. Apart from one or two firms under the Vichy regime, almost all design and construction of original machines has ceased. But not quite all. There is evidence that just as the natural predilection of the Germans for flying was whetted by the restrictions of the Versailles Treaty, so that of the French received a distinct fillip from the Terms of Compiegne. But not in power aircraft.

FRANCE WILL RISE AGAIN

With aircraft made by themselves and using the free air for motive power the French have taken to the air again. This time, one knows instinctively that they will do the job properly. From the true basis of Soaring and Sailflying we must expect that they will build an Air Force which, for technical excellence and the airmindedness of its pilots, will be second to none. One more competitor will enter the international lists. This time, no doubt, they will be encouraged, as a point of National Policy, by the French Government.

One more reason why the British Air Ministry, who have admitted that they have too many planes and crews, *and that therefore there is no strain on resources even in this present war*, should remove the ban on Soaring and the building of British Sailplanes.

But quite frankly, although we have searched the Air Ministry from top to bottom, there seems to be no one with power, who realises the potentialities of Soaring and Sailflying in regard to after the war Air mindedness, or even after the war Air Transport. Those who would help have not the power.

This we believe to be a major blunder. Yet with a little imagination, one or two steps could be taken which would release a flood of pent-up longing to Soar, which in itself would provide enough energy to make the British Gliding Movement Soar to prosperity on its own "man-made thermal."

If any of our readers is able to whisper a word in a powerful ear, we pray that he may be moved by the imagination of Icarus, but we wish him a better fate.

HITLER'S CRACKERS

The present affliction of London under "Doodle-bugs" has been laid by the ignorant at the door of the Gliding "mad-men." This isn't true, of course, and if it were, poetic justice was nearly wrecked on SAILPLANE. Since the early days the Editorial Staff has followed out the drill for getting under the table when the approaching roar told of the menace in the sky. So far, the drill has been a jinx on Hitler. It has been announced that the Law Courts and Australia House have suffered from Hitler's Crackers, and both these are the proverbial stones' throw from the Editorial Offices. But in the words of the R.A.F., SAILPLANE has "had it" in 1940-41, when both Editorial and Printing Establishments were "blitzed." We confidently hope, therefore, mathematical certainties being what they are, that it will not happen again. But it may happen to the ancillary services necessary to the production of SAILPLANE, and in fact it has. So that recently great difficulties have had to be overcome to put the famous First Soaring Magazine before its growing list of subscribers. Forgive us, therefore, if we have not been to time. Hitler's Crackers are only one of the obstacles to be overcome, but we shall manage it somehow.

Pioneers of British Gliding—4

ALAN GOODFELLOW

ALAN GOODFELLOW'S gliding career began at a preparatory school in Birkdale. Fired with zeal by the Blackpool flying meeting of 1909, his fellow-scholar, John Leeming, had built a glider of bamboo and piano wire. They took it along to the sand dunes, where Leeming, who was a distinctly plump boy in those days, ran boldly down the steep slope of the highest available dune, but with no result except that the wings of the glider bent upwards "into a semi-circle." After several attempts Leeming gave it up and suggested that Goodfellow, who at that age was on the small and skinny side, should have a try. To his astonishment he became airborne in a few strides, but at the last attempt he got into a side-slip and finished covered with confusion and bamboo splinters.

So his parents made him promise never to fly again. However, they released him from this contract six years later, when he took his pilot's license at the age of 17 at the Beatty School of Flying, Hendon, and joined the Royal Flying Corps. His flying in those days was done on the Wright biplane and the Caudron biplane with 25 h.p. Anzani.

His next experience of gliding—and first of soaring—was quite unintentional. In 1916, returning to Salonika from a reconnaissance flight in an Armstrong Whitworth 90, he shut off his engine over the mountain range north of Salonika to glide down to the aerodrome. There was a half gale blowing from the south, and to his surprise he climbed 800 feet and finally had to use his engine to get down.

After this there was no more gliding until John Leeming once again came into his life in 1924, when he and Alan Goodfellow founded the Lancashire Aero Club. This was before the days of Moths and subsidies, and the club's main flying equipment was a glider which Leeming started building in 1922 and first flew on May 24, 1924. It used to be towed by car across the old Alexandra Park Aerodrome, Manchester, until a 7 horse-power motor was put into it, after which it would only bounce.

About this time Goodfellow became associated professionally with Aviation Insurance, and later the light aeroplane movement became indebted to him for much useful advice on the Law as it affects the pilot.

His next contribution to gliding history was to help in forming the British Gliding Association and to start a gliding section of the Lancashire Aero Club early in 1930. The club bought a Prüfling secondary in preference to a primary glider, as their members had already been trained on aeroplanes. Much fun was had with this machine at Woodford aerodrome, and later at a hill site called Sparrowpit on the borders of Cheshire and Derbyshire. With it he took part in the first inter-club gliding match, between London and Lancashire, at Ivinghoe Beacon in July, 1930, contributing 1 minute 31½ seconds



ALAN GOODFELLOW. *Photo: A. E. Slater*

(*Continued on page 13*)

British Soaring Contests—1

THE ITFORD MEETING OF 1922.

By A. E. SLATER.

ON August 23rd, 1922, the *Daily Mail* announced a prize of £1,000 for the longest duration flight in a glider at a contest to be organized by the Royal Aero Club and open to the world.

Next day at the Wasserkuppe, where the feats of German soarers had stimulated the offer of the prize, Hentzen created a world's record by staying up in a glider for 3 hours and 6 minutes.

The *Daily Mail* Contest was fixed for the six-day period October 16th to 21st, and the site chosen was Itford Hill (535 feet) between Lewes and Newhaven. Actually the whole of a long line of Downs was used, stretching eastwards from Itford. This provided excellent north-facing slopes for three miles to Firle Beacon (718 feet) and thence a north-easterly slope for another two miles to Alfriston. By a stroke of luck the wind remained in the north-east nearly all the time; if it had been southerly there would have been no soaring.

THE GLIDING BICYCLE

This meeting differs from all subsequent British soaring contests in the variety of machines entered. Of the 35 entries less than half were simple monoplane gliders. Five were described as ornithopters and three others were to be assisted by muscle-power, including a two-man-power helicopter. One cyclist, who had built a glider round his bicycle, made a few gallant attempts to get off, but one could see that his wings had an absurdly large angle of incidence, and whenever his front wheel left the ground he would invariably stall.

Another competitor spent the week trying to put together a machine designed on the perpetual motion principle: some sort of blower was to collect the head-wind and make it turn a propeller. One which never arrived was described by its inventor, J. J. O'Freddy, as a "sail biplane." Pictures in the Press showed it to be a tandem monoplane surmounted by vertical surfaces forming "a complete yawl rig with jib, mainsail and mizzen." Mr. O'Freddy had threatened to "sail it over" from Sheerness, and a telegram duly arrived announcing that he had left Sheerness at 9.25 but "crashed on a hill near Maidstone" 13 minutes later!

GORDON ENGLAND

On the day before the start, Sunday, the 15th, I managed to get down to Itford and have my first sight both of a glider and of a bungy launch. A trial glide from the summit was being made by E. C. Gordon England, whose monoplane had the smallest span (28 feet) of all those which flew successfully. England must have been the only British pilot with previous soaring experience, for way back in 1909 he had been pushed off Amberley Mount in one of Josz Weiss's soaring gliders and is recorded to have climbed 100 feet and stayed up 58 seconds.

A French machine was then launched, but across wind, with the result that it overturned on to the crowd and Barbot, the pilot, had nothing left to fly.

The first day of the contest, Monday, the 16th, brought an E.N.E. wind, and the only way to get lift near Itford was to use the various spurs that jutted out from the north slope further along. Four pilots, Raynham, Broad, Herne and Jeyes, tried from Bedhampton Hill a mile to the east. Each rose at first, but flew out straight ahead and soon lost the lift.

FIRST BRITISH SLOPE FLYING

It was Anthony Fokker who showed how slope-soaring should be done. He carted his two-seater to Firle Beacon, took on the *Daily Mail* man as a passenger, and managed to keep his height by turning right immediately after the launch and soaring the full length of the north-east slope. But at the end of the return journey downwind he lost height and had to land after 11 mins. 23 secs. Gordon England then had a try, but the wind had dropped.

Fokker had gained his soaring experience at the Wasserkuppe two months before, where he put up a world's record for two-seaters of 13 minutes, flying his own machine. It had a span of 40 feet and weight of 198 lbs., and the two occupants sat in a nacelle. A single-seater of similar design, but without nacelle, the pilot sitting on the bottom wing, had a span of 30 feet and weighed 176 lbs. Both had high-lift wing sections.

Later on Monday afternoon the wind increased and Fokker took off from Firle in the two-seater with 140 lbs. of ballast. He turned and circled in a small area just east of the Beacon, keeping close to the hill-top, for 37 minutes. This, the first prolonged soaring flight in Britain, put him in the running for the *Daily Mail* prize, which required a minimum duration of half-an-hour, followed by a landing within 800 yards of the starting point.

On Tuesday morning F. P. Raynham leaped into the news. After a false start he went off Firle Beacon into a strengthening north-easterly wind and stayed up 1 hour 53 minutes. Describing the sudden loss of lift which finally brought him down, he told a reporter: "I was beaten by a current which came from the trees." Still, it was the third longest soaring flight in the world's history.

ENTER SYDNEY CAMM

Raynham's monoplane, designed by G. H. Handasyde and Sydney Camm (heard of him?), had a span of 36 feet. The surface comprised 140 square feet, empty weight was 160 lbs., and loading about 2.4 lbs. per square feet. It was built in such a hurry that there was no time to fix the aileron cables to the stick, so thay were joined together with a turnbuckle which the pilot had to grasp with his left hand and pull from side to side as required. Raynham complained of writer's cramp.

F. W. Merriam was then launched into the stiff wind with his braced monoplane (wing section R.A.F. 15), and did what more than one power pilot has done since: he shot up almost vertically, stalled, cart-wheeled and nose-dived. He complained that his machine would not move forward at all—in fact, it moved backwards and broke the bunjy. But *The Aeroplane* reported that he let himself be launched with the elevator full up.

On Wednesday morning I was able to return to the site, having passed the final medical exam. the previous evening in London. But

I was just too late to see the most spectacular crash of all, performed by John Jeyes in his low-wing Aachen monoplane. Jeyes had been studying at Aachen University and brought back a machine of the same type as that which won the Wasserkuppe Contest the year before. He took off from a spur into a bowl, across which a violently gusty wind was raging; he twice rose well above the top and twice sank into the depths, then his right wing struck the ground, broke off and sailed away into space, while the rest of the machine enmeshed him in its remains. He was unhurt.

LANDING BACKWARDS

Before this Gordon England had been shot off the top, drifted backwards and sideways with the indicator showing 45 m.p.h., and landed, still moving backwards, at an air speed of 40 m.p.h., less than two minutes later.

A worse gale on Thursday kept everyone on the ground, and Raynham, who like many others had complained of lack of aileron control, enlarged his rudder for the second time and increased the range of movement in his ailerons. Not till about ten years later did sailplane pilots learn the trick of always working rudder and ailerons together.

E. D. C. Herne, a pilot of Daimler Airways on the London-Paris route, tried to improve his De Havilland glider by converting the ailerons to warp control. He was launched later in the day when the wind had moderated a little, but his wings warped only too well, for after fluttering violently for a few seconds the tips warped themselves right off and Herne pancaked back to earth.

PARASOL MONOPLANE

Friday brought a gentle northerly breeze, and Rex Stocken went off in the light, flimsy-looking "Airdisco" parasol monoplane with crescent-shaped wing, drooping at the tips. He held height at first but, he said afterwards, couldn't turn sharply enough to keep in the lift. From what I remember, he must have expected the rudder to work, as he put on hardly any bank.

F. T. Courtney did a test glide in the Sayers' monoplane, a rough copy of the "Vampyr" which had put up the German records, but he thought the controls inadequate.

Fokker decided to make no more attempts on the prize but generously lent his single-seater to Merriam and the two-seater to G. P. Olley, who, however, glided on out of the lift through failing to hear Fokker's shouted instructions to "Gom 'ere!"

Further flying was prevented by the hill becoming enveloped in cloud. But in the calm of the evening Fokker made three beautifully graceful, slow glides down from Itford Hill, with a perfection that I have never seen since, even in a Hols der Teufel.

GREATEST DAY

Saturday, October 21st, was the greatest day of all, with a magnificent soaring wind from the north-east. I arrived at the top in time to see Gordon England being carried off on a stretcher with his ankle splinted and bandaged. He had been launched at Firle, was blown backwards, turned and banked, rolled over further by the wind, and nosed into the ground out of control.

Raynham had gone off just before but soon landed.

Next, Olley took off in the Fokker two-seater with a passenger, Observation Officer C. P. Rodgers of the R.A.F., stated to have been "picked out of the crowd." Besides this total of 10 plus 12 stone, Fokker advised another 80 lbs. of ballast for the high wind. Olley proceeded to stay up 49 minutes and thus put up a new world's record for two-seaters. It was a most uncomfortably rough flight, even to watch. The landing was said to have followed a sudden unexpected loss of height, but it looked to me as if the pilot put his nose down deliberately in order to land. Olley later flew the Fokker single-seater for about half-an-hour near Itford. Stocken also tried there but overturned on landing.

MANEYROL THE UNKNOWN

And now for the great event. The hero, Alex. Maneyrol, has not been mentioned so far because until 2 p.m. this afternoon he had been neither seen nor heard of. A curious brown contraption came along the hill, continually stopping for adjustments. It was a tandem monoplane, similar to Langley's "aerodrome" of 1903 and Montgomery's balloon-launched gliders of 1905. Its span was 21 feet 8 inches, length over all 17 feet 8 inches, area 153 square feet, and empty weight 147 lbs. The wing loading works out at an average of 2 lbs. per square feet, but is actually more than this on the front wings and less on the rear. Flaps occupy the whole trailing edge of each wing and are used both as elevators and as ailerons. Louis Peyret, the machine's designer, was a foreman in the Morane-Saulnier works, and Maneyrol test pilot for the firm.

Nobody knew what to expect of this strange craft, and I remember keeping well out of the way of the launch. But all went well, and it immediately rose with astonishing steadiness to a greater height than any machine had yet reached. And there it stayed till after dark.

Seeing what had happened, Raynham soon followed into the air, and in order to avoid congestion he took the Firle-Itford beat; but after turning back at the Itford end he lost the lift, probably because the last mile faces north-west, so the wind blew almost parallel to the ridge there.

THE "BROKKER"

Then yet another mystery competitor arrived: Squadron-Leader Alec Gray, bringing a glider constructed out of a Bristol Fighter fuselage and the top wing of a Fokker D-VII aeroplane, and hence called the "Brokker." It had cost 18s 6d. to build, and weighed about 500 lbs. all-up. After a bit of wheel trouble it got properly launched and at once began to soar in company with the Peyret. Before long, by unspoken agreement, the two machines kept to separate beats of about a mile each, and there they stayed while big cumulus and showers passed over and a rainbow formed a colourful background to the brown Peyret and silver Brokker.

Gray flew for an hour and 4 seconds, while Maneyrol stayed up till he had beaten the world's record. After soaring for 3 hours 21 minutes 7 seconds, he landed on top, in the dark, by the light of car headlamps.

THE PRIZES

Apart from Maneyrol's £1,000 from the *Mail*, Raynham won Col. Ogilvie's £50 for the longest flight in a British glider, Gray received the Royal Aero Club's £50 for the

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next longest, Olley had £20 for the greatest aggregate time, England £10 from Mrs. C. G. Grey, and Raynham £10 for the "longest straight flight." Thus duration earned 100 times the reward of distance.

As to the lessons of the meeting, some said that plain hill-soaring was boring; some talked of Little Engines; others suggested a permanent gliding club but did nothing about it; and one or two thought of the idea of working across country from one up-current to the next, but didn't explain how, and had no intention of trying.

But though cloud-soaring had to wait for many years, one observer did at least notice that Maneyrol rose higher whenever a big cumulus passed over; this was F. Entwistle, the official meteorologist, who was to become Editor of *The Sailplane* for a time ten years later. And another cloud phenomenon was noticed, apparently contradicting the first; the glider sank on the approach of the first shower, evidently due to a drop in the wind, possible because air was being drawn back into the cloud mass.

BUT WHAT HAPPENED?

How many of the participants at the meeting kept up their enthusiasm for soaring? The two Frenchmen, Maneyrol and Barbot, put up new duration records at Vauville in the following January, but Maneyrol was killed some months later in a Peyret light aeroplane, and Barbot has faded out of the news. Peyret added a motor to his design, then died in 1933. Fokker went in for air liners; he died in 1939. Olley continued his commercial flying and Stocken became an aeronautical consultant. Courtney was rescued from a Dornier Wal in the Atlantic and then took up with autogiros. Gray lingered on at Itford on the hope of breaking the record but then gave it up. England never soared again, but became first chairman of the British Gliding Association in 1930. Merriam ran a gliding club in the Isle of Wight for a short time about 1931. A. H. Knott, one of the experimental entrants, has alone kept up a consistent interest, as he related in the June *Sailplane*.

Not one of those pioneer sailflyers took up cross-country soaring when it became possible. And of 56 British "Silver C" pilots only one, Sebert Humphries, attended Itford in 1922—as a spectator. There were no more soaring or even gliding contests till 1930. So what did the meeting achieve?

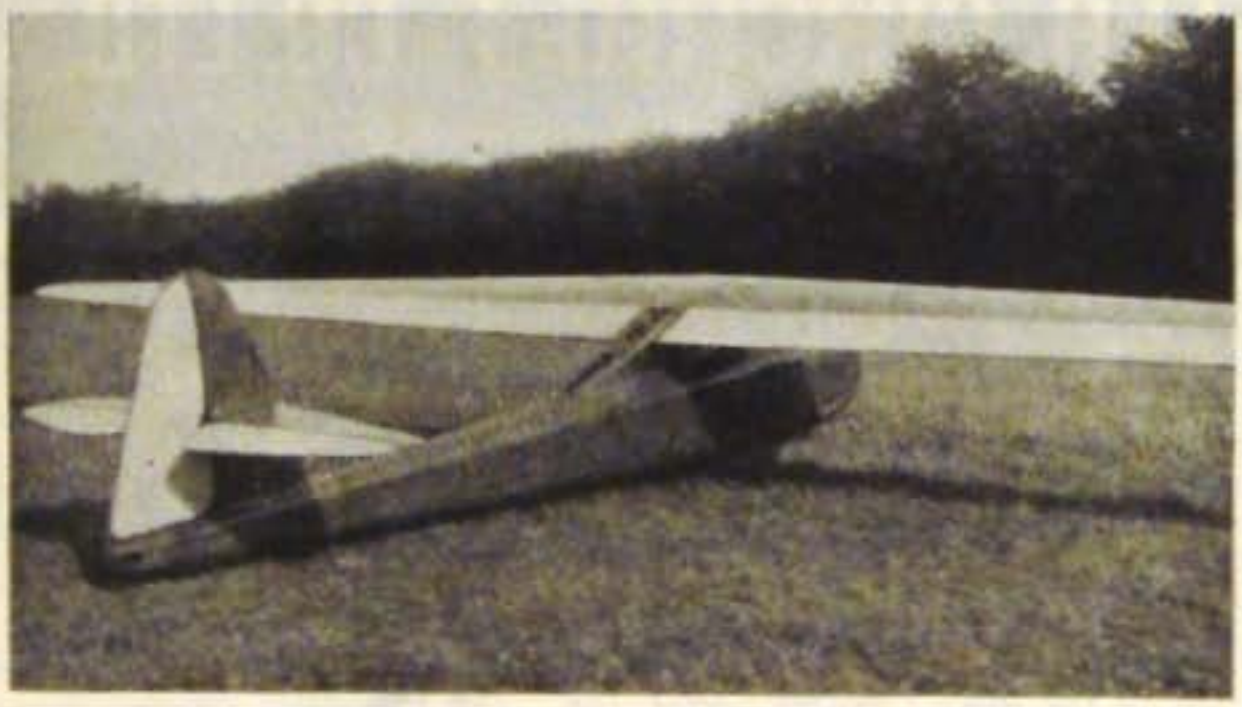


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REAR VIEW OPEN

b.h.p., which in terms of thrust h.p. due to low propellor efficiency was about 2½ to 3 h.p. The all up weight was approximately 500 lbs. The power loading was therefore about 100 lbs/b.h.p., or about 200lbs./t.h.p. The nearest approach to these figures were Manning's Wren, which had an A.B.C. engine of 7 b.h.p., for a weight of 360 lbs. loaded and the original Wright aeroplane with a power of 12 b.h.p. and a loaded weight of 750 lb.



REAR VIEW SOARING.

(*Continued on page 13*)

AIRBORN(E)

The "Bug" at Work Again.

HAVE you ever had the sensation when you wake up, that to-day has something odd about it, and you can't remember what it is?

I felt like that when the alarm burred its way into my consciousness. Directly I gathered my wits I realised what it was that made to-day so different. I scrambled out of bed, and hastily looked out of the window to see what the weather was like. Tip-toeing round the house like a burglar, I stealthily prepared my breakfast, for it was too early for an ordinary Sunday morning, and my parents would not appreciate being awakened at this unearthly hour.

I was going Gliding. The day I had been looking forward to had come. At last I could feel I was taking my first step as one of those who fly. My father had explained to me that there was something about flying that was different. Now at last I knew what he meant. Everything seemed new this morning.

NEW BOY

There was a little of that "new boy at school" feeling. I was afraid I might make a fool of myself at something new, although even if I did, or found it a bit rough at first, I didn't care, because I was doing what I had always meant to do. You can imagine then, the impatience that seized me as I pushed my bike up the interminable hill just before reaching the aerodrome.

I was glad to see some Cadets from our own Squadron when I got there, and we waited impatiently for the Officers to arrive. After some formalities at the Guard Room we strolled out to find the hangar, feeling already as though we were airman. We were given an elaborate course by one of the natives in greasy overalls; this proved an excellent route for getting back to here ... from here. As we were right outside the "joint" at the start.

One look inside the hangar was sufficient to reveal the outlines of a magnificent contraption of wires, struts, and canvas, that looked as though it had strayed from the "Pioneers of Flight" section of the Science Museum. Wilbur Wright would have thought it a pretty snappy concoction. It was only then that I realised the difference between an aeroplane and a Glider. It looked as though it had the gliding angle of a brick, and as if it could be overtaken in full flight by a bearded gentleman on a velocipede. We turned with relief to the sleek outline of the "Kirby Kadet"; this has got something.

JOBS

Soon the Commanding Officer and the instructors arrived, and after a friendly greeting, sorted us out and found us jobs. "Jobs" seem to be a feature of this gliding. "Jobs" to suit all shapes and sizes. "Jobs" such as filling cans with water for the retrieving car's radiator, the winch's radiator, and the radiator of a perambulating heap of scrap-iron which may occasionally be persuaded, by those who are kind to it, to chug around on the more menial errand of retrieving the cable. At intervals during my filling job I was able to see the careful preparation of the gliders for their day's suffering, and *do* they suffer!

The only things that suffered more were the Tigers which were buzzing around all day, in an attempt to prove that a really ingenious "pupil pilot" can demonstrate more different ways of landing an aircraft wrongly than the most evil-minded enemy of flying could have imagined. With this horrible example before our eyes it was easy to persuade ourselves that the resounding crash that usually accompanied the landing of the Primary was not really so bad as it looked.

A TURN FOR ALL

There seemed an awful lot of running, walking, hauling, and signalling associated with the few brief moments of flight; but after a while, when we got used to the routine of it, I began to think that this really was the best way of doing the job; everyone has a turn. After the first attempt, I was rather afraid I would be lucky if the instructor was not a little bit sarcastic. He was jolly decent about it, and took a helpful view of things. Gave me some good advice, and in a firm and friendly way that left me with the impression of confidence in his knowledge of the job.

That was the atmosphere of the whole day. Not much ordering about, everybody keen on the job and working together; and doing what the instructor told them as best they were able, because it was the proper way to do it.

There was a very clever telephone system attached to the cable, looking after which turned out to be my job, and I found it fun to join in and take my part in the proceedings. So interesting did I find the morning that I was surprised when the break for lunch came round. I would have said, had anyone asked, that we hadn't been there an hour. It was one-thirty when we went to our lunch, in point of fact, and by two o'clock I carried back to the field a load of food inside me that I felt pretty sure would make the old glider stagger!

SWISH OF THE WIND

The winch driver got down to the job again, and its powerful roar came to us across the aerodrome as we ran alongside the glider steadying the wings for the first few moments of the slide. It was interesting to stand and watch the glider taking off in the hands of the instructors and the more experienced pupils. Once launched, all that could be heard was the swish of the wind through the wires, and it was amazing to see how graceful these "contraptions" of wire and wood became, when they were in their element. They were airborne and it was that which made all the difference.

I had been hoping all day to have a second shot at it; but luck was against me, as a "disappointing" landing of the Kirby led to some time being wasted. I shall never forget my first run, although I *did* manage (partly because of wind-up) not to take it into flight. The firm way the instructor warned me to keep the stick forward had made it clear that he would take a pretty poor view of any attempt

(*continued on page* 16).



CLOUD

UNDER certain circumstances clouds are creatures of regular habits. To the observer some formations can frequently be seen in the same localities under similar weather conditions.

Often in a W.S.W. wind a street of convection cumulus clouds will grow above but slightly in front of the general line of the North Downs between Dorking and Godstone. This street lasts for some hours and seems at its best shortly before noon.

There is one peculiarity about this street, however. It will also occur in an E.N.E. wind, that is, a wind from the opposite direction.

These articles on Cloud Habits, which will appear from time to time, have been written in the hope that readers will put forward their own views and suggestions as to why these peculiarities occur.



CUMULUS STREET, OVER NORTH DOWNS IN E.N.E. WIND.



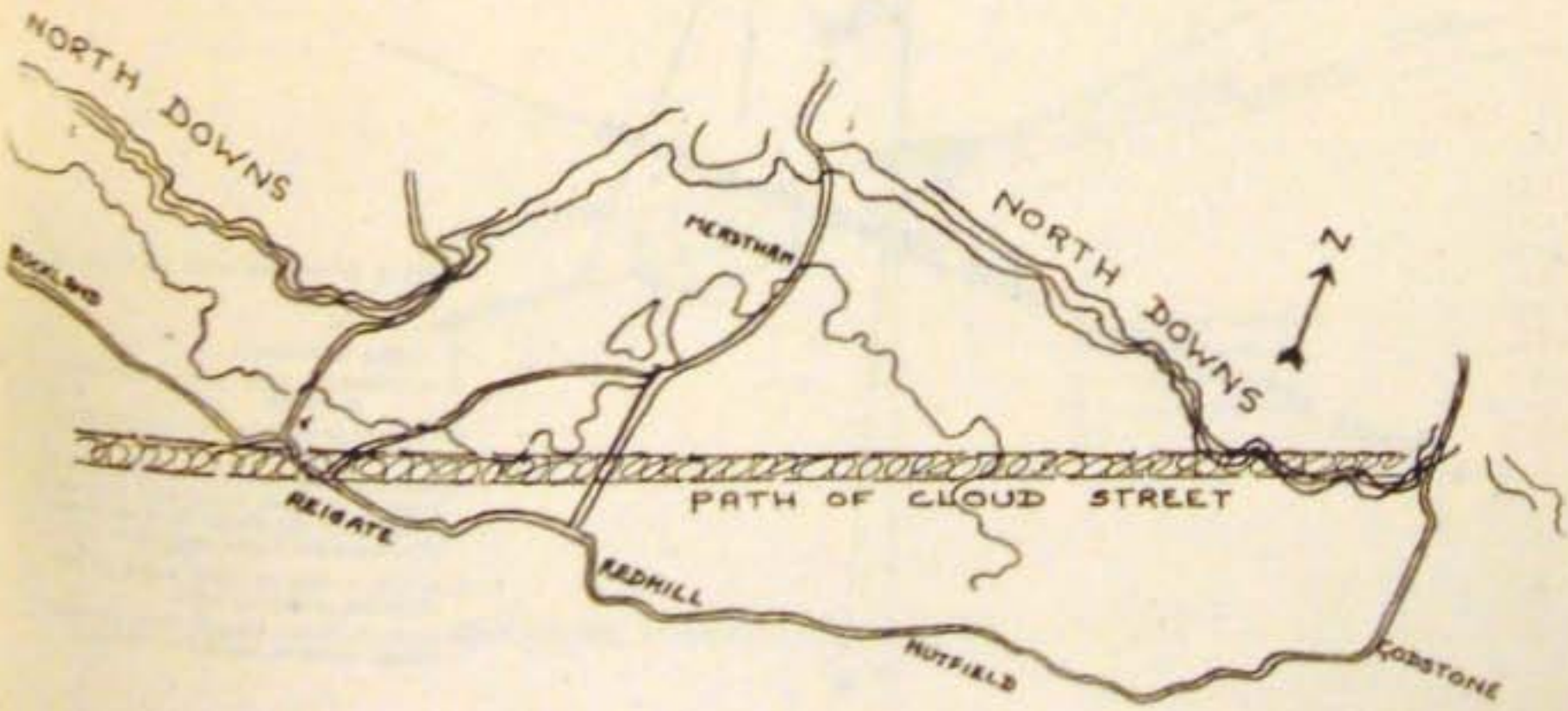
CUMULUS STREET, OVER NORTH DOWNS IN W.S.W. WIND.

ITS—No. 1.

This makes the reason for its existence more difficult to find. In a W.S.W. wind the street forms in front of the steep face of the ridge and above the warm sunny valley and slopes, but in an E.N.E. wind the street forms over the cool North facing uplands behind the top of a large spur of the hill. It then lies over the steep lee slope and valley, and this apparently does not detract from its size and "liveness."

The photograph and map show the street in both wind direction and the country over which it forms.

A. C. D.



PRINCIPLES OF GLIDING

By Major E. A SITEK.

GLIDING is like the motion of a body along an inclined surface. Resistances opposing forward motion are overcome by the weight factor. The vertical reaction of the inclined surface to the moving body is replaced by the lift caused by the flow of the air around the wing surfaces.

The lift L acts on the direction of the relative wind (path of the glide) from the centre of pressure C.P. (It is true that the fuselage, the tail surfaces and other parts of the glider, especially if streamlined also provide lift to a certain degree, but for the sake of simplicity this will not be taken into account here.)

The weight of the glider acts vertically downwards from the centre of gravity C.G., and in most cases does not undergo any major changes. This is in contrast to other military planes (bombers), the weight of which is reduced to a considerable extent after the releasing of their bomb loads and by fuel consumption during a long operational flight.

The drag D acts from the centre of drag CD in the opposite direction to the motion of the glider and is subject to considerable changes during gliding, as it grows roughly as the square of flying speed. The total drag may be subdivided into active drag caused by wing resistance, and passive drag caused by the resistance of other parts of the glider.

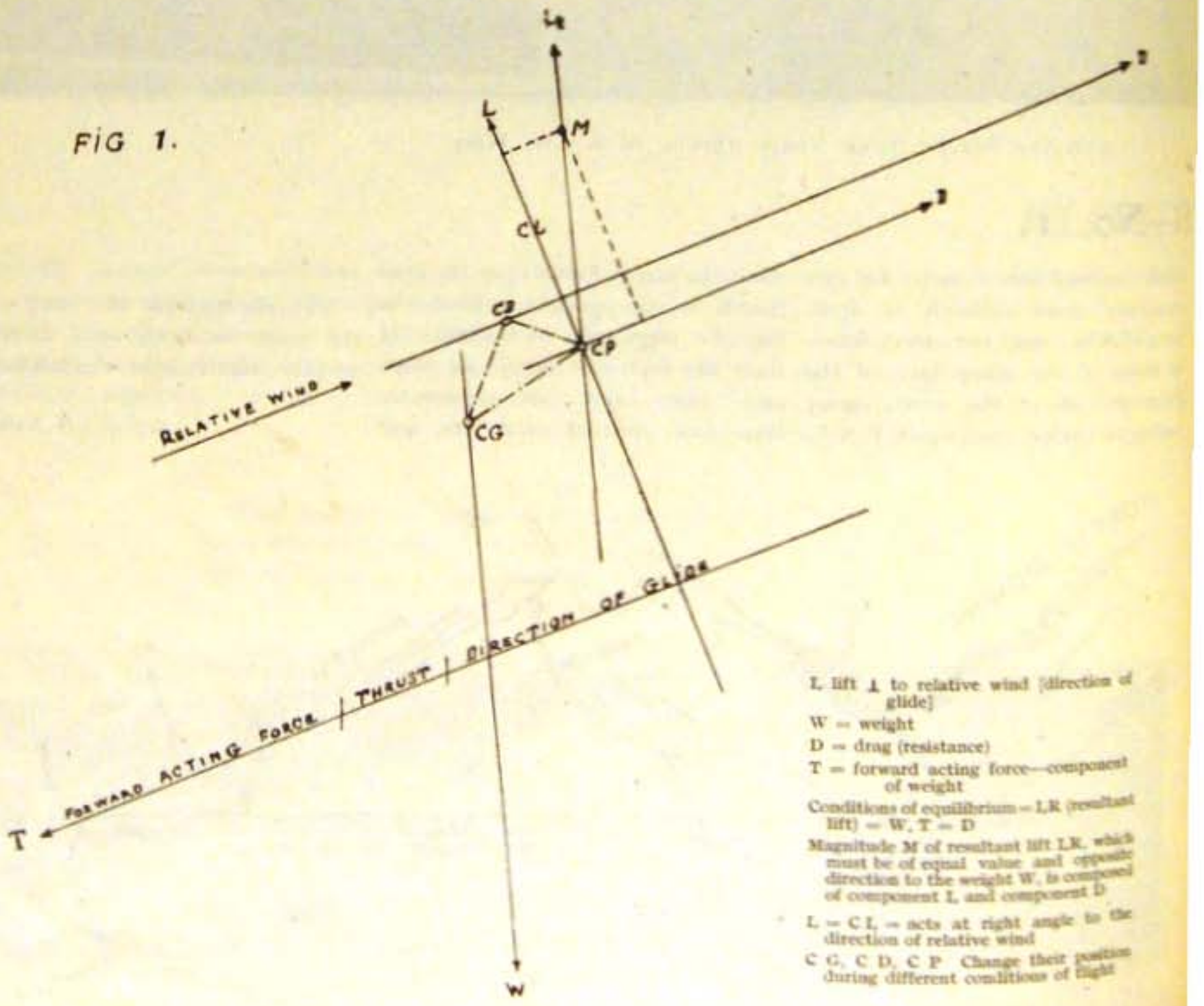
The forward motion T of the glider is caused by the component of weight, acting in the direction of flight, whereas the forward motion (thrust) of an aeroplane is produced by the thrust of the airscrew.

If the aforementioned aerodynamic forces are balanced, conditions of equilibrium are established and consequently the glider moves in a certain angle at a constant speed in a fixed direction.

Newton's law of the motion of bodies defines clearly these conditions of motion in equilibrium. These conditions are fulfilled when the relation between lift L and weight W and the relation between forward acting force T and drag D is equal in value and opposite in direction. (*See Fig.* 1.)

In addition to maintaining the equilibrium of all these forces, it is necessary to restrict the turning motion of the glider, which is caused by, and closely connected with the relative positions of CP, CG and CD. The task of the glider designer, therefore, will be

FIG 1.



L lift ⊥ to relative wind [direction of glide]

W = weight

D = drag (resistance)

T = forward acting force—component of weight

Conditions of equilibrium – LR (resultant lift) = W, T = D

Magnitude M of resultant lift LR, which must be of equal value and opposite direction to the weight W, is composed of component L and component D

L = C L, = acts at right angle to the direction of relative wind

C G, C D, C P Change their position during different conditions of flight

to place all centres of action of these various aerodynamic forces as closely together as possible. (*See Figs.* 1 and 2.)

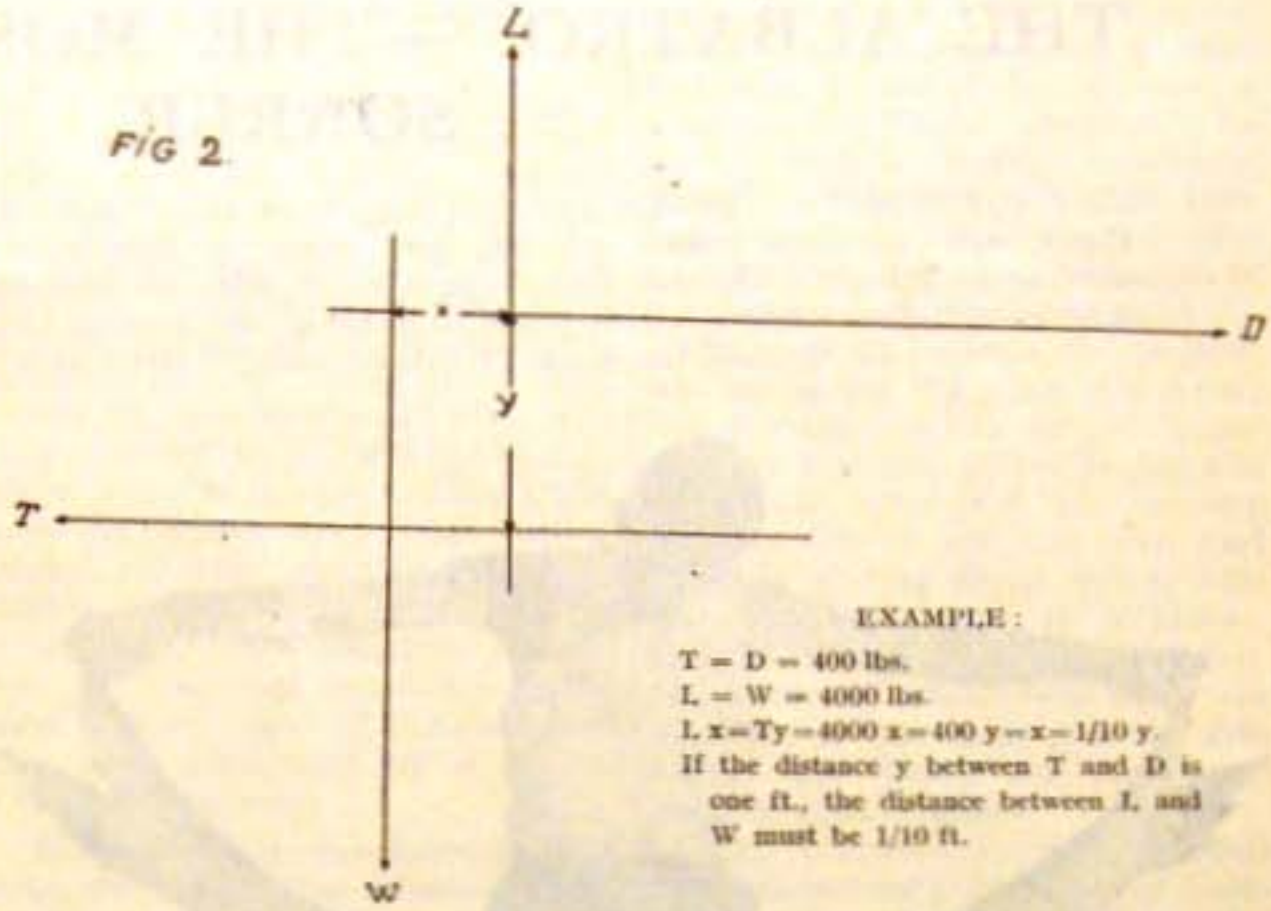
Lift L and drag D are forces mutually depending and acting together in different direction and of different value, and are called a "couple." From *Fig.* 2 it may be seen that the distance between the straight lines of forward acting force T and drag D will always be greater than that between the straight lines based on lift L and weight W, since lift will always be greater than drag. This holds good as far as there are no forces acting on the tail surfaces. If such forces be present, they must be ascertained in advance and their effect eliminated.

From the *Fig.* 3 it is evident that the value of the angle formed LZ and L is equal to that of the angle between the direction of gliding and the horizontal level. That angle γ is called angle of glide.

By the aid of trigonometry we come to the result that D/L equals tan γ, from this follows that as D/L decreases, the value of L/D increases—the angle of glide becomes flatter. The angle of glide is directly proportional to the L/D value, which accounts for the efficiency of the design of the glider. We arrive at the conclusion that the higher the efficiency of a glider, the flatter the angle of glide and the longer its range. For the latter qualities the technical expression is "aerodynamic merit" of the glider. Every improvement in streamline means reduced resistance (drag) and a better angle of glide.

(*To be continued.*)

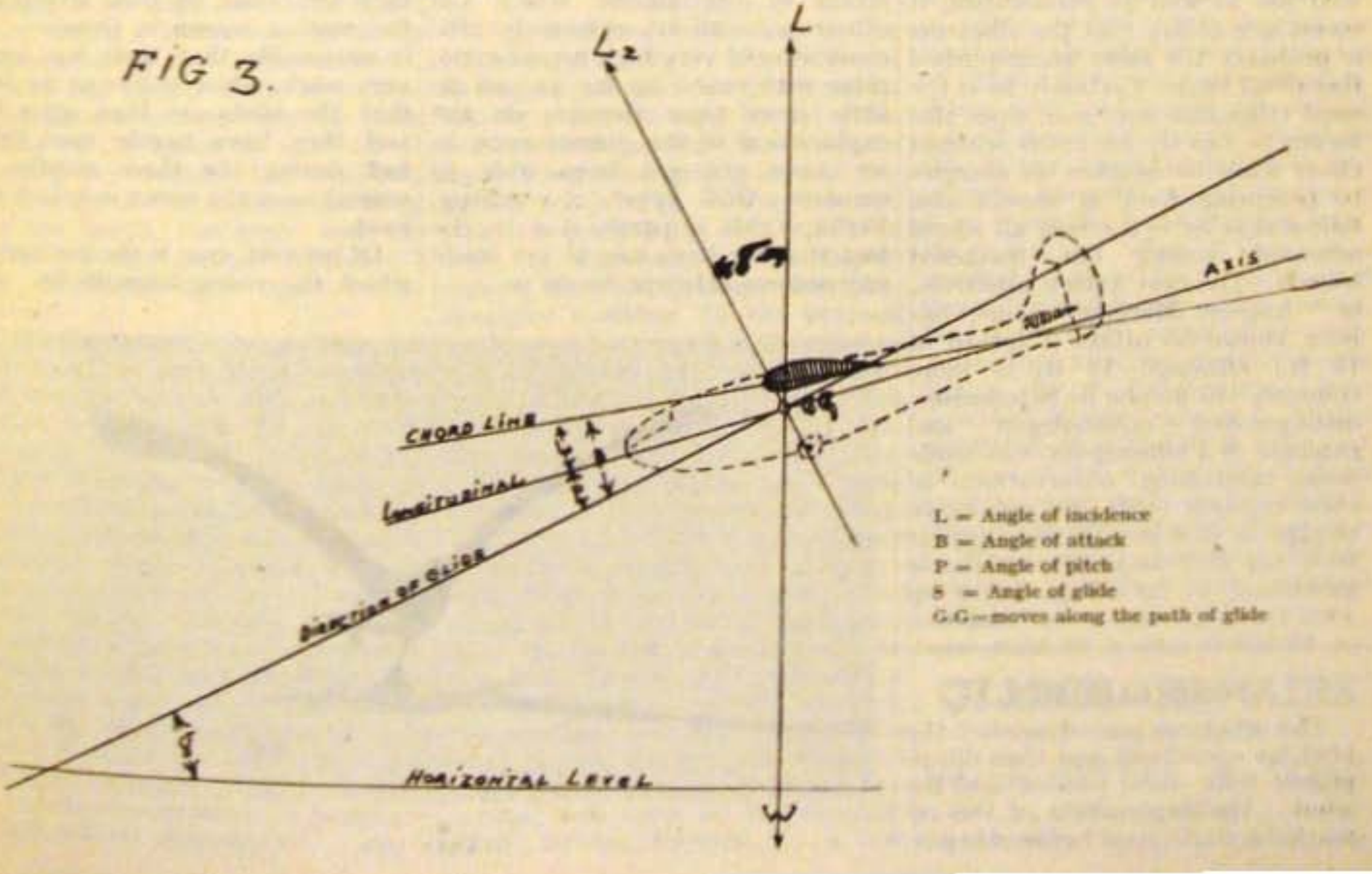
FIG 2



EXAMPLE:

T = D = 400 lbs.
L = W = 4000 lbs.
L x = Ty = 4000 x = 400 y = x = 1/10 y.
If the distance y between T and D is one ft., the distance between L and W must be 1/10 ft.

FIG 3.



L = Angle of incidence
B = Angle of attack
P = Angle of pitch
δ = Angle of glide
G.G = moves along the path of glide

THE ALBATROSS—THE MOST EFFICIENT SOARER

EDITOR'S NOTE: In this, our first article on the flight of birds as related to human flight, we wish to point out the possibility of invaluable lessons to be learned from soaring in nature. We also wish to urge those who are located in various parts of the world where such observations can be made to write in and give us the results of their findings, which can become the basis of future authoritative articles on the subject.



NOTE WING SPAN.

FROM observations of ornithologists and others interested in wild life as well as aeronautics, it seems safe to say that the albatross is probably the most accomplished flier of all birds. Certainly he is the most efficient soarer and, since this means he can fly for hours without effort while he devotes his energies to procuring food, it should also follow that he is the best all round aeronaut among our feathered friends. The best known albatross, of "Ancient Mariner" fame, has been known to attain a spread of 15 ft., although 13 ft. is more common. Rodolphe de Schauensee, distinguished ornithologist and explorer of Philadelphia, has made some interesting observations of these majestic birds. On one ocean voyage he saw an albatross appear from the rear and without visible movement of its wings, catch up with the ship, which was steaming at 15 knots into a 10 knot wind.

PURE GLIDING?

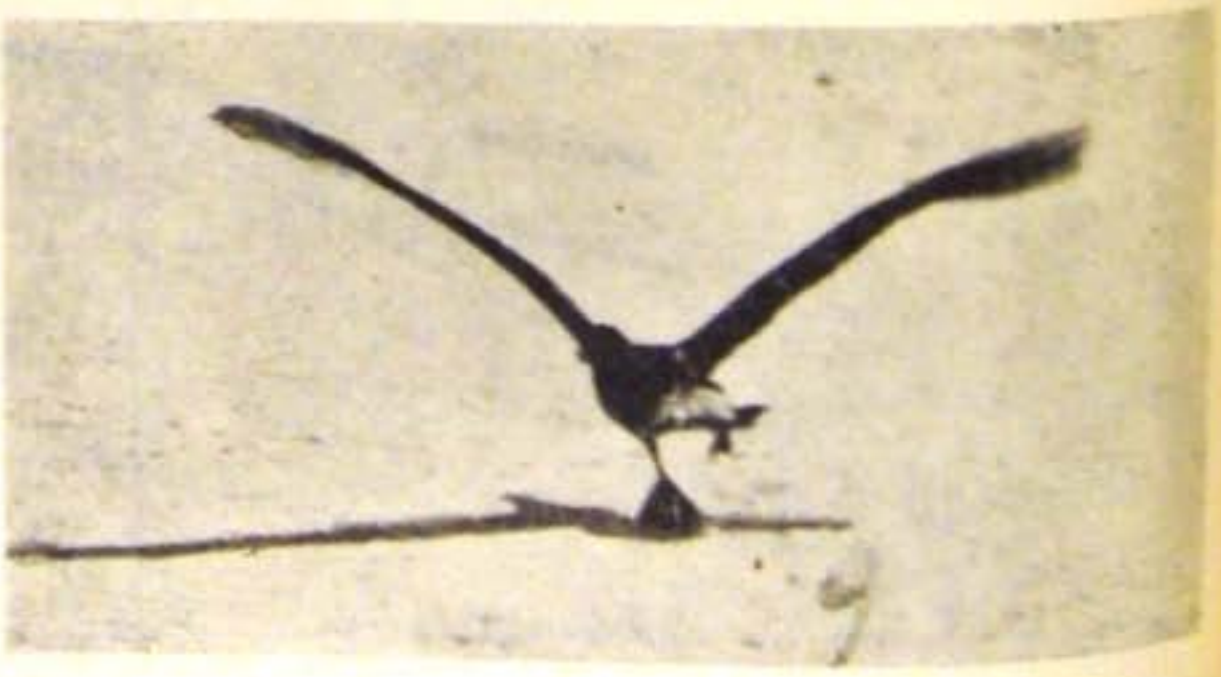
The albatross soared around the boat for some time and then disappeared from view, headed into the wind. The explanation of this remarkable flight must be found in possible "waves" or "gusts" in the air caused by friction between different strata of the air on which the albatross, with its extremely efficient wing of very high aspect ratio, rides with ease. So far we can do little more than theorize on the explanation of the phenomenon as we have not yet been able to emulate this type of soaring. Perhaps this is partly due to the fact that we have not as yet made any serious attempt to do so.

Observations at Midway Island in the Pacific have disclosed some very interesting facts about the white breasted (Diomedea immutabilis) and the black-footed, or brown albatross (Diomedia nigupes) which are the two varieties of the northern albatross, weighing as much as a small goose and having a span of about 6 ft. Donald R. Chisholm, who served several years as medical officer to the staff of the Commercial Pacific Cable Company which occupied one of two small sand islets in the lagoon at Midway before the establishment of the Pan American Airway's base, described the habits of these birds in a recent article in the magazine *Asia*.

SOARING FOR 3 MONTHS

Of interest to soaring pilots is the behaviour of the "gonies," as they are called, on their arrival for the mating season in October. It is noticeable that their legs seem very weak, which is due to the fact that the birds are then quite fat and they have hardly used their feet during the three months of soaring over the ocean in search for food.

Of interest, too, is the manner in which the young learn to fly. As



TAKE OFF.



LANDING.

the albatross is a heavy bird, it must run along the sand for a considerable distance into the wind before it can take off. If there is much wind, the young birds learn much more quickly as they practice for days before they can make their first "solo" flights.

WEBBED FOOT AIRBRAKES

In the matter of landing, too, the young bird soon learns, after several rolling somersaults over the sand-flats, that it is better to come down against, rather than with the wind. Ducks and similar birds have also been known to turn over on their backs in the water as a result of landing downwind when confused by gun shots. In making a landing on the beach, the gony uses his broadly webbed feet as "airbrakes" by extending them against the breeze.

The similarity in the problems of aerodynamics and flying technique between the soaring birds and man-made soaring craft become very marked. A careful study of the flight behaviour of such birds as the vultures, eagles, hawks, and sea-gulls should teach us some valuable lessons. There is much that we have yet to learn before we can begin to say that we have any mastery of the air and much of it can be learned from watching some of these birds who do more flying in a few months than most of us do in a lifetime.

(Acknowledgements to *Soaring*—U.S. official magazine.)

ALAN GOODFELLOW

(Continued from page 2).

to his club team's total flying time. He also passed his "A" and "B" test during the meeting, and his license is No. 11 on the British list.

His Club was carried on as "The Gliding Sub-section of the Manchester Branch of the Royal Aeronautical Society" until July, 1935, when it amalgamated with the Derbyshire Club to form the Derbyshire and Lancashire Gliding Club, soon to become one of the leading clubs in the country. At the club's excellent site above Great Hucklow, Alan Goodfellow secured his "C" soaring certificate. (His first soaring flight at Salonika had not been confirmed by a B.G.A. Official Observer.)

More recently his talents have been devoted to the administrative rather than the practical side of gliding, though he has been able to get in an occasional half hour's hill-soaring at Great Hucklow or Dunstable in a Secondary or Grunau Baby, and a bit of cloud-soaring in a Rhönbussard during the Ratcliffe aero-towing meetings near Leicester. Any more soaring than this was hindered by increasing calls on his time, "coupled," he says, "with a steadily increasing girth," for the skinny boy of 1909 had become a 15-stoner of over 6 feet, and the average sailplane became an uncomfortably tight fit.

On the outbreak of the present war he joined the Fleet Air Arm; but though he has ferried many types of modern 'plane, he has not found one to repeat his soaring performance of the last war, and his only gliding flight during this war has been done in a Horsa. His two sons, Peter and Norman, the former of whom was an active member of the gliding club, also joined the Fleet Air Arm and became fighter pilots.

Alan Goodfellow, who finished the last war as a Major, now holds the rank of Commander (A), R.N.V.R. But his flying ambitions are centred on the coming days of peace, for, with a reduction of weight from 15 stone down to 12, he can now look forward to soaring to greater heights than ever.

CARDEN BAYNES AUXILIARY

(Continued from page 6).

RETRACTABLE AUXILIARY MOTOR

This machine first flew in the summer of 1935. The idea of having a retractable auxiliary motor was first put forward by Sir John Carden, Bart., and the first machine embodying this principle was designed by Mr. L. E. Baynes and was constructed by E. D. Abbott Ltd., of Farnham. The engine was a 250 c.c. Villiers 2-stroke, specially modified for the purpose by Messrs. Villiers of Wolverhampton, the makers of 2-stroke motor-cycle engines. The machine was first flown under power by Dr. Dewsbury of the London Gliding Club from the Phillip and Powis aerodrome at Woodlea, Reading. The technique for the take-off was to start the engine and taxi out with the pilot walking alongside the wing tip and controlling the engine from the remote control throttle at the wing tip and then, when in a position for the take-off, to turn the machine into wind, place the wing tip on the ground with the engine still running, get into the cockpit and open up the throttle. After moving forward for a few feet, the wing tip would come up and the machine would gather speed on its single central wheel and eventually take-off. The rate of climb would then depend on how well the engine was behaving on that day and the weather. When sufficient height for soaring was obtained the engine would be cut off and when the propellor had stopped the pilot would centralize it by using the hand starting lever. He could see when it was in a vertical position by looking at it through a small rear vision mirror. He could then wind the whole motor and airscrew down into the fairing by a hand-turning gear provided in the cockpit. It was estimated that the L/D ratio, *i.e.* gliding angle was changed from approximately to 13 to 1 to 23 to 1, due to the retraction of the motor. In other words, when retracted the machine became a very efficient sailplane.

GLIDER REPAIRS
USK VALLEY AREA.
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USK · MON.
PHONE 48 SKILLED CRAFTSMANSHIP

AUSTRALIAN GLIDING ASSOCIATION

WESTERN AUSTRALIA

GLIDERS AND CAR BURNT, BOY CHARGED

Two gliders and a motor car, owned by the W.A. Flying Club, were destroyed by fire at the West Subiaco Aerodrome yesterday. Following inquiries by Detective-Sergeant S. A. Smith and Detective Shaw, a 17-year-old boy was arrested yesterday on a charge of having wilfully caused the fire. The gliders and car were worth £250.

Mr. Alf. E. Cole, Hon. Secretary of Club, in a letter dated 18/4/44, states :—

" Fortunately I went out in time to save the hangar, but lack of water hindered any chance of saving the Club property, which has been my main concern all along. One of the machines, the Rhon Ranger primary, had recently been re-conditioned at my own expense (after the last vandalism). The culprit is at present in a mental home under observation."

NEW SOUTH WALES

SYDNEY SOARING CLUB

Mr. Harry Ryan, in a letter dated 12/4/44 writes : *Re* EASTER ACTIVITIES :—

" With a final spurt we managed to get the ' Slingsby Gull ' and trailer into condition again, and four of us decided to camp at Box Hill for four days, said campers being Doc. Heydon, Steve Newbigin, Merv Waghorn and myself.

" We were joined on the first day, Good Friday, by Mart Warner, Len Schultz, Frank Whitlock and Bill Haase, and the whole period was most noteworthy for the number and variety of minor mishaps and delays, but as you know it is completely impossible to quench the ardour of the average gliding nut.

" What with relatives and friends we had quite a fair sized crowd assembled before 11 a.m., but after rigging the Gull all we could do was help the visitors eat their lunches, as no winch had arrived.

" A hungry Frank Whitlock clattered on the scene round about 2 p.m. He had been working on the clutch of our retrieving A.J.S. motor cycle, for which we were very thankful, but which also brought out a few curses later on.

" There was a fairly strong cross wind to contend with and we had a little difficulty sometimes in keeping the cable on the drum, but one of these days we'll have a ' pukka ' winch with roller guides again.

" Martin Warner took off at 3.15 p.m. for a test hop about ten feet altitude, but changed his mind in the cockpit (there's plenty of room) and continued up to 800 feet. He was able to do a few circles but could find nothing strong enough to keep him up and was in danger of under-shooting, so dived on a fence to be sure of clearing it and thereby giving us a touch of heart failure. The Doc. followed with a good steady flight, but was blown off the course somewhat during the launch and only made 600 feet.

" Next came myself, and profiting by the others' experience I managed to get 1,000 feet on the launch, found small patches of lift from the hill or maybe thermals, but due to my very erratic turns could not hang on. Steve followed and disgusted himself and surprised others by making only 450 feet and landing close to and on the wrong side of a fence. We were very relieved to find the skid intact and then launched Wag. For his very first flight in the Gull he made 600 feet, a good steady circuit and an excellent landing after 3¼ mins.

" Len. Schultz took off to make 750 feet at 5.0 p.m., executed a perfect loop and also came in for a good landing. The various parties then drove off to see if any accommodation could be found within reasonable distance to save petrol, but as we did not see them again presume they failed.

" Times for the foregoing flights were :—

" Mart. Warner, 4 mins. ; H. Ryan, 4¼ mins. ; Merv. Waghorn, 3¼ mins. ; Doc. Heydon, 2½ mins. ; S. Newbigin, 1½ mins. ; Len. Schultz, 3 mins.

" On Saturday, 8/4/44, the day looked very promising, but after breakfast there was considerable stratus about and yesterday's cross wind came to bother us again.

" We launched the Doc. at 11.20 a.m. to 900 feet for 4 mins., and he came in to land with his wing well over a whole row of fence posts, missing every one by inches except the last one, which somehow managed to break a rib and cross brace in the aileron without breaking the trailing edge.

" It took a fair while to tow the machine into some shade and fix things while the good conditions drifted away, and no one did much in the way of height or time.

" Doc. Heydon, 900 ft., 4 mins. ; Steve. Newbigin, 600 ft., 2½ mins. ; Doc. Heydon, 400 ft., 1½ mins. ; H. Ryan, 600 ft., 2½ mins. ; Merv Waghorn, 800 ft., 4 mins.

" Easter Sunday, 9/4/44, was showery, and later developed into heavy rain towards nightfall. The A.J.S. had been giving plenty of starting trouble owing to badly worn carburetter slides and with some primary-chain trouble also we again had delays. First flight was for myself at 12 noon without my lunch, and the wind had turned round a few points for the better.

" H. Ryan, 1,100 ft., 4½ mins. ; Steve. Newbigin, 900 ft., 3 mins. ; H. Ryan, 1,000 ft., 6 mins. ; Merv. Waghorn, 1,100 ft., 8½ mins. ; Doc. Heydon, 800 ft., 4 mins. ; M. Waghorn, 600 ft., 2½ mins.

" Wag. had some good lift on his flight, but had not become accustomed to making his circles small enough in the Gull.

" Easter Monday, 10/4/44 was almost an ideal day if we had had peace-time petrol, for any one of us *might* have taken a pleasant trip up the coast, there were cloud streets all over the place, as you will see by the photo I am sending.

" For once we made an early start and got Steve. away at 8.30 a.m. to 1,000 feet for 7 mins.

" Doc. Heydon, 1,100 ft., 3 mins. ; H. Waghorn, 1,200 ft., 11½ mins. ; Doc. Heydon, 900 ft., 4 mins. ; H. Ryan, 1,200 ft., 3½ mins. ; Steve., from 1,000 to 1,300 ft., 8½ mins. ; H. Ryan, 800 ft. to 4,000 ft., 36 mins.

" Steve found some ups and probably suffered from Wag.'s complaint in not making circles tight enough, although there were plenty of downs about.

" On my own flight things looked promising, but we did not worry about barograph or parachute, unfortunately, as it proved later. The first attempt caused the safety link in the cable to break (it was due for renewal). The spoilers were very useful in helping me to avoid crossing the creek and thus delaying the return tow. Height at time of breaking was about

100 feet with nose into the blue. On the next attempt at about 200 feet, the cable broke. I circled around to land back at the take off and did not pull the release hook too far away from home, for fear of losing the link, but when turning in to land saw the Doc. frantically waving and guessed something was wrong, so pulled the plug out. It seems I was towing nearly half the cable with me and had dropped it across the roof and aerial of the only cottage nearby. In future we always release right away, *verb. sap.* By the time the mess was straightened out and I was off again it was 1.40 p.m., and the line of clouds was coming more from the south-west. The launch was somewhat slow so that I could only make 800 feet, but it brought me slap into a beauty that was going up most of the time at 10 feet per second.

" I circled continuously at around 40 m.p.h. up to 4,000 feet, and then decided to get my bearings and have a bit of a spell. I had drifted about 2 miles downwind, so headed straight up wind under the line of clouds, going down to 3,000 feet and then up again to nearly 4,000 feet. When almost over the small town of Riverstone I reached the tail end of a large cloud and found 10 feet per second downs all over the place, so worked my way back hoping that Wag., who was next off, would be able to get something. Unfortunately, just as we launched him there was a complete reversal of wind for a few minutes, and he just had enough height to clear the creek and make things awkward for getting back; so to avoid getting back too late to the garage where the trailer is housed we brought the latter to the machine and packed up.

" As you may have noticed, we now have a small barograph brought back from England by Steve Newbigin, and at some future date we will be able to send you copies of any interesting charts.

" Pat Neary has been accepted by the R.A.A.F., and is somewhere in Queensland. Sel Owens is flying Mosquitos and is still as keen as ever to get back and do some ' real flying '."

Error in Circular 26. Martin Warner's flight of 4 minutes should have read 14 minutes.

TASMANIA

THE GLIDING AND SOARING CLUB OF TASMANIA

(Box 50 Ulverstone, Tas.)

Mr. H. T. D'Alton, Hon. Secretary, has advised in a letter dated 24/10/43, as follows :—" Very little remains of the Gliding Club in this State, and although I expect it will become again active and as keen as in pre-war wheh we made such rapid progress and so dearly bought our experience and then were unable to put such experience into practice. I regret to report that many valuable members have lost their lives in various sections of the Defence Forces. The members of the Committee are scattered all over the Commonwealth, for example :—Matthew Hornsby is in the R.A.N.; Jack Lowry is with the A.I.F.; Vic Walton, A.I.F. (killed); Neville Campbell is with R.A.A.F.; Ernie Meerman, A.M.F.; Gil Miles is working at A.W.A., Strathfield."

VICTORIA

THE GLIDING CLUB OF VICTORIA

RADIO TALK ON GLIDING.

Advice has been received from the Australian Broadcasting Commission that the radio interview with Charlie Lambeth (holder of the Australian duration gliding record), which was reported on A.G.A. Circular 27, will be re-broadcast on Station 3 L.O. Melbourne (State programme), 770 K.C., 390 metres, on 20th May, 1944, commencing at 7.25 p.m.

FLYING OPERATIONS (training). Weather and other circumstances permitting, training is being carried out at Mordialloc Ground (Governor Road) every second week end. (Week ending 16/4/44 *et seq.*)

" GRUNAU " REPAIRS (and overhaul) are being carried on at Dowling's workshop, Major Road, Fawkner. The wing tip has been rebuilt and recovering of top surfaces of both wings is being done.

THE GLIDING CLUB OF VICTORIA

ANNUAL MEETING

At the Annual General Meeting (adjourned) held at 51, William Street, Melbourne, on Thursday, 30th March, 1944, the following Office Bearers were elected for 1944 season :—

Patron : Wing-Commander T.W. White, D.F.C., V.D., M.P.

President : Norman James Hyde, 96, Mitchell Street, Northcote, N.16

Vice-President : Leo Bernard Dowling, Major Road, Fawkner, F.W. 2326.

Committee : Jack Douglas Hearn, 720, Canterbury Road, Surrey Hills; Harry Bartram, 29, Station Street, Fairfield; Reginald Pollard, 1, Atkinson Street, Dennis; Chas. Trescowthick, 117, Albert Street, Footscray, M.W. 1068; Robert Dowling, Major Road, Fawkner.

Honorary Vice - Presidents : Messrs. A. T. Priestley, R. Graham-Carey, F. Haig, Chas. Smith, H. E. Hervey, E. E. Gunn, C. J. Gordon, Latham Withall, Dr. Fritz Loewe, and Group Captain W. R. Garrett.

A vote of thanks to Hon. Secretary (Mr. R. Duckworth) was recorded on a motion moved by Mr. K. Davies, and to the President (Mr. N. Hyde) and Hon. Treasurer (J. H. Kelleker, A.F.I.A.), on a motion moved by Mr. Rob. Dowling Appreciation of assistance by those elected as Honorary Vice-Presidents was also recorded.

SUBSCRIPTIONS.

The meeting decided that the subscription rates should remain unaltered for 1944. The rates are as follows :—

Flying Members : £3 per year plus 10/- per quarter for advanced flying beyond primary or two-seater training.

Associate Members : 5/- per year.

Flight Charges : " Grunau " 7/6 per hour with min. of 1/6 per flight. " Kadet," 5/- per hour with min. of 1/- per flight. Trainees 9d. per flight (primary and 2-seater).

Note : 2-Seater trainees also pay 10/- per hour to " Merlin " Synd.

Use of Winches : 1/6 per launch for members; 2/- per launch for non-members.

Flying Operations. Weather and other circumstances permitting, training is being carried out at Mordialloc Ground (Governor Rd.) every second week-end. (Week ending 16/4/44 *et seq.*)

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(*Continued on page* 16).

GLIDING CERTIFICATES

THE following Gliding Certificates have been issued by The Royal Aero Club during the past month :—

		Gliding School	*Date taken*
"A" Certificates (55)			
1825	Maurice Ernest Jay	M.45 E.G.S., Meir	26. 3.44
1826	James Victor Mackay Arnould Nunn	No. 4 E.G.S., Abbotsinch	7.11.43
1827	William Scott Black	Ditto	5. 3.44
1828	Thomas Ferrie	Ditto	5. 3.44
1829	Geoffrey Unwin	N.E.24, Netherthorpe	19.12.43
1830	Alan Peake	183 E.G.S., Woodford	15. 5.44
1831	Benjamin Frederick Harding	C.123 E.G.S., Bray	7. 5.44
1832	Albert Charles Waterhouse	M.48 E.G.S., Bretford	1. 4.44
1833	Gerald Thomas Knowles	N.E.24 E.G.S., Netherthorpe	13. 5.44
1834	Stanley Willis	Ditto	7. 5.44
1835	Kenneth Naylor	Ditto	13. 5.44
1836	Alan Hastings Kenyon	Ditto	19.12.43
1837	John Edward Currall	M.45 E.G.S., Meir	26. 3.44
1838	James Gallon	S.W.81 E.G.S., Yeovil	7. 5.44
1839	Douglas Melville Keyes	Ditto	7. 5.44
1840	Dennis Malcombe Adams	Ditto	7. 5.44
1841	Geoffrey Sumner	Ditto	14. 5.44
1842	Frederick Ralph Buckland	S.W.83, Moreton Valence	30. 4.44
1843	John Raymond Leask	N.E.26 E.G.S., Greatham	2. 4.44
1844	Howard Alwyn Penny	S.W.81 E.G.S., Yeovil	20. 3.44
1845	John Ralley Walker	4 E.G.S., Abbotsinch	5. 3.44
1846	Geoffrey Wildgoose	N.E.24 E.G.S., Netherthorpe	12.12.43
1847	John Stanley Kaufman	N.E.25 E.G.S., Hull	29. 9.43
1848	John Abraham Batty	Ditto	28. 5.44
1849	William Medhurst	Ditto	28. 5.44
1850	Charles Branton	Ditto	30. 1.44
1851	Ronald Charles Forth	Ditto	13. 2.44
1852	Leslie Joseph Goulden	166 E.G.S., Ashford	29. 5.44
1853	Kenneth White	184 E.G.S., Woodford	20. 5.44
1854	James Ronald Foster	S.W.83, Moreton Valence	7. 5.44
1855	Thomas Brian Smith	201 A.T.C., Long Kesh, N.I.	2. 4.44
1856	James Eric Addy	203 A.T.C., Newtownards	3. 6.44
1857	Michael Stephen Reford	C.123 E.G.S., Bray	6. 5.44
1858	Ralph David Vaughan-Williams	Ditto	6. 5.44
1859	Eric Arthur Tarran	Ditto	20. 5.44
1860	Arthur Barry Farwell	S.W.81 E.G.S., Yeovil	17. 4.44
1861	John White	Ditto	9. 4.44
1862	Robert Hales	Ditto	24. 5.44
1863	John Norman Earl	Ditto	25. 5.44
1864	Dennis Albert Shirley	M.42 E.G.S., Loughborough	25. 5.44
1865	Richard Howel Jones	W.70 E.G.S., Swansea	6. 4.44
1866	Herschel John Price	Ditto	6. 4.44
1867	Bernard Jenkins	Ditto	7. 4.44
1868	Glyn Richard Strawbridge	Ditto	23. 4.44
1869	Walter Ernest Reeves	L.141 E.G.S., Kidbrooke	29. 5.44
1870	Thomas Best	4 E.G.S., Abbotsinch	15. 5.44
1871	Matthew Kirkwood Mathie	Ditto	14. 5.44
1872	Bernard Cowley	183 E.G.S., Woodford	17. 6.44
1873	Eric Hilton Walker	184 E.G.S., Woodford	11. 6.44
1874	William Montague Hoblyn Powell	A.T.C. Instructors' Course, Halton	18. 5.44
1875	John Francis Wilkinson	C.123 E.G.S., Bray	11. 6.44
1876	Jack Marshall	N.E.24, Netherthorpe	3. 5.44
1877	George Pierpoint	187 E.G.S., Stretton	3. 6.44
1878	Gordon Keen	183 E.G.S., Woodford	17. 6.44
"B" Certificates (10)			
1832	Albert Charles Waterhouse	M.48 E.G.S., Bretford	10. 4.44
1823	George Edward Nunn	L.141 E.G.S., Kidbrooke	25. 5.44
1796	Victor McNabney	A.T.C.203, Newtownards	3. 6.44
1855	Thomas Brian Smith	210 A.T.C., Long Kesh	28. 5.44
860	Angus John Edward Benton	Derby and Lancs. Club	6. 6.44
1860	Arthur Barry Farwell	S.W.81 E.G.S., Yeovil	24. 5.44
1874	William Montague Noblyn Powell	A.T.C., Haldon	18. 5.44
1792	John Alexander Crawford	203 A.T.C., Newtownards	17. 6.44
1815	Ronald Weir Graham	Ditto	17. 6.44
1856	James Eric Addy	Ditto	18. 6.44

AUSTRALIAN GLIDING ASSOC.

(*Continued from page 15*).

programme) 770 K.C., 390 metres, on 20th May, 1944, commencing at 7.25 p.m.

WEEKLY MEETINGS

Members are again reminded that it is the established practice of active members to meet every Friday evening in the vicinity of the Batman Avenue Tram Terminus between 9 and 9.30 p.m., and near the Australia Cinema in Collins Street, between 11 and 11.30 p.m. in order to discuss Club work and week-end activities.

AIRBORN(E)

(*Continued from Page 7*)

to ignore his instructions. In spite of this it was still an exciting experience.

THE FIRST SIN

The terrific " shove " in the back that the glider gives you as the winch gets a hold on it. The rumble of the skid across the ground. The drumming of the canvas, and the swish of the air past your ears, gives you a feeling of exhilaration. Things happen so quickly ; but for all that your mind is keyed up and races ahead of them, and it is amazing how much time you have to think things out, and how sluggish your muscles and the controls seem to be in following out what you want them to do. A sudden bump ! And you feel the plane begin to slew. The winch and scenery slip unaccountably to the side of you, and then with shame you realised you had committed your first sin ! You have allowed the glider to swing. You wait apprehensibly for the instructor fearing that he will gently, but firmly, remove you to a safe place. But no ! He must have done it himself sometime ; he just tells you what you should have done about it in the same patient, confident mnner, and tells you to have another go. This time you do better, and just as you feel you are getting the hang of it a bit your turn is over. You are too near the winch.

Cycling home on a very uncomfortable bicycle a vague echo of the jolting I had been through came back to my mind, as I dreamily floated over a six-pound flint and came down to earth again from my mental flight in my hoped-for " first Solo."

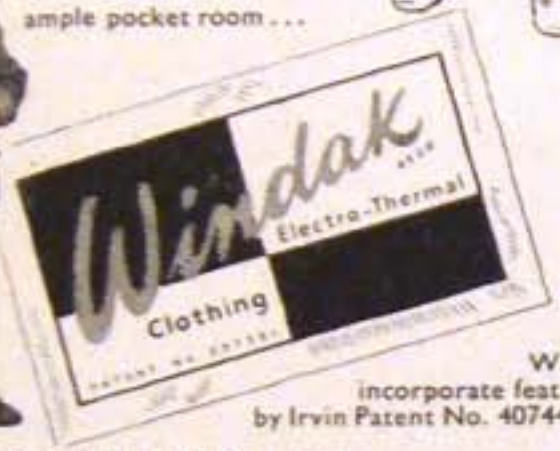
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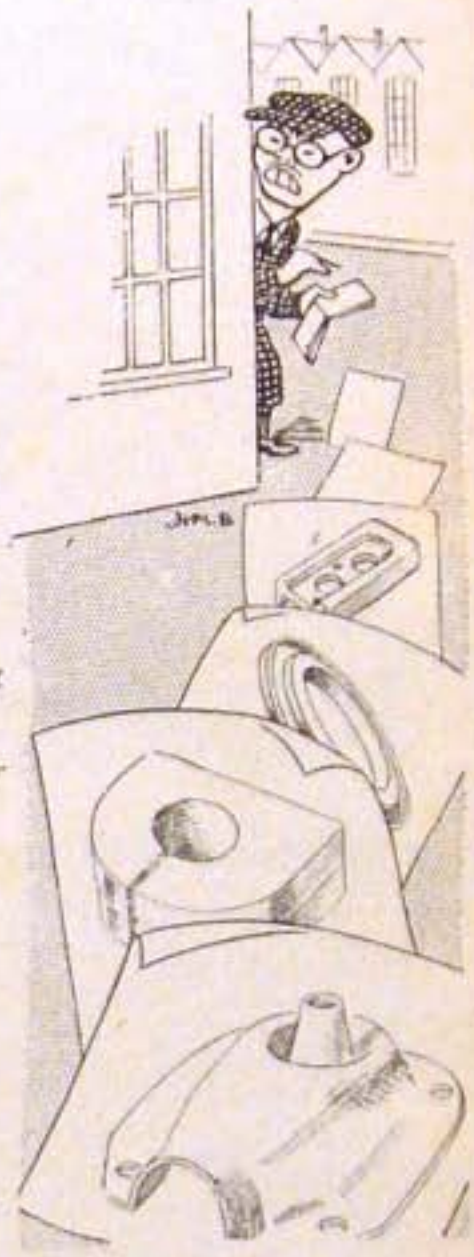
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