Jan. 16, 1931. Vol. 1. No. 19.

THE SAILPLANE AND GLIDER

Price 3d.

AN UNORTHODOX CONCEPTION.



The Brant "Scud" with Mr. Marcus Manton at the controls flying at Totternhoe last Sunday.
—(I.N.A. photograph.)

TWO SCHOOLS OF THOUGHT.

We publish this week an article by Mr. Lowe-Wylde whose experience as a pilot and designer of engineless aircraft none will deny. Mr. Lowe-Wylde built and flew the first Zogling type training glider in this country and since that date (Feb. 23, 1930) has built a very large number of primary trainers of his own design. He has personally demonstrated a large proportion, if not every one, of the machines which he has sold. This means that there is probably not another man in the country who has such a wide experience of sites up and down the United Kingdom.

What he has to say as a result of such experience will be received with interest. As long ago as the Ditchling Competition of last year THE SAILPLANE was publishing authentic material about auto-towing. Since that date it has published further information as it came to hand. We perceive quite clearly that auto-towing has come to stay, and has come at a moment when it can do most possible good to the Movement. The demonstration at Hanworth last Sunday conclusively showed that power-pilots approve of the new system. It has even met with the approval of that arch-critic of modern aerial tobogganning methods, Mr. C. G. Grey, Editor of THE AEROPLANE, who has been good enough to write an account of what he saw for THE SAILPLANE.

We can see that there will be such an interest in auto-towing that there is no need for us to wax enthusiastic about its possibilities. The proper job of a paper like ours is to look ahead. There are two outstanding dangers in auto-towing. The first is the obvious one of danger to the pupil and through the victim to the Movement, the second is that auto-towing, as has very nearly happened in America, will become an end in itself.

The Gliding Movement aims to soar. That must never be forgotten. We do not aim to make converts to Aviation by giving the hard-up cheap lessons in aeroplane control; we have done, and shall continue to do, that in our stride, but we are out to soar, to fly like the birds with no noisy vibrating expensive engine roaring away in front of us. Some want to soar because it is a sport which combines all the faculties that are required in other sports; it has all the delights of ski-ing and yet one need not go abroad

CELLON DOPE

FOR

SAILPLANES and GLIDERS.

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for it. Others want to soar because it is difficult. More want to soar on scientific exploration bent. Our machines are being designed by young men who have new ideas in aerodynamics. But all the enthusiasm in the Movement is really the outcome of man's oldest desire, witness his legends, to soar.

If we go full-out for auto-towing, our interests will become steeped with auto-towing ideas. Our novices will think in terms of auto-towing and the idea of the proper use of air-currents will get lost. Air-currents, meteorology and kindred subjects are the stuff of which our dreams are made come true. Yet it is probably an accurate description of the present lamentable state of affairs to say that not one Club has any organised method of looking after this aspect of its activities, and not one Club has any instrumental equipment for dealing with it.

If all the small Clubs now training on inadequate sites turn over to auto-towing the prospects of increased interest in meteorology become less and less.

Let us remember that amazingly good work has been done in the German tradition by the Clubs. We hear a lot about crashes, but they would happen with any new method as they have nearly all been the result of inexperience. It would be extremely informative to obtain the percentage of crashes per "A" Certificate that the leading Clubs in the Dagnall Competition have had. It would be surprisingly low.

The catapult method, always provided a good soaring site is available, offers the ideal method of training soaring pilots. Recently we were somewhat startled to see a novice on his first dive from the top of a 300 ft. hill deliberately turn along the ridge and look for up-currents. He certainly found them and had a spot of trouble, but he must have learnt more in that first encounter than any auto-towed pilot will learn in gliding from the end of the longest rope.

Auto-towing is dangerous. There have been a number of people killed in America where it was adopted with enthusiasm. So far catapulting in this country has killed nobody and we have about 100 "A"s, many of them *ab initio* glider pilots. *Auto-towing must only be used under the supervision of skilled instructors.* No Clubs should be allowed to auto-tow until the B.G.A. is confident that there is one man in the Club fit to supervise the operation. Mr. Lowe-Wylde might be authorised to appoint, or pass out, such instructors.

Far-sighted people in Aviation are confident that quite soon Light Aeroplane Clubs will use auto-towing as a means of giving their novice members the first stages of instruction. We think this most probable and an excellent idea to be followed up.

The Movement has survived a year of unsupervised catapulting, but there is no reason why we should rush into auto-towing without being sure of its dangers. Let us make absolutely sure that everybody understands that a glider can be jerked to pieces by auto-towing, that it can be pulled out of control on a curvilinear course, that a novice can stall it when climbing and get entangled in the rope, or dive on the car, let us realise that only trained instructors can give such tuition. Then we can look ahead confident that auto-towing is going to push the Movement up its steepest hill, that it will help tens of Clubs to get their members to the stage where they can start to learn to soar. When they have achieved soaring flight along ridges, auto-towing may provide the easiest means of reaching the undersides of those cumulous clouds whose fleecy masses offer the greatest possibilities of achievement in motorless flight.

HERR KRONFELD THANKS HIS FRIENDS.

To the Editor of the "Sailplane"
175, Piccadilly
London W.1.

Robert Kronfeld
Verkehrsfliegerschule
Segelflugzeug

Dear Sir:-

I received on Christmas and New Year such a large number of greetings and good wishes from my English Gliding friends that I should like to thank them by this means most heartily for remembering me so kindly.

I am watching with enthusiasm the rapid development in England of the sport, which we all love. When on the occasion of my flights during the summer I noticed the great interest of the onlookers and the zeal of the Clubs, — only few of them at that time but all working in such a fine sporting spirit and with all their might, — it became clear to me that there would develop a widespread Gliding movement in England. However, I had not expected that it would take place with such rapidity as I can glean from your splendid "Sailplane".

Whoever, like myself, had the pleasure of collaborating with the British Gliding Association, is certain that this progress will continue in this way under its leadership. And this all the more so, because the B.G.A. has won a confederate in the "Sailplane". What the work of a periodical may mean for the development of such a movement is patent to all who have read one of the numbers of the "Flugsport" of the year 1920, to realize how this one magazine brought about the first German Soaring Competition and thereby laid the foundation for the German Soaring Movement.

My dearest recollection of 1930 will always be the work together with my English friends who with exemplary hospitality and untiring devotion did everything in order to clear the way of all obstacles and thus make the flights a complete success.

With all my heart I extend to them, to the "Sailplane" and to the whole of England's Gliding Movement my best wishes for a successful year 1931!

Robert Kronfeld

TOWED-FLIGHT AT HANWORTH.

On Sunday, Jan. 11, Mr. Lowe-Wylde, of the British Aircraft Company of Maidstone, gave a most interesting demonstration of towed gliding at the Hanworth Aerodrome of National Flying Services, Ltd. The machine used was a type evolved by Mr. Lowe-Wylde which, writing in considerable ignorance of the subject, appears to be halfway between a Prufling and a Professor. The original scheme was to tow the machine from a winch mounted on two wheels, with a man facing backwards behind the winch, with a car towing the whole outfit. The idea is that the man watches the glider and pays out cable according to his estimate of what the pilot of the glider is able to do.

Somehow the winch went wrong, so the glider was towed with about 500 feet of wire cable direct to a car very skilfully driven by Mrs. Green. The nose of the glider is fitted with a quick-release gadget so that the pilot can release the glider from the tow rope at any moment.

Mr. Lowe-Wylde was towed to a height of somewhere about 300 feet before cutting loose and he then made a wide circle and landed quite close to his starting point. In the course of the afternoon Colonel the Master of Sempill, Air Commodore J. G. Weir, Mr. M. L. Bramson and Mr. E. C. Gordon England all made experimental flights. Incidentally this was the first occasion, if one excepts one flight on a Zogling at Guildford at the first meeting of the London Gliding Club, on which Mr. England had handled a glider, or any other sort of aircraft, himself, since his nearly fatal crash at Itford in 1922. Mr. Bramson also made his first attempt on a glider. He went up to about 200 feet, remained in the air for 1¼ minutes, and landed after making a complete circle.

This is evidently the only sensible way of practising gliding. By this method people can be towed in any direction of the wind, or with no wind at all, and when they are advanced enough in skill they can then go to the tops of hills and practise proper soaring. It completely does away with all this ridiculous aerial tobogganning which wastes so much time, and costs so much heartburning about who has got to do the work of pulling and who is to have the pleasure of gliding. Also it abolishes completely one of the worst features of catapulted gliding, namely, the "blacking out" of the pilot's vision by the first shock of the catapult. Gliding people will do well to remember that in catapulting the maximum shock comes at the moment of launching, which is silly.

In towed gliding the pupil can definitely learn something about real flying—even if he or she never gets to the stage of Kronfelding.—C. G. G.

SAILPLANE CONSTRUCTION.

If the number of people who have written, and who continue to write, to THE SAILPLANE about the construction of Sailplanes and Gliders, turn up in force at Herr Lippisch's lecture, the hall will be crowded out. Herr Lippisch is well-known as the designer of the *Wien* and *Fafnir*, as well as the *Zogling*, *Prufling*, *Professor*, *Storch* and numerous other types. He is to lecture before the Royal Aeronautical Society on Jan. 29 at 6.30 p.m. This lecture is to be held in the Lecture Hall of the Royal Society of Arts, 17, John Street, Adelphi. Visitors are admitted on signing the visitors' book in the hall.

A NORFUL TRAGEDY.

There was a young lady called Norah,
Who snored as she soared on a soarer.
On a lone highland moor,
There's a trifle of gore,
And the world is a Norah the poorer.

E. M. W.

AUTO-TOWING.

Once Again the

B.A.C.

Leads the Way.

The British Aircraft Company—Pioneers of Motorless Aircraft construction, Producers of the first and the only All-British Gliders, and on whose machine the first "A" licence was won—

HAVE AGAIN TAKEN THE LEAD.

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is being arranged. See it and judge for yourself.

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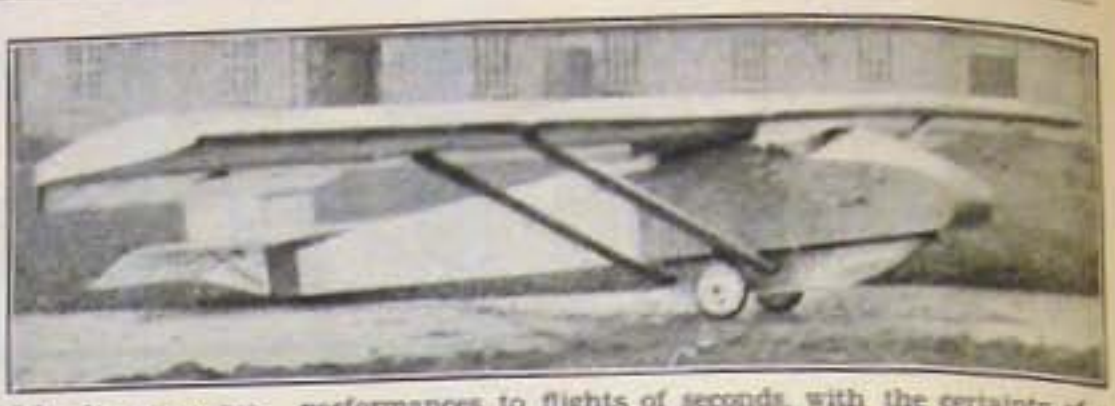
MAIDSTONE.

General Manager . . C. H. LOWE-WYLDE.

AUTO-TOWING

By

C. H. LOWE-WYLDE,
A.F.R.Ae.S.



The Gliding Movement in the British Isles is a very big thing when one considers its comparative infancy, and this very fact makes it all the more necessary that every possible care and forethought be exercised during its nurture. The number of people whose enthusiasm has caused them to take a practical part in the sport of Motorless Flying is really immense, but there is more than a little danger of us losing a lot of their support this year simply on account of the extremely hard work involved generally, punctuated only by flights of a matter of seconds.

This hard work has four main causes:—

(1) Ground obstructions in and near towns necessitating the use of a site some considerable distance out in the country.

(2) Lack of proper accommodation necessitating assembling and subsequently dismantling the machine for each meeting.

(3) Having to haul the machine again and again uphill to the starting point.

(4) The all too-frequent breakages, causing long hours to be spent in the workshop, repairing the machine.

Were we all skilled and using high performance machines, the derogatory effect of every one of these points would be mitigated, but we are not and the question of training the beginner is one of the most important problems to be faced.

Consider the formation of the average Gliding Club! A set of enthusiasts, having banded themselves together, secure a training type machine and the use of the nearest and most suitable site obtainable locally, and commence operations. The novelty of Gliding, combined with a certain amount of boost from the local Press, always ensures the attendance of a crowd during the first few meetings, when many able and willing helpers think little of continually launching, then retrieving the machine; but shortly after the Club has seriously settled down to training work, the difficulties of always having sufficient people on hand to share out the work shows up. Moreover, it is of no avail saying that the cold weather keeps people away now, as those very people, while perhaps attending summer meetings, find it too hot to run about.

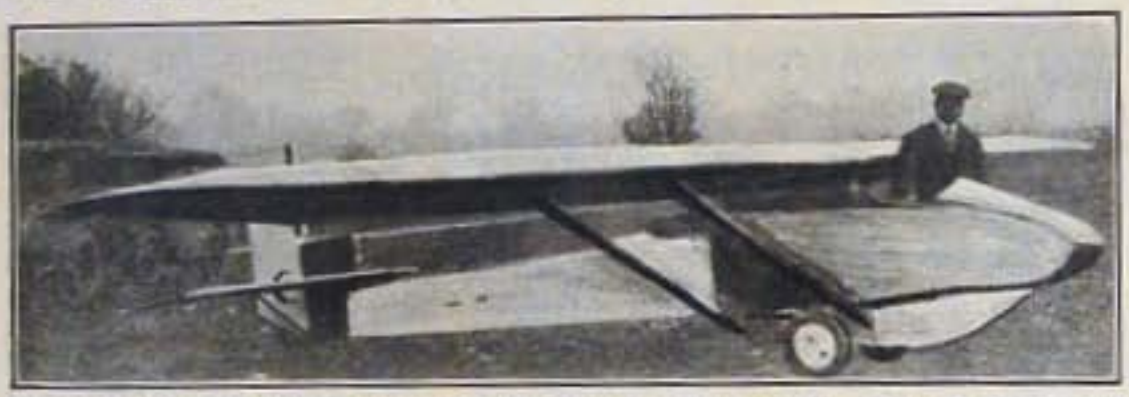
The next difficulty is a more serious one. During the initial meetings one can always be sure of having a few power pilots (or ex-pilots) with experience, and they invariably perform well on the machine. Generally, their assistance as Instructors is secured, but, unfortunately, there are many instances of the loss of their subsequent support, merely because site and type of machine conditions limit performances to flights of seconds, with the certainty of a disproportionate amount of hard work. The support and assistance of these people is of inestimable value to the Gliding Movement, and simply must be retained.

Auto-Towing, if properly carried out, is offered as a means of alleviating all these ills. By its use, training can be a safer, cheaper and more certain operation, while the performance of the more brilliant individual need not be so limited.

Let it be immediately emphasised, however, that there are many potential dangers of accident and/or damage, and the use of an ordinary training machine embraces most of them, but on the other hand, the whole operation can be more precisely calibrated and regulated. The use of the elastic rope and team to ground-slide a pupil often causes a lot of superficial damage to the wings and skid, and one is never certain that on the first occasion the pupil is catapulted into the air, he will be so astonished as to lose all idea of his past lessons and, acting on an impulse, may crash the machine. Flying is not, and never will be, a natural exercise of Man, and even the most methodical and phlegmatic individuals frequently fail on being suddenly hoisted into the air and then faced with the necessity of performing certain physical actions simultaneously in three directions.

Assuming, however, that both machine and pupil survive the ground sliding stage, the flights from a slope are nearly always of very short duration because of the paucity of really good primary training slopes. With luck, the total time in the air may only approach five minutes per month. The value of these flying lessons is very questionable, when the high degree of risk of serious damage to the glider is considered. Again, all this business holds up the advance of the brilliant members, because primary training machine costs, and upkeep generally, preclude any chance of a better machine being acquired for a long time.

As a result of visiting a large number of Clubs, some of them in the more densely populated parts of the country, where one would expect them to be stronger, numerically and financially, the British Aircraft Company's demonstration pilot immediately realised that the enumerated difficulties of Primary Training bade fair ultimately to kill the Movement, unless some easier means were found, and, as a direct result, experiments were commenced with a view to investigating a means of training, free from worries on questions of slope, wind direction and high probability of damage. A short description of this may be interesting



The top picture shows the first attempt, which was a B.A.C. III on wheels. The picture on the left shows the next step, a B.A.C. IV on wheels.

The winch which is towed behind the car and on which the instructor sits. In the distance is the B.A.C. IV.

[We regret that the pictures are not better, but they were taken, and kindly sent us, by an amateur.—Ed.]



FIRST EXPERIMENTS.

Initial attempts were made with an ordinary training type machine and dropped for reasons which are enumerated below.

In auto-towing, an appreciable time elapses between the start and attaining sufficient speed for the machine to be controllable laterally, during which the machine may drop one wing-tip on the ground where it is liable to damage. This may also cause a swerve when the occupant may slide out of his seat and get his ankle under the skid. Should this happen, it is impossible to stop the car before damage occurs. Should there be little or no wind, it is not possible for an assistant to run far enough at a high enough pace to support the wing-tip until control speed is reached.

Further tests of this nature were abandoned, and a standard B.A.C. III machine was fitted with a pair of light aeroplane wheels, so as to give a few inches ground clearance under the skid, and thus make the machine laterally stable while running over the ground. Handling this machine incidentally, made one realise how much easier it was to handle than when on a skid, one person only being necessary. The next difficulty experienced was in connection with the hook on the nose of the machine to which the cable was attached, it being found that it was easy to let the machine slightly over-run the car, when the ring dropped off, and prematurely ended the flight. At the same time, it was clearly necessary that it be possible to unmistakably drop the cable at will, therefore a good quick-release was produced and fitted, which would release at any angle and under a small or great load, with certainty.

Further experiments were carried out at Eastchurch Aerodrome, first down the tarmac, using about 70 yards of light, steel cable, approximately 0.08 inches in diameter, and subsequently across the Aerodrome, using about 150 yards of cable. The advantage of using the tarmac, as expected, was clearly demonstrated; the car and machine accelerated easily and quickly, and, shortly after the take-off, the machine rapidly climbed to about 80 feet. The Aerodrome run did not give such an excellent result as the car was only able, with difficulty, to keep going.

Results up to then, however, showed that the angle of incidence of the wing when the machine was at rest was insufficient and necessitated an unduly high speed for taking-off, with resulting high landing speeds. The wheels were therefore moved downwards and forwards before the next tests took place at Detling Aerodrome. These were witnessed by Captain Needham of the B.G.A. Technical Committee. The machine now took-off much more easily and could be landed at a very slow speed indeed. The wind on this occasion was about 12-15 m.p.h., and the car speed 25 m.p.h.

FLYING IN CLOUD.

With a view to further progress, more cable was paid out and full advantage taken of the entire length of the Aerodrome. A considerable amount of rain had fallen, a further storm was approaching, and as this Aerodrome is situated on the top of the North Downs, outside Maidstone, the clouds were only about 100-120 feet high when the machine was taken-off. Climbing steeply, the ground and car were soon lost to sight and when it seemed that the machine must have climbed as high as the cable would safely allow, the release was operated and a sharp 180° left-hand turn commenced so as to get back into the Aerodrome. Gliding at what seemed the correct speed, the machine came within sight of the ground about three-quarters of a mile behind the car and at a height of about 80 feet. Gliding in over the fence forming the leeward boundary of the Aerodrome, a landing was made approximately on the spot from which the flight had commenced: the time occupied being 68 seconds from the moment of releasing. It was immediately realised that here was the ideal training method.

Car-driver and pilot only were required to launch a machine for a circular flight right around an aerodrome of moderate size, occupying a period three times as long as many a Club member experiences, without involving a lot of hard work in getting the machine back again.

The site of the next tests was Hawkinge Aerodrome. Using about 250 yards of cable and carrying a small altimeter, the machine reached a height of 350 feet before releasing the cable. The entire length of the Aerodrome was covered about 30° out of down-wind, a farm was crossed outside the Aerodrome and a landing made again just where the flight had commenced. After further flights of this nature, training was given to a pupil with some little knowledge of aeroplane control, but without actual experience. A run was made into the wind, just below the flying speed of the machine to test the result of the verbal explanation of the controls. It may here be stated that soon after the machine commences to move there is a tendency towards directional oscillation, and this may last until flying speed is reached. An excellent opportunity is presented to observe the ability of the pupil to keep the machine straight and whether he tends to over-control.

In view of the fact that the original landing skid is still



The B.A.C. IV in the air.

"in situ," it is permissible to have the wheels further back than on a normal aeroplane with the advantage that while it is very difficult to turn the machine over on its back, forward pressure of the control column will press the front portion of the skid on to the ground so as to quickly stop the machine in case of emergency. In addition, the tail is so light that longitudinal and directional control is reached at a very low air speed. Therefore, on this initial run, the pupil was instructed to keep the machine straight and to run along the ground with his tail up and the fuselage datum approximately horizontal. This he satisfactorily accomplished, therefore a second run was made 5 m.p.h. faster. The machine gently accelerated until it left the ground, flew at about 3 feet, then made a normal landing when the car was slowed up. These runs represented the stages that have to be covered in the training of every *ab initio* pupil, yet were accomplished with far less risk to the machine and in a manner more likely to leave the beginner at ease and without fear of his losing confidence.

TO BE AVOIDED.

(1) Don't use an open Primary Trainer.

(2) Don't omit to have an efficient cable release at both ends of the cable. With the ordinary type of launching hook on a training machine, it is possible for the ring to twist back if the cable slackens, when it will be impossible to detach it.

(3) Don't travel at too high a speed. Ascertain accurately the speed of the wind and subtract it from the flying speed of the machine used. This will give the towing speed of the car in order to get the machine off.

(4) Don't attempt it on a machine with one track, i.e., a Skid.

(5) Don't fail to have an experienced pilot instructor accompanying the car driver and directing operations.

(6) Don't forget that immediately the machine commences its climb its air speed rises because the length of the inclined path is greater than the distance travelled by the car in the same period of time. A slight deceleration of the car, depending on the angle of climb, is permissible if done gently.

A WINCH USEFUL.

The next step is the construction of a winch, fitted with an efficient brake and a seat for the operator, sitting and facing rear towards the machine. By this means, it is hoped to be able to reach very high altitudes by starting off with a short cable so as to give the car the advantage of the greater length of run available, and paying it out as the machine climbs at such a rate as will prevent the increase in air speed that is felt as soon as the machine leaves the ground.

Investigation of Instruction by Auto-Towing should make it possible for Clubs operating in flat districts with an efficient machine to reach the underside of the cloud

strata where free soaring and cross-country flights should become possible.

THE ADVANTAGES.

The whole advantages to the present Club Movement are worth reiterating:—

(1) The machine can be towed at such a speed that, while it is impossible for it to take-off, the pupil can thoroughly learn the use and operation of all controls, and therefore should never leave the ground until he has mastered them.

(2) The considerable reduced risk of damage to the machine justifies the purchase of a better one.

(3) The use of the more efficient machine permits training to be carried to a more advanced stage.

(4) The pilot members of a Club find operations altogether more interesting.

(5) The shock, or surprise, associated with catapult launching is entirely eliminated.

(6) Sites are easier to find and can often be located nearer a Town.

(7) Very little hard work is involved.

(8) A minimum of three persons including the pupil, or pilot, can carry on training.

(9) Flights of longer duration without flying off dangerous eminences or gaining great altitudes are possible.

(10) Gliding becomes independent of wind direction.

(11) The whole process can be properly reproduced under accurate conditions, as the speed of the wind and car can be measured, while the exertions of a launching team cannot.

(12) The requirements of a "B" licence can be complied with almost anywhere, instead of, as at present, on only a few suitable hills in the country.

(13) Soaring and cross-country flying is ultimately brought within the reach of almost every Club.

To sum up, it is definitely suggested that, in auto-towing, we have the solution of all our difficulties in *ab initio* training, whereby time, money and enthusiasm are conserved for the propagation and perpetuation of the Gliding Movement.

FOR SALE.

£45.—Second-hand Dagnall A.T.1, in first-class condition. C. of A.—R.F.D. Co., 17, Stoke Road, Guildford.

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—*Morning Post.*

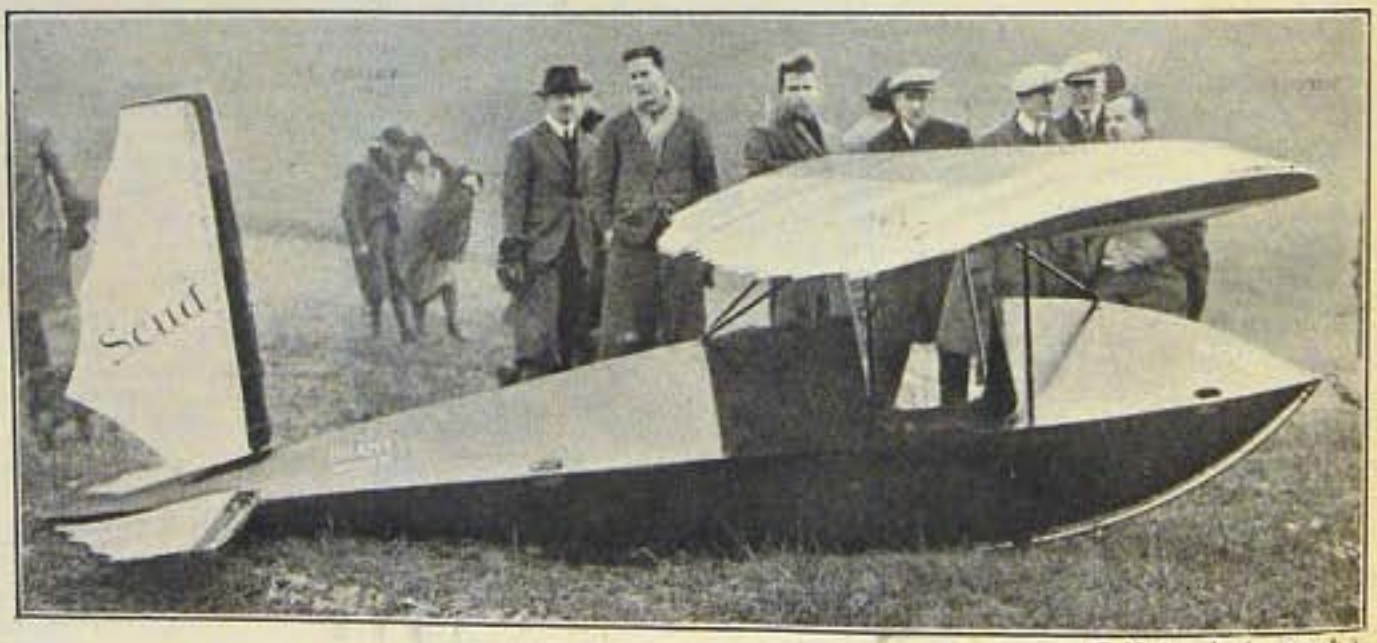
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"A most useful book . . . it ought to have a stimulating and strengthening effect on the whole Gliding Movement in England." —*The Sailplane.*

Illustrated prospectus sent free.

JOHN LANE THE BODLEY HEAD LTD., VIGO STREET, W.1.

THE BRANT "SCUD."



—(*L.N.A. photograph.*)

On Sunday last, Jan. 11, a new British engineless aircraft was tried out. One hesitates to apply any of the existing phrases to it, as "glider," normally speaking, is used to describe machines of the primary training type, and "sailplane" to engineless aircraft whose sinking speed is lower than .8 m. per sec. (2.6 ft. per sec.). This machine is called the *Scud*—and certainly looks it. The constructors are Brant Aircraft Ltd., Waddon Aircraft Factory, Croydon.

The *Scud* was taken up to Totternhoe and there tried out by Mr. Marcus Manton, and afterwards by Mr. Latimer Needham. Mr. Manton's first flight was a surprise to everybody. The *Scud* is remarkable for its extremely low weight, about 104 lbs. empty, which is just about half that of the Prufling. Mr. Manton put two men on each rope and was shot about 300 yards! Whether this extended flight was due to flat gliding angle, or rapid acceleration obtained from its low weight, nobody is sure, least of all the designer, Mr. Baynes, who believes the machine to have an angle of about 1:16. Anyway, the wing section used has a remarkably good lift coefficient, with the result that although the machine is heavily loaded, about 3.1 lbs. per sq. ft. with a 160 lbs. pilot, yet it lands and takes-off at low speeds.

The tests showed that certain alterations were required to obtain adequate clearance for the feet on the pedals and that the stick wants lengthening; the gearing to the elevators will also be lowered. The aileron control is reported to be particularly good, which is a relief after the somewhat sluggish movements of some existing types. The machine will be flight-tested by the London Gliding Club again next Sunday.

The whole conception of the *Scud* is novel. It is a parasol cantilever monoplane with the wing in two parts. These two parts are joined together before erection on the machine to which it is attached by four bolts. These bolts fix the wing to a structure of steel tubes. The wing has a modified Göttigen section and is covered with plywood over the leading-edge on both sides to the rear spar. The trailing-edge is a cord. This wing is noticeably rigid. The ailerons, which have a very narrow chord, extend nearly the whole length of the wing.

(*To be concluded next week.*)

NEWS FROM THE CLUBS.

WHERE GLIDING CAN BE SEEN.

Beds.—The Bedford Gliding and Flying Club. Week-ends at Wilstead Hill, 5 miles from Bedford on Bedford—Luton road.

—The London Gliding Club. Meeting place, Turveys Farm, near Totternhoe, on Saturdays and Sundays.

Dorset.—The Dorset Gliding Club, at Chickerell, Weymouth.

Edinburgh.—The Edinburgh Gliding Club. Sundays, at West Craigs Farm, between Corstorphine and Turnhouse Aerodrome.

Glam.—Merthyr and District Gliding Club. Sundays, 10 a.m. to sunset, 1-mile left Dynevor Arms, Merthyr Tydfil—Swansea Road.

Herts.—Herts. and Essex Gliding Club. Sunday afternoons, Eastern Roadways Garage, one mile north of Stortford.

I.O.W.—The Isle of Wight Gliding Club. Whiteley Bank, near Godshill. Every Sunday from 11 a.m.

Kent.—Channel Gliding Club. Adjoining Hawkinge R.A.F. Aerodrome, 2 miles from Folkestone, on main Canterbury road. Every Wednesday and Saturday afternoon and all Sunday.

—North Kent Gliding Club. Saturdays 1 p.m., Sundays 10 a.m. Joyce Green Aerodrome, near Dartford.

—Kent Gliding Club. Week-ends above Lenham, on the Maidstone—Ashford road.

—The Isle of Thanet Gliding Club. Saturdays and Sundays from 2 p.m. Manston Aerodrome, Thanet.

Lanark.—The Glasgow Gliding Club. Barrance Farm, Easter Whitecraigs, near Glasgow. Every Sunday from 11.15 a.m.

Lancs.—The Furness Gliding Club, at Gleaston Park Farm, Gleaston, near Ulverston (midway between Gleaston and the Coast road), every week-end.

—The Stockport Gliding Club. Every Sunday afternoon at Woodford Aerodrome, Manchester.

—The Preston and District Glider Club. Week-ends at Beacon Fell, 2 miles from Inglewhite and 7 miles from Preston.

Staffs.—The North Staffs. Gliding Club. Week-ends at The Downs Banks, Barlaston Downs, near Stone, Staffs.

Surrey.—Surrey Gliding Club. Every Sunday, if weather permits, at Lockner Farm, Chilworth, near Guildford. 10 a.m. to sunset.

Sussex.—Sailplane Club of T.M.A.C. Horton Farm, Smalldole, near Steyning.

—Southdown Skysailing Club at Ditchling Beacon. Sundays, 10.30 a.m. till dark.

—The Worthing and District Gliding Club. Wednesdays, Saturdays, and Sundays, at High Titton, second turning to left going from Washington to Storrington.

Warwick.—Rugby District Gliding Club. Cote Hill Aerodrome, Husbands Bosworth, Rugby.

Wilts.—The Wiltshire Light Aeroplane and Glider Club at Easton Hill, Alton Priors Range, Bishops Cannings, near Devizes.

Worcs.—North Cotswold Gliding Club. Every Sunday at Fish Hill, above Broadway Village, from 10 a.m. to sunset. Saturdays and Wednesdays from 2 p.m.

Yorks.—The Bradford Gliding Club, at The Pastures, Apperley Bridge. Saturday 1.30 p.m., Sunday 9 a.m.

—The Huddersfield Gliding Club. All day every Sunday at Bradley Bar, Huddersfield.

—The Leeds Gliding Club. Week-ends at Warfedale with the Harrogate Club.

—The Scarborough Gliding Club. Every week-end at Flixton.

[Clubs are invited to send in full details as to where and when they can be seen at work. This feature should help Clubs considerably as readers who are not members can go to look at the nearest local Clubs and see which they like.—ED.]

THE BEDFORD GLIDING AND FLYING CLUB.

This week-end, Jan. 10 and 11, we reluctantly said good-bye to Mr. Lander's Gliding Ground, but before leaving we managed to get in a few flights from the top.

The Club Captain, Mr. Lingard, had a good launch into a moderate breeze blowing up the cliff, but when he overshot the area of "lift" he found that descent was fairly rapid. Seeing that it was impossible to clear the high trees about 250 yards out from the base of the cliffs, he very neatly turned half-right across wind and then, turning back into wind, landed nicely on the safe side of the trees, the time being 28 seconds.

The Vice-Captain, Mr. Bevan, put up a really good 42-second flight and handled the R.F.D. machine in an able manner. He had a good launch off the top and the wind, which had freshened considerably, gave him a good lift as he reached the edge. He took the machine right out and up over the valley, and after 42 seconds of skilful handling, which we all appreciated, he landed well clear of the trees in the field beyond.

The weather then broke, and after dismantling and packing our machine in the lorry, we set out for home, thus concluding a very happy and instructive visit.

The steel pins, with washer and split-pin, which we have been using instead of the usual bolt and nut on the main planes of our "Dagling," saved much time and trouble in assembling and dismantling.

THE FALKIRK AND DISTRICT AVIATION CLUB.

The Falkirk and District Aviation Club curtailed its activities at the festive season, but met on New Year's Day for gliding practice, the regular week-end gliding being cancelled for the week-ends before and after New Year.

Some major damage done to the machine, involving a broken king-post and skid, has been very creditably repaired by the Constructional Section of the Club.

On Jan. 5 Mr. J. K. Macintosh, of *The British Gliding Association*, addressed the Club on prospects for 1931, and laid before the members for their consideration some very important and useful suggestions for the advancement of gliding in Scotland during the New Year. Two films of gliding done by other Clubs, kindly lent by Mr. Macintosh, were displayed, the Club being fortunate in having a member, Mr. T. Graham Marr, who is prepared to loan and operate his Pathescope projector at Club Meetings.

Regular Club and Flying Meetings have again begun and Club members look forward keenly to the gradually lengthening days when more and better gliding can be done.

THE LONDON GLIDING CLUB.

The last two months of 1930 were a period of increased activity for the Club, and by careful organisation the average number of flights per day was only slightly lower than during September and October in spite of the shorter hours of daylight. Considerable enthusiasm was shown for the Dagnall Prize, for which we claim a score of 17, which will, it is hoped, give us a sporting chance, and the official results are awaited with considerable interest. In addition to this, no less than six members have completed the two qualifying flights for "B" Certificates and should have no difficulty in completing the tests. Five of these are *ab initio* pilots trained exclusively by the Club. The last day's gliding in 1930 was Dec. 29, and the year was brought to a fitting close with a fine soaring flight by Capt. Needham on the Club Prufling, who soared along the ridge adjoining the Club ground for six minutes, finishing off with a quite voluntary landing at the starting point, when it was almost dark.

In accordance with our normal maintenance policy, all the Club aircraft have now been completely overhauled and recovered, and all is now in order for what is expected to be a very busy year. Apart from the flying side of the Club, there has been considerable activity indoors, and the first three lectures of the winter series have been well supported and our somewhat bold policy in this direction has been fully justified. We are particularly indebted to Capt. Hill, Sir Gilbert Walker and Mr. Gordon England for their whole-hearted co-operation and support in this direction.

Another recent innovation has been the formation of an advanced group (membership confined to members holding an "A," "B" or "C" Glider Pilot's Certificate). This group met for the first time on Jan. 4, when a mechanical method of returning the machine to the starting point was introduced with great success, and enabled an even greater number of long flights than usual to be made. Six of these were of over one minute's duration, and a particularly fine flight was made by Mr. Humby, an *ab initio* glider pilot who soared for two minutes on the Dagnall A.T.1 in a comparatively light wind. The next fortnight should enable all members of the advanced group to obtain their "B" Certificates, and it is hoped to provide this group with at least one high efficiency sailplane very shortly. Yet another excellent day's gliding was had on Jan. 11, and flights of over one minute on the Club Zogling were the order of the day.

Owing to the very rapid progress which has been made within the last two months, there are now a considerable number of vacancies in the instructional group for persons with or without previous aviation experience, and those interested should write to the Secretary, The London Gliding Club, Empire House, St. Martins-le-Grand, London, E.C.1 (Telephone: National 8682) for particulars.

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THE LONDON GLIDING CLUB: HARLINGTON GROUP.

It was getting on for lunch time on Jan. 4 before Mr. Elliott made the initial flight of 45 secs., as chains are a *sine qua non* on the fields, which are very soft, and so some considerable time always elapses before Mr. Allan's car is ready to tow *Thistledown I* across the fields to the bottom of Streatley hill. A deep ditch has also to be negotiated by both car and machine, through a gap in the hedge, which is only just big enough.

After lunch Mr. Allan made two flights, one untimed and one of about equal duration timed at 50 secs. By this time the sun had begun to set and Mr. Lander made a flight of 32 secs. When the machine was once more at the hill top a yellow moon was shedding a rather deceptive light and a ground mist made visibility in the valley very poor. A red glow still tinged the western sky when Mr. Elliott took off and, once over the brow of the hill, found he could see nothing. Keeping a dead straight course he made a rather fast and unexpected landing in a ploughed field without doing any damage.

As the moon soon afterwards rose clear of the mist and shed a brilliant light on everything around, the Group decided to adjourn for something to eat and to telephone to their respective homes to advise their families of their intentions to continue gliding by moonlight. By 8.30 p.m. the machine was once more ascending the hill—much more slowly than earlier in the day!!

The moon, which had capriciously hidden her face behind a cloud most obligingly sailed out into a starlit void just as Mr. Allan was ready to take-off. A very steady flight of 46 secs. resulted and Mr. Allan reported visibility practically as good as daylight. This flight was followed by another by Mr. Elliott, who also reported excellent visibility.

After this flight the group (of five only, four Club members and a most hardworking visitor) were so exhausted that they could barely stagger up the hill for the final, and eighth, time. Mr. Lander wound up with a straight glide for home, which, thanks to the continued bright moonlight, was equally without incident—time 42 secs.

One cannot close this account without a word of appreciation of Mr. Pigott's hospitality. For many weeks now he has consistently invited all our group to tea after our day's sport was done, and it was thanks to an excellent a tea as usual that the group were able to carry on by moonlight without any additional food. When we finally called it a day, Mr. Pigott actually got up out of his bed and came down in his dressing-gown to insist on our all coming in for a drop of whisky, for which, since by that time a real crackling white frost was coating even our cars, we were more than grateful.

Some weeks ago we fitted an undercarriage to the machine which, in the course of one or two rather drifting landings, had got bent and required straightening. This undercarriage consists of two 18 in. cycle wheels fitted with side-car hubs as the standard cycle hubs were found to be too weak. The wheels are mounted on a tubular axle which, as now arranged, has an anhedral angle of about 2 in. at the centre. This angle is maintained by a cross-bracing of piano wire which forms the string of a bow as it were. The axle is located fore and aft by wire bracing and is attached to the skid by wire binding, at a point so far forward that when at rest the machine rests all its weight on the skid.

The whole arrangement is so flexible that both wheels can remain on the ground while either wing-tip also rests on the ground. Were it not for this a much stronger axle and wheels would be required.

The whole function of the wheels is to facilitate towing the machine on the ground, either when launching or when returning to the starting point. When landing on soft ground, if the machine has a tendency to nose over it rides up on the wheels. We find that even landing in plough there is no tendency to stop suddenly, whereas without the wheels we have had the machine nose over so far in soft ground that the hook ploughed a furrow. If anyone will raise the tail of a Prufling until the hook is buried in the ground they will realise that such a nose-over is no joke to the pilot.

This description may interest other Prufling owners since the fitting of such an undercarriage requires no structural alterations, the additional weight is only a few pounds and the added convenience in handling on the ground is amazing. With someone balancing the wing-tip it is quite possible to drag the machine on level ground single-handed, which will give anyone who has tried to drag a Prufling on its skid some idea of the remarkable reduction of friction which wheels effect.

On Jan. 11 the Group visited their Club's headquarters in order to inspect the Brant *Scud* and watch the tests. No gliding at Pigott's was attempted, but next week-end we have been invited by Mr. Ashwell-Cooke to bring our car-launching gear over to headquarters to give a demonstration and, if we can manage it, *Thistledown I* will accompany us.

[We imagine that the addition of a wheeled undercarriage will considerably increase the gliding angle of the Prufling and thus make its sinking speed even faster. Surely the scheme used by The Bedford Gliding Club of a wheeled launching trolley is better, even if one does nose over when landing in plough. Could not this nosing-over tendency be lessened by deepening the skid and so allowing a tail-down landing to be made?—Ed.]

THE NORTH COTSWOLD GLIDING CLUB.

The Evesham and District Popular Science Circle has always included in its winter programme a lecture by Mr. Horace Wright upon some branch of aviation, and as The North Cotswold Gliding Club, of which Mr. Wright has been the leading spirit, has established itself upon a healthy foundation since its inception a few months ago, the idea was conceived of making the occasion of Mr. Wright's lecture this year an opportunity to hold a family gathering of sorts to celebrate the achievements of the Gliding Club.

Therefore the members and friends of these two institutions assembled in the ballroom at the Northwick Hotel, Evesham, on Jan. 7 under the chairmanship of Mr. E. I. Bayford, M.Sc., to hear Mr. Wright read a paper on "Air Commerce and Sport."

Mr. Wright opened his paper with an interesting resumé of the position occupied by aviation in connection with the commerce of the world, and a general survey of the various branches of this important science and sport.

Mr. Wright then interrupted his talk to show a film of the Inter-Club Competitions at the Wasserkuppe last year. He then explained the technique of the science and sport of gliding and "historical flying" in the simplest possible non-technical language. Then came the reading of an article dealing with "Tracing the Air Currents at the Broadway Gliding Ground," written by Mr. Wright and published in THE SAILPLANE for Nov. 7, 1930.

Another short break in the lecture was made to allow the exhibition of a cinematograph film showing the first British inter-Club gliding contests held at Ditchling, Sussex, last year. Then a length of very "animated" pictures of operations at The North Cotswold Gliding School were shown. The favourable way in which the standard of the work at the school compared with what could be done by the experts shown in the previous pictures greatly pleased the audience.

Then the members of The North Cotswold Gliding Club and their friends of the Science Circle adjourned for supper, at the conclusion of which Mr. John Whitehouse, the chairman of The North Cotswold Gliding Club, proposed the toast of the King, which, having been duly honoured, he called upon Mr. Horace Wright, as a member of the Council of *The British Gliding Association*, to present Miss Katrine Alexander the certificate awarded to her.

Mr. Ernest Noble, in a humorous speech, presented, on behalf of *The British Gliding Association*, the certificate awarded to Mr. Horace Wright.

Mr. John Whitehouse presented to Miss Alexander the trophy which he had awarded in the shape of a silver rose bowl suitably inscribed with the record of her achievement.

After a few eulogistic remarks, Mr. Whitehouse then presented Mr. Horace Wright with a cheque subscribed by the members of the Gliding Club "in recognition of his services as their founder, secretary, instructor, ground engineer, guide, comforter and friend."

This was acknowledged in suitable terms, in the course of which Mr. Wright expressed his indebtedness for the generous support which had been accorded to him by every member of the Club, and special tribute was paid to Mr. and Mrs. Alan Butler, their presidents; Mr. W. F. Cotterell, of Happy Lands, whose magnificent generosity and sportsmanship had helped largely in bringing the Club into being; Miss Gwynedd Douglas-Jones for her very practical advice and assistance; Miss Evelyn Moore for the perseverance which she had shown, and which was now reflected in the high standard of her flying and technical skill; Mr. John Whitehouse for his generosity and collaboration in every matter connected with the founding and establishing of the Club; to Mr. Ernest Noble for his services as a very able lieutenant; and to the proprietors of *The Evesham Journal* for the valuable publicity given through their columns to all aviation matters during the last twenty years.

After which the party really got going, and not till the following morning did the party think about going home. But in spite of this the Club morale was unshattered and last Sunday three more "A"s were acquired, two of them by ladies.

THE SCARBOROUGH GLIDING CLUB.

The adverse weather conditions which appear to be attending the flight of the Club's Vice-President, Miss Amy Johnson, C.B.E., to Peking, were also responsible for a blank day at Flixton on Saturday. On Sunday, however, there was some improvement, and a few "Spartans" turned out.

In the absence of the Club's Instructor, Herr Magersuppe (in Germany), and Herr Groenhoff (now returned to Germany), and Mr. A. E. Thompson (in Switzerland), it was decided not to assemble the Dopplesitzer and Prufling, but to try out the reconstructed Zogling which was "piled up" by a visitor some weeks ago.

Mr. F. Slingsby (B), the Club's Ground Engineer, who was responsible for the re-erection, has introduced a novel feature in the shape of a short, deep-bellied, "bream-like" nacelle which encloses the pilot. It is hoped that the improved streamlining will give higher performance, perhaps soaring, in strong winds. Unfortunately, there was only a light westerly cross-wind on Sunday so the tests were not entirely satisfactory.

Mr. Barnes (B) started off with a nice little flight of 1 min. 25 sec., followed by Messrs. Slingsby (B) and Turner (A) with flights of from 45 to 50 secs. Several similar flights were made to observe the behaviour of the machine, whilst waiting for a fresher wind, of which there was every indication, coming from the North. Finally this wind came, but brought a soaking downpour with it, and there was no alternative but to dismantle and go home.—E. C. T.

THE SOUTHDOWN SKYSAILING CLUB.

On Jan. 11 The Southdown Skysailing Club was "gliding as usual" near Ditchling Beacon, thanks to the energy and enthusiasm of Messrs. Russell, Ely and S. Wood, who have had a busy week since last Sunday's mishap, when Flt. Lt. Leeroy Brown, the Club Captain, was injured.

The sympathy of all members is extended to Flt. Lt. Brown in his misfortune and we are glad to know he is progressing favourably.

Mr. C. C. Russell, acting as Vice-Captain, was in charge of flying on Sunday, and although the wind was in a difficult quarter some good glides were made as follows:—Mr. E. K. Robins 31 secs., Mr. C. G. Lawson 26 secs., and Mr. C. C. Russell 23 secs. Shorter glides were made by Dr. Hackworth, Miss Hackworth and Messrs. S. Wood, J. Robinson, S. Robinson, F. G. Leaney and C. King-Smith.

Again Miss Hackworth is to be complimented for making two remarkably good glides, showing excellent judgment and definite "air sense."

Printed for AERONAUTICS LTD., by BONNER & CO. LTD., The Chancery Lane Press, Rolls Passage, London, E.C.4; and Published by AERONAUTICS LTD., at Cannon House, Pilgrim Street, Ludgate Circus, E.C.4.

EDITORIAL AND ADVERTISEMENT OFFICES OF "THE SAILPLANE," 175, PICCADILLY, LONDON, W.1.
ACCOUNTS AND PUBLISHING OFFICES, CANNON HOUSE, PILGRIM STREET, LUDGATE CIRCUS, E.C.4.
Telephones: Editorial, Gerrard 5407; Advertising, Gerrard 6023; Publishing, Central 5822.