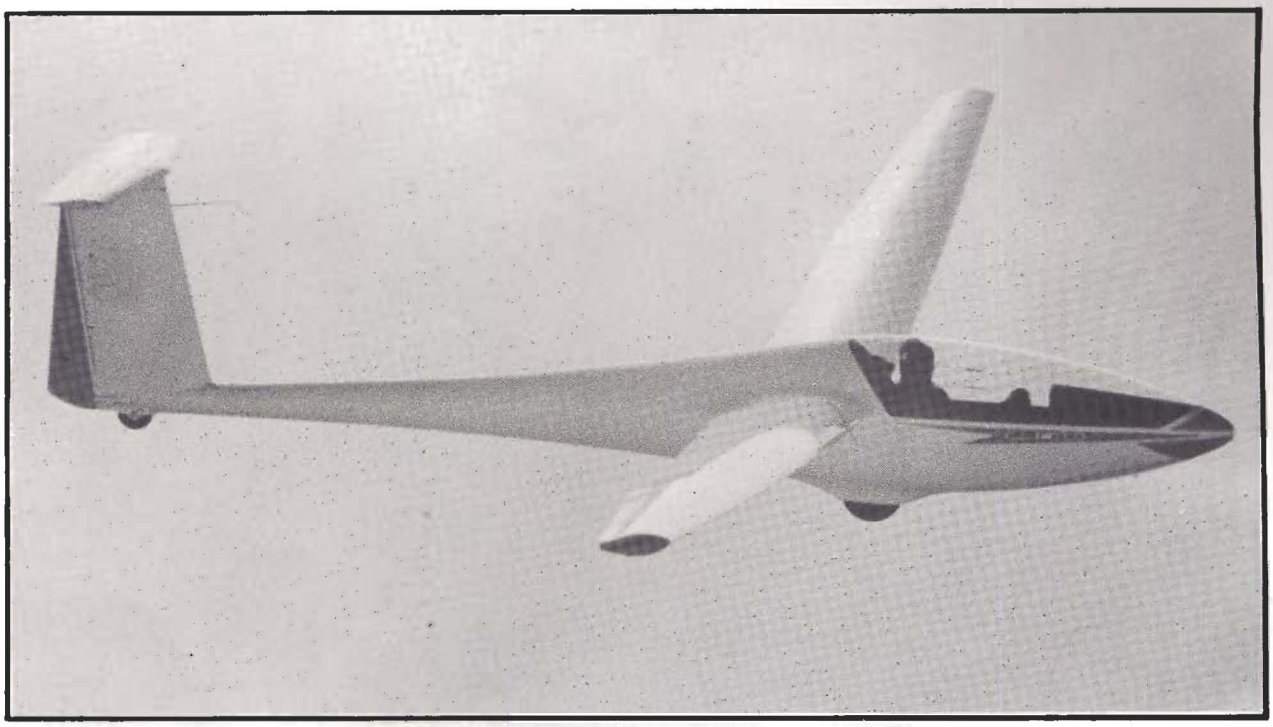
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February-March 1981 95p



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Magazine of the BRITISH GLIDING ASSOCIATION

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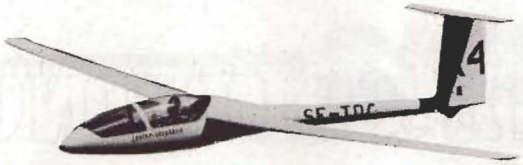
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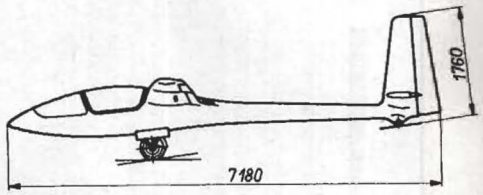
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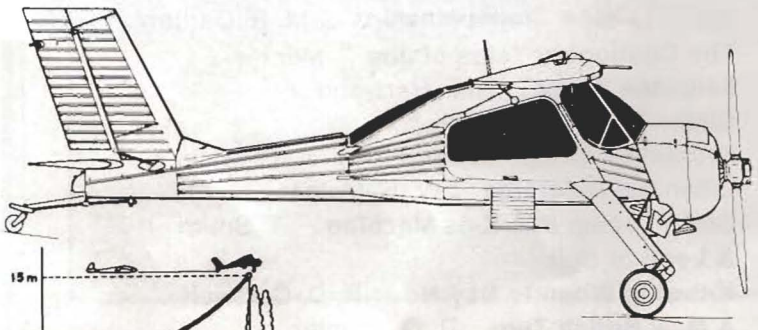
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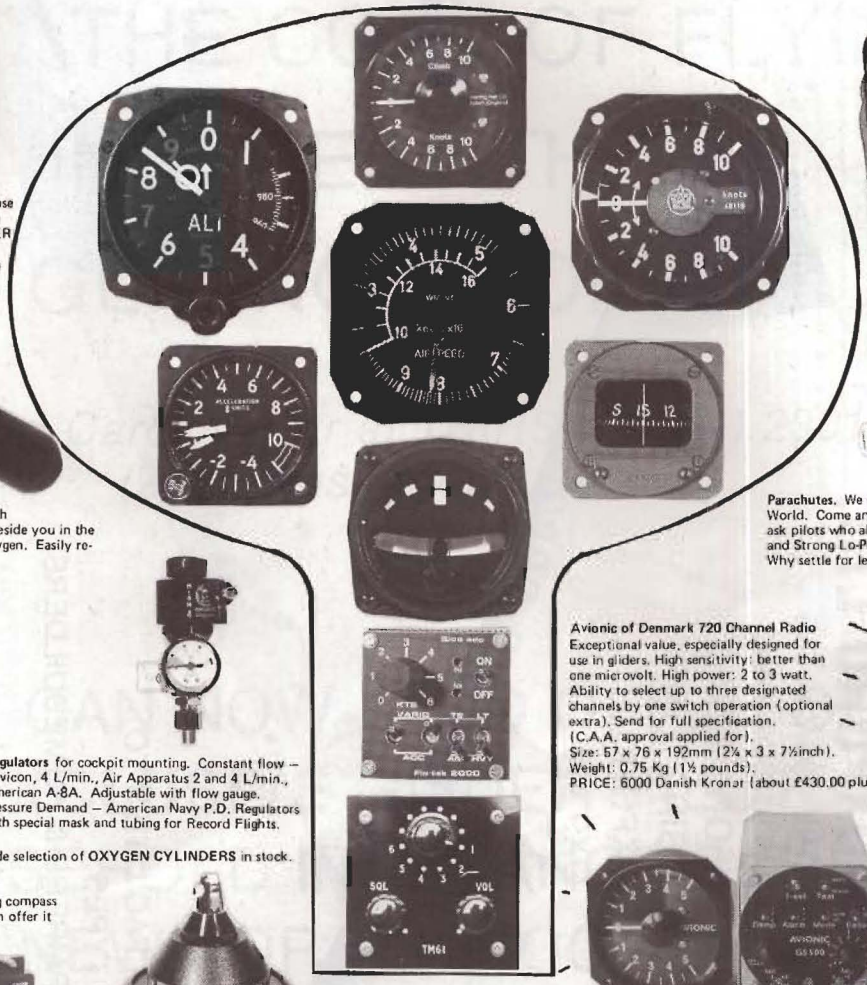
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THERMIC ROTOR — A SITUATION WORTH RECOGNISING

Henry M Pantin (HAMBLETONS GC)

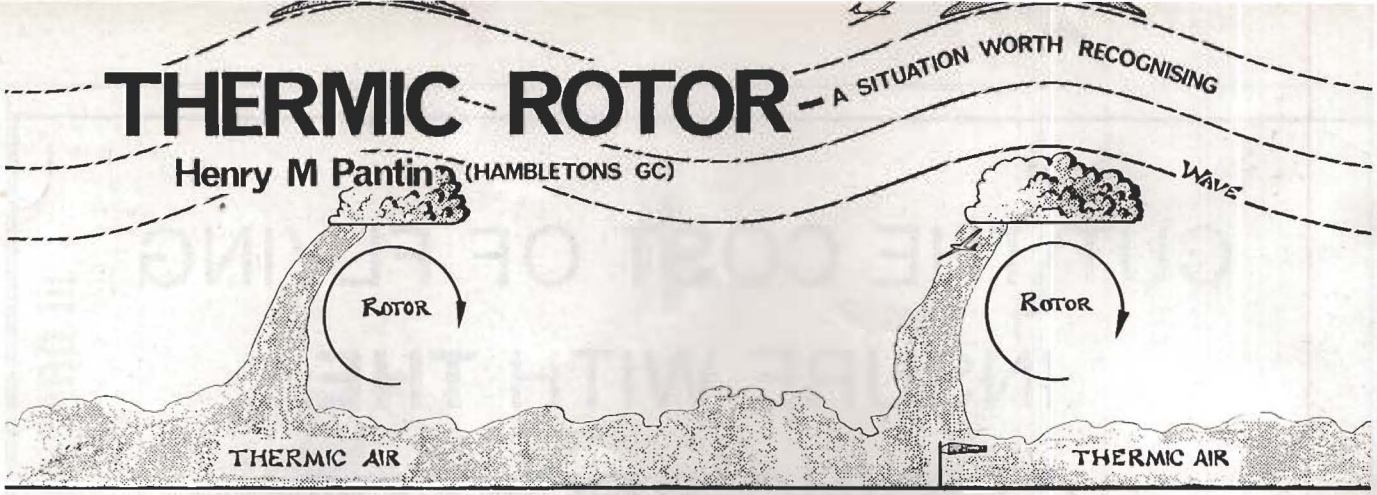


Fig 1. Incorporated in the heading is a diagrammatic illustration of a thermic rotor.

I was having a bad wave-day; that is, I wasn't getting any. I was a fairly early solo pilot, flying an Oly 2B, and a combination of lack of aircraft penetration, inexperience and sheer bad luck had caused me to miss the wave, three times running. Admittedly the day wasn't the easiest. The bottom of the wave varied from about 3000 to 4000ft, and the lowest layer of air, below the main temperature inversion, was thermic; the instability broke up the bottom of the wave, making the wave-lift itself difficult to recognise, and transforming the wave-bars into large, ill-defined areas of cumulus.

On the way back from my third aerotow, having been dropped too low and too far back from the leading edge of the cloud, frustrated and depressed, I found a thermal, or rather it found me. Four knots, nearly over the airfield, and still enough height to play with. Well this isn't wave, I thought, only a poor substitute, but I might as well stay off the deck.

This thermal was strong, surging, with narrow cores and I found some difficulty in staying with it. The ground wind was strong and I assumed that within a few minutes I would have to leave the thermal and fly upwind to regain the airfield. To my great surprise as I kept re-centring I remained approximately in my original position over the airfield. After about 20min I lost the thermal, couldn't find it again and assumed it had collapsed. I came in and landed but in view of the observations recorded in the rest of this article, I was probably wrong to give up so readily.

May have wider application

I ought to say at this point that all of my observations on thermic rotor have been made in the area near RAF Dishforth, although they cover both the normal westerly wave off the Pennines and the much rarer north-easterly wave off the Cleveland hills. It may be, however, that these observations have a wider application.

Rotor may be conveniently divided into three types, based on the soarable qualities of the rotor, or lack of them. Taking the latter variety first, we have:

(1) **Negative rotor.** This is the ordinary kind, very turbulent and gusty, with the downs bigger than the ups. In a glider, you come down slowly or quickly, depending on the local conditions.

(2) **Positive rotor.** This occurs when rotor merges with the lowest part of the wave (in the zone of lift). The situation is still very turbulent and gusty, but the ups more than cancel the downs. If you fly steadily into wind, easing back on the surges and pressing firmly forward (with increased speed) when the surges die, you will normally gain height and with any luck will arrive in the bottom of the wave itself within a few minutes.

(3) **Thermic rotor.** This occurs when rotor becomes involved with unstable air, somewhere between the ground and the bottom of the wave.

The symptoms may be described as follows. Strong, surging lift — 6kt is typical — occurs in narrow cores, often interspersed with patches of sink; normally the sink is fairly heavy but less strong than the lift. The period of the surges is in the region of 1-5min — they are vertical **squalls,** rather than gusts — but short-period turbulence is generally also present, and may be severe. The cores vary rapidly, both in strength and position; however, repeated centring, and observations on other gliders, show that the cores tend to remain in the same general area, say within a zone about one mile in diameter.

Too long for ordinary turbulence

The position of this zone is evidently determined by the airflow pattern of the rotors below the wave, and therefore by the wave itself, and ultimately by the obstruction causing the wave. The period of the surges is too short to represent the repeated generation of thermals by a specific heat-source on the ground, and for that matter too long for ordinary turbulence. The process evidently consists of unstable air being dragged up on the windward side of a rotor (see Fig 1), in the manner described and illustrated in Alcide Santilli's excellent article "Into Waves from Thermals", in the book **Advanced Soaring** edited by John Joss.

How can we be sure that thermic rotor isn't simply strong, well-organised positive rotor? First of all, thermic rotor occurs mainly during spring, summer, or autumn, when thermal effects would be expected; in fact, I cannot remember the phenomenon occurring during the winter (although I stand to be corrected about this). Secondly, ordinary thermals may show a transition into thermic rotor. For example, on one occasion, I was thermalling at about 1500ft near Dishforth when a light westerly started up. As I gained height the thermal became surgy but increased in strength. Fortunately I was well centred and continued to gain height rapidly. At about 4000ft the lift suddenly became smoother. I turned into wind, begun to S-turn and floated up to 5700ft in gentle wave (one of the other pilots made 10 000ft!). From these and other similar observations, it seems clear that thermic rotor is a very distinct phenomenon and not simply a type of positive rotor.

The highest parts of the surges in thermic rotor often reach the same level as the lowest part of the wave. This obviously makes it possible to thermal into wave by using thermic rotor, as indicated by Santilli. However, the actual process of thermalling into wave raises a number of questions, in particular for the early solo pilot.

"How do I know it's real thermic rotor? And what's more to the point, how on earth do I soar it? I'm tense and rather scared, and I'm overcontrolling. I can't centre properly, and



Henry, a marine geologist in the Institute of Geological Sciences (NERC), started gliding in 1965 in New Zealand and since 1970 has flown with the Hambletons GC at RAF Dishforth where he belongs to a Pilatus B-4 syndicate. He will be recognised by many as the 1976 Mastermind contestant who won the first round with gliding as his speciality. Henry lost the semi-final with another subject by one point.

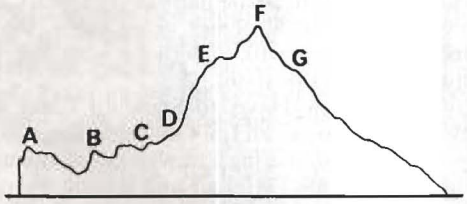
I'm afraid of spinning out when I hit the sink. There's four other gliders in this horrible thermal, and they rear up and down in front of me like yo-yos. I'm torn between wanting to stay up, and wanting to pretend I've lost it, and get away for some peace and quiet!"

The most important thing to remember is that in thermic rotor you do have to be thoroughly switched on. Every bit of airmanship you possess may be needed to soar thermic rotor safely and successfully. With the rapid relative changes of position of nearby gliders, combined with the difficulty of centring in the narrow cores, the situation is potentially dangerous and a good look-out is **absolutely** essential. Given this, the best method of soaring immediately after entering thermic rotor is to thermal it in the ordinary way, turning tightly with plenty of speed; easing back on the surges, pushing the stick firmly forward as you meet the sink, to avoid any possibility of stalling or spinning. Re-centring must be done, of course, with due regard to the existing positions **and the expected positions** of nearby gliders.

You will frequently lose an individual core but stay around in the same area, watch the other gliders and you will almost certainly find the lift again. When in doubt, press into wind. Persevere, keep soaring the cores as you find them and with any luck you will gradually accumulate height. After a certain point, say 3500 to 4000ft, the lift may gradually become smoother. When this happens fly into wind and reduce the speed somewhat. If the lift continues to be smooth you have probably contacted the bottom of the wave and you should then begin S-turning, or making small beats parallel to whatever ground feature causes the wave in your area. If the wave-lift remains smooth, you have got away and can begin longer beats located by ground features, according to the usual method.

The clouds at the top of thermic rotor often occur in a series of rolls, moving downwind, but sometimes take the form of a bap (= breadcake), circular in plan but lenticular in profile. If any clouds belonging to these two types appear above you or near you, fly under or alongside the leading edge.

Thermic rotor is sometimes arranged in streets, which may or may not produce clouds. In such a case, the wave-connection can generally be found at the windward end of the street, and attained by pressing steadily into wind along the streets, circling where necessary. Fig 2 shows the barograph trace of such a flight.



Trace of a recent thermal-into-wave flight, made on October 4, 1980, by the author at RAF Dishforth, in a Pilatus B-4. Cumulus and fractocumulus, ⅛ to ⅝, base 3500-4000ft, tops reaching about 5000ft. Wind about 310°, 10-15kt. A) Ragged thermals (following a 2300ft aerotow). B) Nearly fell out — regained altitude! C) Pressing into wind in thermic rotor, under a cloud street towards a blue hole. D) Contacted wave at windward end of cloud street at about 4000ft. E) Wave climb. F) Topped out at about 10 800ft. G) Wave collapsed, probably due to a slight veer in the wind (revealed by a stubble fire).

So if you are dropped in the region of thermic rotor, instead of being aerotowed straight into the wave, persevere. Thermal as well as you can, press into wind and above all keep a good look-out. As long as you can safely do so, keep trying, but don't become so engrossed in the situation that you lose the airfield or get too far away. One day when everything goes quiet with the vario steady on 4kt up and the rotor clouds diminishing below you, the turmoil of the previous five, ten or twenty minutes in thermic rotor will fade away, and you will find that thermalling into wave is even more satisfying than being aerotowed into it.

Acknowledgements. I would like to thank all those Dishforth pilots who contributed to this article by discussing their own observations of thermic rotor; special thanks to Jill Povall and Roger Burghall for reading through the text, and again to Jill for re-drawing Fig 1. □

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WORLD GLIDING CHAMPIONSHIPS

M. R. CARLTON, British Team Manager

By the time you read this, we shall be officially entered in the 1981 World Championships with a four man team comprising George Lee in the Open Class, Brian Spreckley and Bernard Fitchett in the 15 Meter Flapped Class, and Andrew Davis in the Standard Class. These last minute changes arise from the availability of new aircraft, particularly in the Open Class, and I am delighted to say that, all things being equal, the Team as restructured will be going to Paderborn with the very best equipment available at this time.

The move of Andrew Davis to Standard Class was made possible by the provision of an LS-4 through the good offices of Dick Sergeant of Speed Soaring Ltd who has also done sterling work in making available Dittel air and ground stations for all Team members to use at the Championships. I should like to extend my special thanks to Dick for his help.

Gliding is not the easiest of sports to "train" for, but Brian and Bernard are fortunate in being able to compete over Christmas in the South African Nationals. Brian will have the opportunity of flying a new Ventus there, and of course the marvellous South African weather will afford them both the chance of getting in some really good gliding.

Our other Team members are less fortunate on the training front, with George Lee doing a stint with the RAF in Germany, and Andrew Davis up in Shetland, neither place being particularly renowned for winter gliding. However, what they lack in flying practice they will obviously make up for in austere living.

It takes more than good pilots to win World Championships and I am pleased to report the addition of two very important ground staff to our team. Dave Paton has agreed to come along, no doubt suitably armed with sellotape and string, and, with his reputation for straightening out bent gliders in double quick time, he will prove a tremendous asset should anyone be careless or unlucky. Of equal importance, we have secured the services of Tom Bradbury whose reputation as our foremost "Metman" goes well before him. He is doing a crash course in German meteorology and should be as proficient in their clouds and weather as he was at Chateauroux after learning French.

An encouraging response

Whilst setting pen to paper, I should like to thank everyone who has helped in any way with our fund raising appeal. The response has been most encouraging, and the Team Fund Appeal now stands at £15 250. (By the way, if you haven't yet returned your stock sheet, could you please let us have it as soon as possible.)

In addition to the many club secretaries, club members and others who have helped with the promotional items, a number of people have made a noticeable contribution to the Team's affairs, and I should particularly like to thank Ray Ashurst who helped enormously with the printing side of things; Braydayn Limited who so kindly donated the holiday in Barbados won by John Hart; Andy Lincoln who spent many hours pouring over mathematical calculations trying to work out ASS scores; Jaspar Partington who did such a fine job on the artwork for our "team image"; John Delafield who has devoted a large amount of his time to wooing gliding manufacturers and the like; Cally Brailsford whose organisational abilities and other attributes have parted so many members of the movement from their loose change; Rika Harwood who obtained a house for use by the Team while at Paderborn; Caroline Kilner for making the Kitty mascot; Peter Fuller who designed the Kitty stickers; Cyril Whitbread of C & S Antennas for the generous provision of an excellent example of his company's merchandise and last but not least, Allied Breweries who, despite their quaint habit of wanting "ARCTIC LITE" emblazoned on everything, have proved to be everything a sponsor should be and without whose help the launching of any fund raising machine would have been very difficult indeed. □

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The Cautionary Tales of Joe 1. A Nice, Quiet Circuit

By MENTOR

The evening air warm but placid, a good wire launch in the K-8 and Joe settles down to a nice, quiet circuit. It's his favourite time of day. No sweat, no strain.

He enters the downwind leg up beyond the winch, enjoys the smooth ride down past the launch point and turns over the familiar clump of trees onto crosswind, allowing neatly for drift. Finals, a smooth approach and a well held off landing. The little glow of satisfaction. It really is quite easy!

And that's his problem! It's so easy that Joe doesn't even have to shift his brain out of neutral!

Brain disengaged

There are lots of Joes around, doing hundreds of circuits without incident. But every now and then a Joe gets caught out and can't find the mental gear shift. His brain stays disengaged!

Joe's logbook shows that he took rather more than the average number of flights to go solo. His progress was slow but steady. He flew with most of the instructors in the club and when it came to circuits he was a pleasure to fly with. He had a flair for nice, quiet circuits.

Too quiet! Joe wasn't getting the attention he really needed. No one thought to see how he would cope if his careful circuit plan was deliberately put awry. No one noticed that, in his quiet self-effacing way, Joe always drifted to the back of the training list and thus flew mostly in the evenings. He avoided the rough, tough days and his ability to transform the unexpected into the commonplace — his airmanship — wasn't developed. True, he did the customary cable break practices but at such a large airfield he coped with these more or less by rote.

But one day someone "up there" cheated and put a hefty down draught in his way just up beyond the winch and Joe, brain in neutral as had become his habit, didn't notice. He began to feel a bit close to the ground as he went past the launch point but he headed on for the security of his favourite clump of trees. He knew the way in from there, no problem. But his favourite trees reached up and claimed him and his nice smart K-8 became a bitsa!

Joe wasn't hurt, not much, but was puzzled and a little aggrieved at the unfairness of it all. Why, **he** had always done such **good** circuits! Everybody said so! □

SAILPLANE NEWS

RIKA HARWOOD



SFH-34 Delphin

The manufacturer Scheibe Segelflugzeugbau hope that with the SFH-34 they will provide an interesting competitor in the GRP two-seater market.

Design philosophy centred on a light-weight, manoeuvrable and docile glider which would be easy to handle on the ground and not take up too much hangar space — a glider ideally suited for training and club use.

According to a report by Gerd Stolle, who flew the second prototype on a number of occasions, the flying characteristics are excellent and the Delphin handles like a single-seater when thermalling. Rate of roll (45° to 45°) 4.5 seconds.

With a low empty weight and 15.80m span groundhandling is an easy task for two people. The low line of the fuselage and the side opening one-piece canopy makes access to either seat straight forward and the seats offer a high degree of comfort and are adjustable — the backs are also adjustable in flight, as are the rudder pedals.

Stall and spin behaviour is very docile and the machine recovers immediately when back pressure on the stick is released. The spring trimmer is effective from 35 to 92kt.

The top surface spoilers, although adequate on the prototype, are to be improved on the production machines. The Delphin has, however, excellent side-slipping qualities.

Technical data:

Span (m)	15.80
Wing Section	Wortmann 61-184 60-126
Wing area (m²)	14.8
Aspect ratio	17
Wingloading (kg/m²)	23.5-33.2
Best L/D at 95km/h	1:35
Min Sink at 74km/h (m/sec)	0.7
VNE (km/h)	250
Stall speed (km/h) approx	65

□

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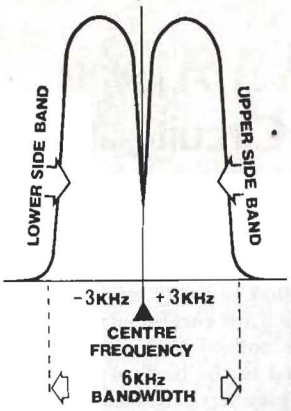
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Fig 1



GLIDER RADIO

THE TRANSMITTER

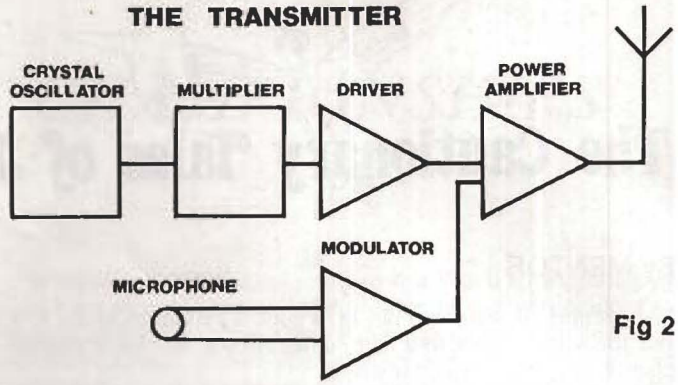


Fig 2

COLIN DEWS, **Chairman of the BGA Radio Committee**

With the introduction of 25Khz channel spacing in the aeronautical band and the almost certain probability that during 1981 the gliding movement will be assigned an additional channel (within the band 130.4-129.9Mhz) it will become increasingly important for us to use our radios efficiently and responsibly.

We shall need to consider very carefully how to make the best use of the assigned radio channels and also make sure that our radio equipment is performing correctly.

Perhaps the best place to start is at the beginning with some very basic radio principles before considering installations, licences, call signs and procedures. This first article has therefore been written for the reader with little or no knowledge of radio.

A Human Analogy. When we speak to each other as we sit in our living rooms or offices we use a system which is almost analogous to radio; we create sound waves through our mouths which are modulated by the vocal cords and the actions of the tongue and lips. These sound waves are transmitted through the air and a portion of this energy is collected by the ears of our listener. The ear drums detect the sound waves as vibrations and transmit these impulses to the brain. The greater the distance between the speaker and the listener the smaller the energy received by the ears of the listener.

THE RADIO EQUIPMENT

The Transmitter. The radio transmitter is basically a generator of high frequency alternating current. This current is fed into an aerial system enabling the current to oscillate up and down the aerial. The energy in the aerial produces an electromagnetic field which leaves the aerial in the form of electromagnetic waves. We refer to this energy as the carrier wave and it can be likened to the flow of the air through the throat and mouth of a person speaking. In order to make the radio carrier wave carry intelligence, we need to modulate it with an electrical equivalent to our vocal cords. Sound waves used for telephonic communication cover a frequency range of approximately 300 to 3000Hz and later we shall see the significance of keeping within this frequency range.

(Hz is an abbreviation for Hertz — the modern term for cycles per second.)

A microphone converts sound energy into its electrical equivalent and the composite waveform is amplified and applied to the radio carrier wave so that the carrier wave amplitude varies in sympathy, making an electrical copy of the speech both in intensity and frequency.

In this process a signal has been formed which contains the original carrier wave (centre frequency) but on either side there are now other frequencies of (centre frequency + up to 3000Hz) and centre frequency — up to 3000Hz). (See Fig 1). These two bands of frequencies are called "side bands". They are an inherent feature of amplitude modulation. If we add them together we get a total band width of up to 6000Hz. The loudness of the speech is determined by the height or depth of the modulation and the complexities of the speech frequencies are contained in the side bands.

If we consider a simple VHF transmitter in more detail we can represent the essential functions by a block diagram, Fig 2.

Because we need a very accurate source of radio frequency energy, we use a quartz crystal — this is a thin slice of quartz which behaves similar to a tiny high frequency tuning fork vibrating both mechanically and electrically. Like a tuning fork, it will only vibrate at its natural frequency and when used in a suitable circuit it will generate an alternating current at a frequency which will remain stable within a few Hertz.

The actual natural frequency of the crystal is determined by the physical dimensions, mainly its thickness — the thinner the crystal, the higher the frequency of vibration.

Because it is not practical to use a crystal which oscillates at VHF frequencies and to produce high power in one stage, it is usual to select a lower frequency for the oscillator and obtain the required VHF output at high power by using a number of multiplier stages.

Multiplier and Driver Stages. Current aircraft band transmitters (non-synthesised) may contain three stages of multiplication, multiplying the crystal oscillator frequency of, for example, 10 866667MHz, by x2, x3, x2, to give an input to the driver stage of 130.4MHz. This stage amplifies the signal and is connected to the power amplifier which energises the aerial.

Modulator. The power amplifier is also connected to a second unit called the modulator in which the speech input from the microphone is amplified. The modulator in effect varies the current supply to the power amplifier in exact accordance with the speech signals and hence produces a variation in the amplitude of the radio carrier, creating the side bands which carry the speech characteristics.

The Receiver. Under normal circumstances, our receiver will be accepting signals from a transmitter located many miles away and the amplitude of the signals we want to hear could be as low as one millionth of a volt (one microvolt). This signal will have been collected by the aerial in which there will also be present thousands of small oscillating currents induced from a variety of unwanted transmissions: TV, Police, taxis, sound broadcast and potentially 719 aircraft band channels. This collection of energy, the "wanted" and "unwanted" signals, will be fed to the aerial input of our receiver. Our receiver, therefore, has the task of selecting and amplifying only the "wanted" signal, and it has to amplify this signal several million times before it can be used to energise a loudspeaker.

In fact our receiver has to perform three separate functions.

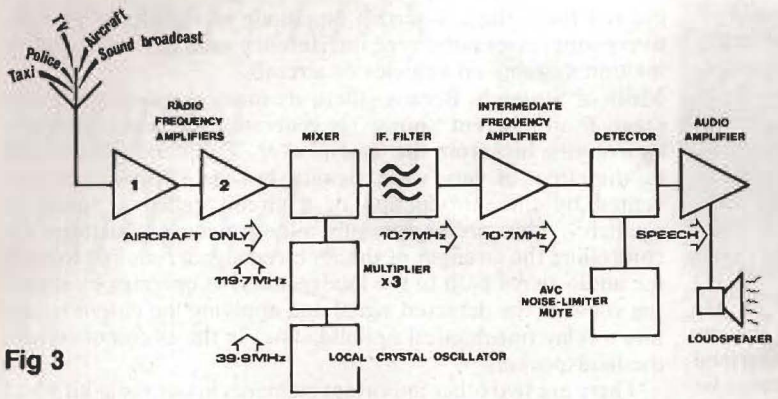


Fig 3

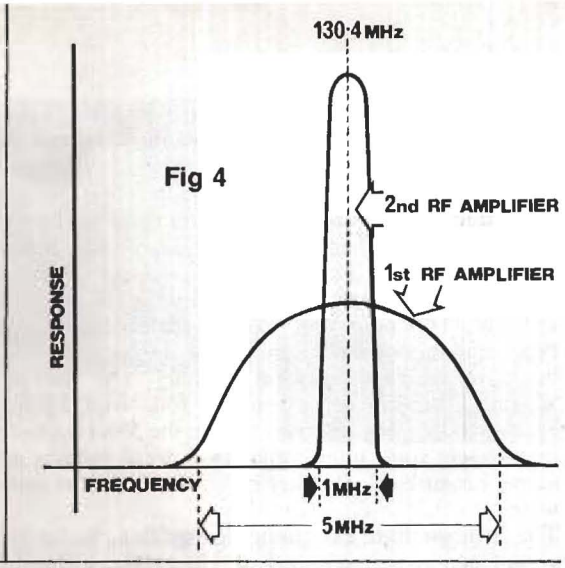


Fig 4

It has to **select** the "wanted" signal, it has to remain **stable** (exactly on tune) and it has to be **sensitive** — detecting signals down to one microvolt. If we tried to build a receiver as a straight VHF amplifier with a gain of several million it would simply become unstable and regenerate (HOWL). The method used to overcome these problems is to change the frequency of amplification to a lower order where all the circuits can be optimised for gain and stability. This is achieved by mixing a locally generated signal from a very stable source — a crystal — with the incoming wanted signal to produce an intermediate frequency signal which is significantly lower in frequency than the received signal. This is the principle of the Super Heterodyne receiver (Superhet) and it is almost exclusively used in communication receivers. In some VHF communications, receivers where extreme selectivity (rejection of the adjacent channels) is required, the frequency is changed twice to produce a double Superhet.

In the receiver diagram, Fig 3, the input from the aerial, which contains both wanted and unwanted signals, is applied to one or two stages of amplification, each one being "tuned" to allow only a narrow band of frequencies around the "wanted" frequency to filter through.

Radio Frequency Amplifier Stages. As an example, if our receiver was designed to receive 130.4MHz, the first radio frequency amplifier may have a response curve with a band width of 5MHz. See Fig 4.

The second radio frequency amplifier reduces this bandwidth to approximately 1MHz, giving a response curve with much steeper sides and also amplifying the signal many times before applying it to what is termed the mixer stage.

Mixer. The mixer stage has two inputs, the incoming signal from the RF amplifier and a signal which is generated by the local crystal oscillator. The two signals "beat" together in the mixer and the output contains not only the original pair of frequencies but two new frequencies which are the sum and the difference of the original pair. This effect is demonstrated frequently when we listen in on our gliding channels and hear two or more transmissions simultaneously — the howls, whistles and groans are the "audio difference" frequencies of the incoming signals.

In this example the intermediate frequency chosen is 10.7MHz which is fairly common in modern VHF receivers. If our radio was arranged to receive 130.4MHz the local crystal oscillator may operate at 39.9MHz and its output multiplied by x3 to produce an input to the mixer stage of 119.7MHz. This locally generated signal when mixed with the incoming signal from the RF amplifier of 130.4MHz would produce 250.1MHz and 10.7MHz. Because of the significant difference in frequency between these signals it is relatively easy to select the desired intermediate frequency (10.7MHz) and apply this signal to a very selective filter.

The Intermediate Frequency Filter. This filter is designed to pass only a narrow band of frequencies around 10.7MHz. It is constructed of six or eight tuned circuits with individual staggered responses as shown in Fig 5. The net result is a filter with

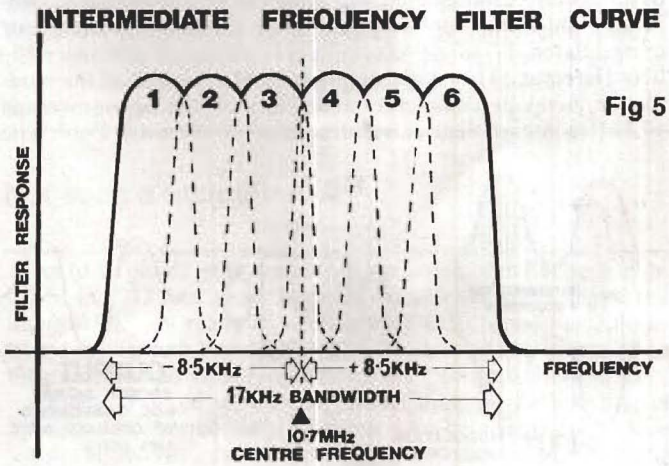


Fig 5

a band width of, for example 17KHz, *ie* 8.5KHz on either side of the 10.7MHz intermediate centre frequency. To appreciate the dimensions of the receiver selectivity process we can represent the base of the response curve of the radio frequency amplifier stage by a line 100cms in length, Fig 6. This line represents

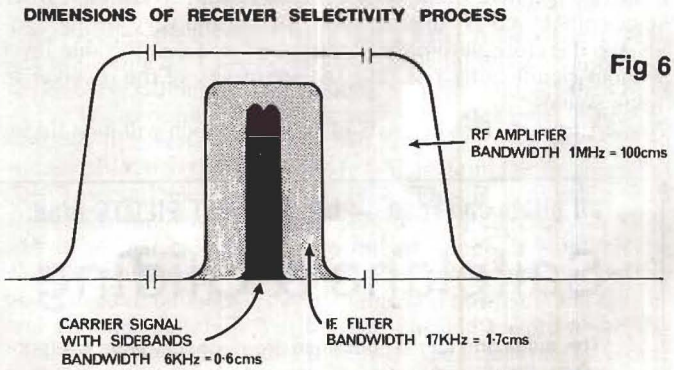


Fig 6

1MHz of frequency spectrum accommodating 40 x 25KHz channels. The base of the response curve of the IF filter to the same scale would measure 1.7cms and a speech modulated carrier would represent only 0.6cms. The IF filter provides the receiver with the high selectivity required to reject signals from the adjacent channels only 25KHz away. It provides the "effective acceptance bandwidth" of the receiver and ideally, the

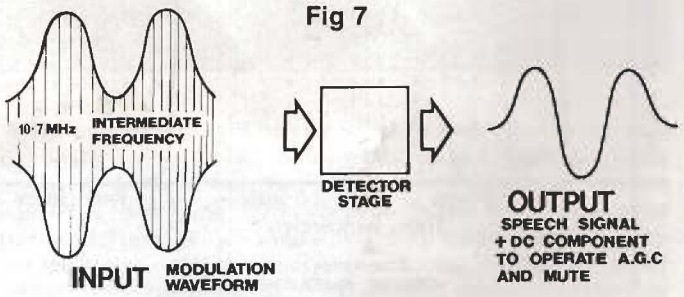
response curve should have vertical sides with an abrupt cut off at the base. In practice, the base of the response curve of the filter has a "skirt" spreading the bandwidth a further 3 or 4KHz with exponentially decreasing gain.

In effect a long "skirt" on the filter response curve, increases the probability of strong unwanted signals being accepted because once they have passed through the filter even at a low level of gain they will be amplified by the following stages of the receiver. This point will become significant to users of older type equipment particularly where the local airfield ATC has been assigned an adjacent channel. (At the new 25KHz spacing). In this context glider folk who continue to use receivers designed for operating on the 50KHz channel spacing may expect some interference from local stations as described above because the IF filter band width may in some cases be wider.

The Intermediate Frequency Amplifier. So far we have converted our incoming signal of 130.4MHz with all its speech characteristics in the form of side bands into a lower frequency signal of 10.7MHz, which contains the same side band characteristics. After the filter, this signal is applied to a series of pre-tuned amplifiers which are individually fully screened and designed for optimum gain and bandwidth. The output is delivered from these amplifiers to a stage called a "detector" or demodulator.

The Detector. This stage simply removes one half of the modulation envelope completely and filters off the now unwanted 10.7MHz intermediate carrier frequency as shown in Fig 7. The

Fig 7



audiosignal is then passed to an audio amplifier which energises the loudspeaker.

Automatic Gain Control. Various refinements are incorporated in the receiver such as "automatic gain control" and this is achieved by taking some of the detected signal and converting it into a "negative" bias which can be introduced to the earlier stages of RF and IF amplification. Strong and very strong signals are therefore automatically reduced to a comfortable level without significantly reducing the sensitivity of the receiver to weak signals.

Noise Limiter. This consists of a circuit which will pass up to, but not more than, a certain amplitude of signal and it effectively suppresses pulse type interference such as that caused by ignition systems on vehicles or aircraft.

Mute or Squelch. Because there are many stages of gain in the receiver an inherent "noise" is generated which may result in an irritating hiss from the loudspeaker. This noise is worsened by the effect of very weak signals, but the effect can be prevented by the introduction of a circuit called a "mute or squelch". This circuit normally allows manual adjustment for controlling the strength of the received signal required to open the audio signal path to the loudspeaker. It operates by sampling some of the detected signal and applying the output to operate a relay (mechanical or solid state) in the circuit energising the loudspeaker.

There are two other important elements in our radio kit which are often misunderstood, these are — the aerial and the microphone. Both must be suitable for the purpose and be correctly matched to their appropriate circuits in the radio equipment. There will be more about these next time — for the moment let us recap.

We have identified some of the major features in our radio equipment and specifically highlighted the significance of the crystals in the oscillators of the transmitter and receiver. We have also described the purpose and effect of the filter in the IF of the receiver — we can now consider these elements in conjunction with the recent CAA circular concerning the move to 25KHz channel spacing.

First, we need to be satisfied that the specification of the crystals in our transmitters (one is used for each channel) is such that the output frequency can be maintained within ±0.003% (30 parts per million) (±0.002% for ground stations) of the assigned channels. In the majority of cases the crystals fitted in glider radios should meet this spec. because this tolerance is very low by modern crystal standards.

Secondly, although it is not mandatory to operate our receiver crystals within any specific tolerances it is nevertheless very important to ensure that the receiver crystals are accurately adjusted. An "off frequency" receiver crystal will have the effect of displacing the input signal from the mixer to the IF filter, by the percentage amount it is "off frequency". This may cause one of the side bands to operate in the skirt area of the filter and cause distortion to our wanted signals — and in the extreme case it could increase the probability of accepting strong signals from the adjacent channel.

The two checks above need to be carried out as soon as conveniently possible. The operation need not be expensive — a member of your club should arrange for a local radiotelephone service engineer to call at your site with the necessary frequency counter and during one visit check *all* the frequencies of the glider and ground radios that operate from your site. Organised in this way the cost to the individual would be reduced to a nominal amount. □

all pilots can read — but the BEST PILOTS read

Sailplane & Gliding

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KRONFELD'S SECRET VARIOMETER

A. E. SLATER





Doc Slater took these pictures of Kronfeld and his crew on August 6, 1928.

In his article in the October issue (p228) on Robert Kronfeld's clandestine use of a variometer, Peter Riedel suggests that this was first done on August 6, 1928, when Kronfeld made an out-and-return flight in cloud lift from the Wasserkuppe to Himmeldankberg and back, nine miles in all, "without the benefit of slope currents".

I was present at the time on my first visit to a German National contest. I watched him for over an hour and took photographs, but missed seeing his actual departure. As to "without benefit of slope currents", he certainly took precautions to see that they lifted him as high as possible towards the clouds. On a promontary called "Pferdkopf" his team were assembled with an anemometer on a pole. Whenever they saw Kronfeld approaching overhead, somebody would read the wind speed in metres per second, the team leader would chalk it on a large sheet of metal and hold it over his head, and the rest of the team would lie down head-to-foot to show the precise wind direction. Several cumulus clouds came over, with each one's base covering a large area under which he wandered here and there, but I never noticed him performing circles at all, let alone tight ones. This does not suggest that he was using a variometer. He returned to the Wasserkuppe against the wind under a cloud street, though he says he deviated a little to one side now and then in search of better lift, so he must have used either his altimeter or a variometer.

Fittings not food?

Regarding Peter Riedel's story that Kronfeld carried his variometer to his glider in a bag, the version I heard on the Wasserkuppe was that he carried the vacuum flask openly passing it off as his coffee, and the bag with the rest of the fittings would then be assumed to contain food.

As to the double glide across the Channel in June 1931, it is odd that Kronfeld should have chosen this occasion to telegraph the Askania firm to say how well their variometer worked, because he had no occasion to use it. Even when he crossed the French coast in fading light on his return journey and had difficulty in finding St Inglevert in the dusk, the Askania could not have helped to keep him up while he looked for it because there could have been no thermals at that late hour and anyway he said it was too dark to read his instruments.

Many German pilots, says Peter Riedel, could not afford to buy variometers so had to go without. The cost at that time was the equivalent of about £14: I remember the figure because I nearly got around to buying one for the London Gliding Club, whose members seemed never to have heard of the thing, let alone realised its importance.

As to Dr Lippisch's offer to invent a variometer for Kronfeld, after telling him he ought to have one, I have read this in an article by Kronfeld which I cannot now trace. But it is hard to believe that, if Lippisch had invented one, he would have let Kronfeld keep it a secret instead of offering the invention to the whole gliding fraternity.

Regarding Wolf Hirth's possible use of a variometer in his pioneer thermal flight across country from Elmira in October 1930, his account makes no mention of a variometer, though he mentions the circling technique which he pioneered. He says he found his first thermal by getting directly underneath another pilot who was far above everyone else; his next one by going to where birds were circling, and his last two by feeling a sudden upward heave.

Not such a long interval

As to Kronfeld not mentioning variometers in his book published in 1932 four years after his Himmeldankberg flight, the interval was not really so long; in July 1930, when he demonstrated to the then Prince of Wales, he showed the Prince some diagrams he had already drawn for his "forthcoming" book.

Finally, I agree with Peter Riedel that, in the interests of history, the shortcomings of those who helped to make it, in whatever activity, should not be for ever suppressed. As Philip Wills used to say, "You don't have to be loopy in order to glide, but it helps". Such loopiness can take many forms, some of them hardly publishable in the loopy one's lifetime; yet I feel with him that quirks of character which helped to mould that history should not for ever go unrecorded. How about writing them up and putting them into a sealed envelope labelled "Not to be opened for x years"?

Since writing the above, I have had a letter from Dennis Dawson of Goring on Thames, referring to mention of a variometer in the book **Gliding and Sailplaning** by Fritz Stamer, then head of the Wasserkuppe Gliding School, and Alexander Lippisch, designer of a series of gliders and sailplanes from the Zögling trainer of 1926 to the Sao Paulo in which Heini Dittmar won the first International Contest of 1937. This is a translation of **Handbuch für den Jungflieger** published in Germany in 1929, and in a final chapter on instruments Lippisch mentions "a so-called variometer" that indicates ascent and descent and "is much used in balloons" but is "large and unwieldy and fails to register immediately". Yet he does not add a word about the need for such an instrument to register the actual rate of ascent or descent, so it is impossible to believe that he had already invented such an instrument for Kronfeld the year before. He might not even have realised the need for such a refinement, since Wolf Hirth had not yet flown the world's first cross-country in dry thermals; and Professor Georgii's 1923 book on soaring meteorology, then still current, stated that thermals were too narrow and too weak to be used by sailplanes.

A letter from R. Boyd of Preston points out that Kronfeld

does mention a variometer in his 1932 book, **Kronfeld on Gliding and Soaring,** p281, where he advises the reader on buying a sailplane and what instruments to put in it. The book came out in mid 1932, my copy being bought on August 8.

Two correspondents have commented on a variometer described in S&G for February 3, 1933 (the first number I ever edited) by its inventor *Vol au Vent* who was really David Dent, an inventive but highly strung character who died at the end of the year. It had a U-tube connected, with a leak, to a vacuum flask with a bead of alcohol as an indicator, moving up one side or the other of the U, but in the one I saw the tube also contained a purple solution of a substance called Phenol Phthalein.

A letter has also come from Peter Riedel, enclosing a long historical article on German gliding. He states that Professor Walter Georgii, head of the German gliding organisation till 1933, writing in his autobiography **Forschen und Fliegen,** admits having at one time allowed Kronfeld to keep the secret of his variometer, but I have searched the book and cannot find the passage.

In the long article Peter Riedel states that many pilots at the 1928 Rhön Contest gained height by circling, suggesting that they had variometers; including Edgar Dittmar who put up a world's altitude record of 775m. But I was there and saw no circling: Dittmar hovered over one spot just upwind of the west slope, slowly gaining height till he could gain no more, when I photographed him, getting him almost in line with the top of a telegraph pole to help in locating his tiny image.

I have looked through my file of the gliding pages of *Flugsport* from 1929 onwards, and there is absolutely no mention of a variometer until January 1933 where it is casually mentioned as one of the instruments on the dashboard of a research sailplane called Obs.

(See p40 for another letter on the subject.) □

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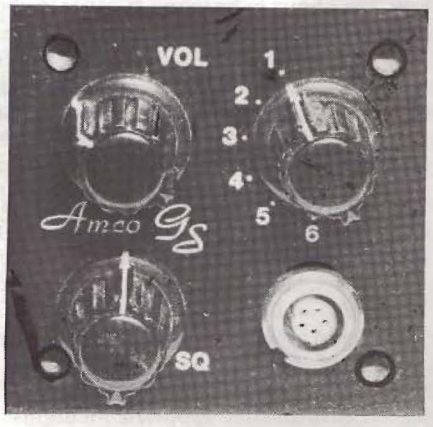
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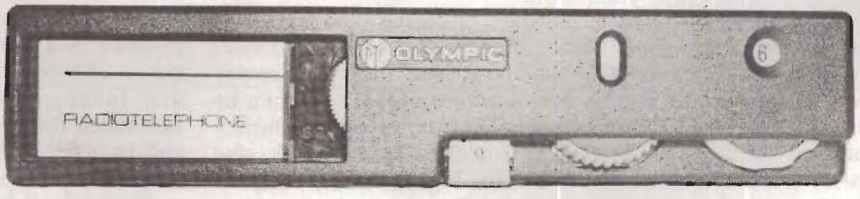
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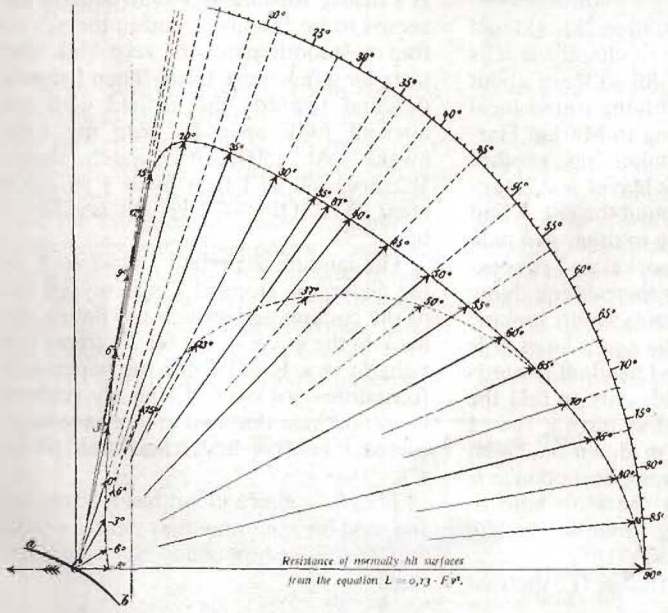
WILLIAM MALPAS

Perhaps we look forward to the Arm-Chair Pilot's articles because he shakes our complacency in revealing unsuspected difficulties in apparently simple problems. He then proposes solutions and explanations, simple and elegant, mercifully without mathematical formulae. But best of all, he relates these explanations to practical flying.

For example, the dilemma of Walkden's unfortunate slope soarer of 1912, who finds himself going backwards over the top of the hill at zero ft agl. There must be imprudent hang glider pilots who have had this experience.

In the same article (S&G, Oct 1980, p218) he suggests that the first person to draw a polar curve was F. W. Lanchester (1907) but wonders, innocently, whether the polar can be traced further back. Of course it can, but as far as I have been able to discover, not in the form which Lanchester used and which has also been widely used in the analysis of sailplane performance.

Polar curves were used by Otto Lilienthal, some of which were published in **Der Vogelflug als grundlage der fliegekunst** (Berlin 1889) to illustrate experiments with flat and cambered airfoils. Here is an example of two of his polars, drawn for a cambered test piece (solid curve) and for a plane surface (dotted curve) of the same area. They are polars in the sense of using polar co-ordinates. In this case Lilienthal was using the angle



Air pressure on curved surfaces determined during rotation in still air.

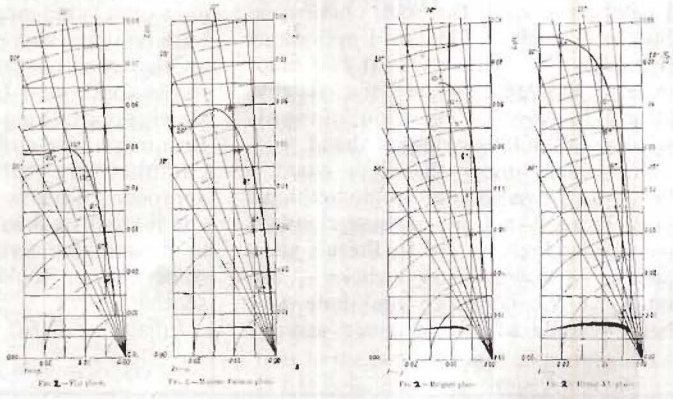
with the horizontal axis to represent the direction of the air-resistance and the length of the line from the axis to the curve to represent the magnitude of the air-resistance. The test piece was assumed to move along the horizontal axis and the angle of attack is indicated by a number of degrees for points on the polar curve.

One obvious difference between Lilienthal's polar and our modern polar is the absence of airspeed. This is very common in early aerodynamic work, which presented tables of lift coefficients and drag coefficients for various angles of attack. For example, Duchemin in **Les lois de la resistance des fluides** (Paris 1842) and DeLouvrie **Revue Aeronautique,** 3rd year, No. 4 (Paris 1890), among others, proposed such relationships for flat surfaces; Lilienthal's polars can be converted back into this form, as was done by Chanute in James Mean's *Aeronautical Annual* (Boston 1897). This was the representation also used by the Wright brothers in 1901 for their own extensive experimental results on cambered airfoil sections.

In those days airspeed was eliminated from the representation of the performance of airfoils for two reasons. First, almost all experimenters accepted Isaac Newton's basic law, which is normally represented by the relationship: Resistance = (A coefficient) x (Area) x (Density of fluid) x (Velocity squared). Therefore for any calculation in which airspeed must be introduced this can be done with ease by applying Newton's formula.

Airspeed eliminated

Secondly, it was common practice to represent the air-resistance of a flat plate at various angles of attack as a percentage of the resistance offered by the same plate at right angles to the airflow at the same airspeed. This eliminated airspeed as a variable. If we are really tracing polars back to their origin, we are not amiss in citing Newton, whose **Principia** was first published in 1687! However, one of Lilienthal's particular contributions to the technique of representing airfoils by characteristic curves was the realisation that angle-of-attack need not be a principal ordinate and in any case, it cannot be easily measured in the narrow range of practical angles-of-attack. He suggested, as we have seen, merely writing in angle-of-attack as a parameter and using other more important variables in plotting his characteristic curves. The way was then open to plot lift coefficient directly against drag coefficient; now we are getting much closer to Lanchester's representation, as can be seen in these typical polar curves taken from Eiffel's wind tunnel experiments, which were conducted during the period



1902-1910. It will be noted that they have ceased to be "polars", in that Cartesian co-ordinates have been used. However, they retain some "polar" features, since the tangent to the curve from the origin represents the best glide-angle.

All that is required now to make the jump to Lanchester's curves is to go back to the following form of Newton's basic formula: Lift (or drag) = Lift (or drag) coefficient x Area x Velocity squared and we can derive the familiar plots of gliding angle and rate of sink against airspeed.

That Lilienthal was the "father of polars", as he was of many aspects of aeronautics, there is no doubt. Indeed, early textbooks referred to polars as "Lilienthal diagrams". What is in some doubt is whether, in using Cartesian co-ordinates, we are really justified in calling our own specialised form of characteristic curve "a polar". □

Silver Dream in a K6e Machine

TOM SMITH
STRATFORD ON AVON GLIDING CLUB



It's 1230hrs, Thursday, June 24. A ridge of high pressure lies over the country and the sky is dotted with small cumulus clouds. The plan is simple, to fly from Long Marston to Husbands Bosworth for Silver distance and remain airborne for five hours to complete my Silver C.

There is an *ab-initio* course this week so club members must wait for launches. Finally, at 1309, after three other duration attempts have been launched, it's my turn for a bumpy aerotow to 1800ft over Bickmarsh where I release. After a few turns in a rough 3kt thermal I notice that the club T-21 is outclimbing me, so I go and join him in an exhilarating 8kt climb to cloudbase at 4200ft. With one final look back at the airfield I cut the invisible string and aim my K-6E towards pastures new.

Cruising at 60kt between the bubbling 4kt thermals, Stratford soon passes beneath my port wingtip and 15min later I'm looking down on Wellesbourne airfield. Taking care to avoid Birmingham SRA and to keep below Daventry CTA, I head on towards the 300ft chimney at Southam, and at 1345hrs I'm looking right down it. With my next two landmarks, Draycote water and Rugby, clearly in view I "press on" towards some good-looking cumulus ahead.

As I slide under the sixth cloud it begins to dawn on me that something's very wrong — not one of these clouds is working and wherever I fly there's just a steady 4kt down. Then it clicks — this must be the notorious sink-hole I've been warned about, so once again I "press on", soon to have my confidence in cloud reading restored by a steady 4kt thermal over Rugby.

Back at cloudbase over the M1, I can see the "barrel" of machine-gun lake pointing towards my goal — I've done it! I arrive at the Coventry GC's site after 65min flying at about 60km/h — now for the remaining four hours. Is it really that long? That's more than my previous longest flight and I'm sure the weather is looking weaker — time to get high and stay high.

Still a lot to learn

A sudden **whoomph**, then 2kt, 4kt and finally 6kt all the way to cloudbase tells me that I still have a lot to learn about gliding meteorology! Flying round local triangles from Kettering to Market Harborough to Rugby takes up another 1¾hrs — let's see, that leaves just 2¼hrs to go. Flying locally round the site, I find time is really beginning to drag, so I hide my watch in the map pocket and concentrate on improving my thermalling. Now another problem presents itself, looking to the south-west I can see a large hole slowly approaching so I head off towards Bruntingthorpe airfield, only to find the cumulus are all dissipating as I approach. By now I'm down to 2500ft and it looks as though my best chance is to fly straight across the blue hole to some crisper looking cumulus to the south.

Finally at 2000ft I find a 1kt thermal which soon picks up to 2kt and I can relax again. Sneaking a look at my watch I see there's still 1¼hrs to go and with the lift definitely getting weak I'm using everything over 1kt I can find. A strong urge to go down and land comes over me, perhaps caused by loneliness or boredom, and it takes a lot of effort to fight it off — I can't give up now that I'm so near!

I resort to circling in zero sink at cloudbase as it doesn't require much concentration, and the lift is smooth up here. The last hour drags on and on, and I'm staying as high as I can, drifting round endlessly in very weak thermals. It's nearly 1800hrs as I slide under what seems to be the last cloud in the sky to find a smooth patch of zero sink that lasts for a few more turns. Then I slowly descend towards the airfield with the air-vent fully open to keep me wide awake. At 1500ft my watch shows 1825hrs, and as I turn finals I let out a great WHOOP! — I've got my Silver badge.

The landing is perfect and as soon as the glider has stopped I ease myself out of the cockpit and stretch out flat on my back in the grass — my 6ft 2in frame is a tight fit in a K-6E! Once the paperwork formalities are over, I ring my retrieve crew and hear that two others have completed their five hours and their Silver Cs.

They say every cloud has a silver lining, and for me today they nearly all did. But I wonder how many have *Gold* linings!

□

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A LOAD OF BULL

"A reluctant gliding correspondent" tells of a wager which doesn't make happy reading for vegetarians or anyone concerned about cholesterol.

Landing in a field is bad enough. Landing in a field full of cows is worse. But the ultimate folly must be to land in a Scottish field, in a tasty Skylark, when that field is already occupied by a large brown and white bull who fancies a change of diet.

Such was Chris Rolling's predicament during the Kitty Comp at Portmoak. Fortunately glider pilots are not easily intimidated and Chris is no exception. Climbing boldly from the cockpit, he looked Angus straight in the eye and asked him politely to withdraw. Angus looked back inquiringly at this Sassenach Icarus and undeterred continued to nibble a wingtip. Delicious.

A practical man!

What would have become of the Scottish Gliding Union's aircraft had not the farmer turned up at this moment is difficult to say. Fortunately farmer McTavish is a practical man. He assessed the situation at a glance, promised assistance and disappeared, only to return in the fullness of time (and several inches of aileron later) with a long stick from the end of which protruded a six inch nail.

Thus armed, and no doubt pondering the advances of modern technology in the field of cattle control, Chris proceeded to thwart Angus's attempts at sampling the tailplane pending the arrival of the cavalry. On reflection, Mike Carlton and the motley crew who arrived to rescue Chris do scant justice to the term cavalry — that brave body of men who slew the Redskin, persuaded the Confederates to abandon UDI, and are forever galloping over the horizon at the last minute on BBC1 . . . I digress. Arrive they did, rescue Chris and the Skylark they did, and then occurred the bet which is the real subject of this interminable twaddle.



Chris Rollings facing the first piece of Angus with a photo of the bull in the background. Picture: Mike Carlton.

Was it possible?

After the usual exchange of pleasantries between a glider-pilot-stuck-in-a-field-with-a-bull and a glider-pilot-turned-crew-on-the-right-side-of-the-fence-who-finds-comedy-in-the-situation, Mike and Chris got round to discussing Angus. Big brown and white Angus. Big edible Angus. "You couldn't eat a bull that size." "Bet I could." "Bet you couldn't." "Bet I could." "How long do you reckon it would take you?" "Eat the whole lot in less than a year." "Bet you couldn't." "Bet I could." "In less than a year? How about raw?" "Bet I could — in less than a year, and raw." "You're on." "How much?"

"Free" meat!

So there it was — the wager. Mike would buy Angus and Chris would eat him, **raw**, within a year. If Chris succeeded, Mike would pay £500 to the British Team Fund (a noble cause) and a further £500 to Chris (a less noble cause, probably with chronic indigestion). If Chris scoffed the lot in less than a year, then a sliding scale of payments designed to deter Mike from making other such bets in the future would come into force. If Chris failed to consume Angus within the year, he would pay £500 to the British Team Fund.

In due course poor Angus, whose only crime was being in the wrong place at the wrong time, was butchered and his deep-frozen remains brought to Booker in neat little parcels. With due pomp and ceremony, and not a little alcohol, at a party in the clubhouse on November 22, Chris ate his first plate of steak tartare and so began a task more daunting, some would say, than that embarked upon by the unwitting Angus when he first bit that Skylark in a Scottish field.

There must be a moral there somewhere.

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KNOWING WHEN TO SAY NO

DEAN CARSWELL

Once upon a time many years ago, there was a gliding club so small and so poor that its only flying asset was an aged T-21 (or perhaps bits of two or three, considering its lopsided manner of flying) which was operated from a lonely moor. This lack of facilities was, however, more than compensated by the enthusiasm of its small and faithful band of members.



A few words of description of the site are in order. When described as a moor, it perhaps does not demonstrate the fact that it was a heather bog with outcrops of rock joining two small mounds of firmer ground lying about one thousand yards apart, in an east-west direction, one used for the winch and the other as the launch point. Any journey between the two required use of waders, and any landing other than on one of the mounds meant certain damage to the aircraft. The launching cable was pulled out by a small retrieve winch. The mound at the eastern launch point was the shape of an upturned spoon, about 100 yards long, 50 yards across at its widest point and 15ft high at the centre with a rough surface which just about permitted the T-21 to land without harm. The T-21 lived in a very small hut adjacent to the southern edge of the mound, and was rigged before flying each day.

My experience with this site was fairly brief, and started through a plea for help from the club for an instructor. The CFI was heavily committed with his professional activities, and (perhaps wisely) rarely came near the site. He emigrated to Australia very shortly after the events described. The only time I saw him was the first time I went along when I had my check flight, and was left to get on with it. It was immediately obvious that no *ab-initio* pilot was ever going to go on first solo from the site. Every touchdown involved arriving at the same spot with the sort of precision that I imagine a Phantom pilot requires to catch the third arrestor wire on his aircraft carrier a hundred times out of a hundred. To be fair to the club and its members, considerable care was lavished on the equipment, and the cable was meticulously examined each day before flying. So far as I know, there had never been worse than minor damage to the aircraft, caused by stones, during the whole time of operation from this site. Old members hinted darkly that their previous site, a cow pasture, had been altogether too short and sloping — the imagination boggles!

The club had some difficulty attracting new members, and in an attempt to gain wider publicity, a journalist from a local newspaper had been invited along on this particular day, accompanied by the junior photographer. The first couple of launches were uneventful, but the third had to be discontinued about two thirds of the way up as the winch succumbed to an acute attack of asthma.

A little apprehensive

The fourth flight was for the local pressman; having been fully briefed by the club Chairman, he was now ready to see for himself. All the club members gathered round, anxious that only good PR was going to be generated. On the other mound the winch could be heard snorting in the distance. At this point, I was distracted from my concerns and introduced to the pressman as the local expert who would fly him round. It quickly became apparent that the 4ft 11in representative of the fourth estate was not just a little apprehensive — he was petrified to the extent that his knees were literally trembling. As a consequence, about nine-tenths of the pre-flight briefing was concerned with reassuring the unfortunate passenger that nothing would go wrong, and even if it did, every eventuality (including launch failure) had been catered for.

Around the time my passenger was firmly strapped into the T-21 someone said that the winch driver thought the winch was OK. Full of hearty encouragement and enthusiasm, and concerned lest my passenger collapsed with nervous exhaustion in mere anticipation of his ordeal, I quickly had the cable attached and commenced the launch. Sounds of encouragement to pressman — all out — initial gentle climb. As the aircraft rotated into the full climb, my passenger let out a scream followed almost immediately by total failure of the winch and removal of encouraging grin from local expert.

The aircraft, I suppose, was at somewhere between 150 and 200ft with a pilot, for once, speechless. The only coherent thought remaining was that whatever I did the aircraft was almost certain to get broken — so at least I might as well break it where the walk to the "hangar" was shortest, back on the take-off mound. This elucidation of Hobson's choice led, in less time than it takes to say, (passenger now just groaning feebly) to a sloppy chandelle and the aircraft going downwind aiming for the gap between the mound and the hangar. By this time, the suicidal tendencies of the pilot had been grasped by the 20 or so supporting cast waiting on the mound, who proceeded to run in every direction. We arrived opposite the hangar, pointing downwind, about 10 or 15ft above the ground. A left turn as steep as I dared without stubbing the wingtip on the ground brought the T-21 on to a northerly heading, level with the top of the mound. Nothing could stop the aircraft going right over the top and nosing straight into the bog at the bottom of the mound.

The slowest spectator just moved out of sight of the corner of my eye behind the wingtip as we came over the top of the mound. Then it happened. Sudden turbulence and just sufficient lift to raise the aircraft three or four feet up — presumably the north-west wind was just strong enough to provide a little hill lift.

Head in his hands

Needing no second chance we executed a final flat turn to the left and succeeded in bringing the T-21 to a standstill by misuse of the nose skid, a few yards short of the west end of the mound and bog. I then remembered my passenger, who had completed the second half of the flight with his head in his hands, missing the best part, and tried to convince him that really, every eventuality had been thought of, and it was all free from risk, just as originally promised.

Turning to the purpose of this article there are a number of object lessons crying out to be learned. Never was there a better example of the need to have a clearly thought out plan to cope with a launch failure — and that was not necessarily turning instantaneously downwind in a situation where the only sensible landing place might make a downwind landing preferable. Secondly, it makes

no sense at all to have your only landing area covered with obstructions, human or otherwise. Thirdly, the point is clear that there are places where, if you must glide, it is essential to have from the outset stringent safety rules and procedures which are observed every time. Which brings me to the final point — even if you fly from the best organised facility in the country, there will one day come the time when, regardless of the forces making you press on, you must say no — put the glider back in the hangar. If it is relevant, people will respect you more if you do. □

A New British Glider Tug



Petrel on her maiden flight at Lasham in November with Roy at the controls. *Photo: Nick Hughes.*

ROY G. PROCTER

Some readers will remember the Kittiwake glider tug which I developed jointly with Kit Mitchell some years ago. A more practical two-seater was being developed but we ran out of money before it flew. As part of the activity leading up to the Royal Aeronautical Society's light aeroplane design competition, I was asked to read a paper to the Society setting out our experience of attempting to initiate production. This I did ("How we done it", Aerospace, December 1977). At the end of that evening I was approached by Mr Alan Nash and as a result he has taken on the whole project under the name of Nash Aircraft.

Mr Nash's engineering firm has provided new factory space for aircraft building and construction of the prototype "Petrel" re-started. David Kent, well known in gliding and light aviation circles and the present owner of Kittiwake, was retained to undertake the major part of remaining construction and design checking with the assistance of other draughting and construction help. The result was shown at Farnborough in September but additional work was required before Petrel was fit for flight.

The CAA issued a test permit for Petrel on November 7, 1980, and I made the first flight at Lasham the next day. At the time of writing we have about 10hrs flying and all is going well. We have retained the good features of Kittiwake. Excellent all round vision, good handling and excellent flaps. Many improvements and simplifications have also been made. In particular the long wheel base tricycle landing gear is giving excellent handling even on Lasham's very bumpy grass.

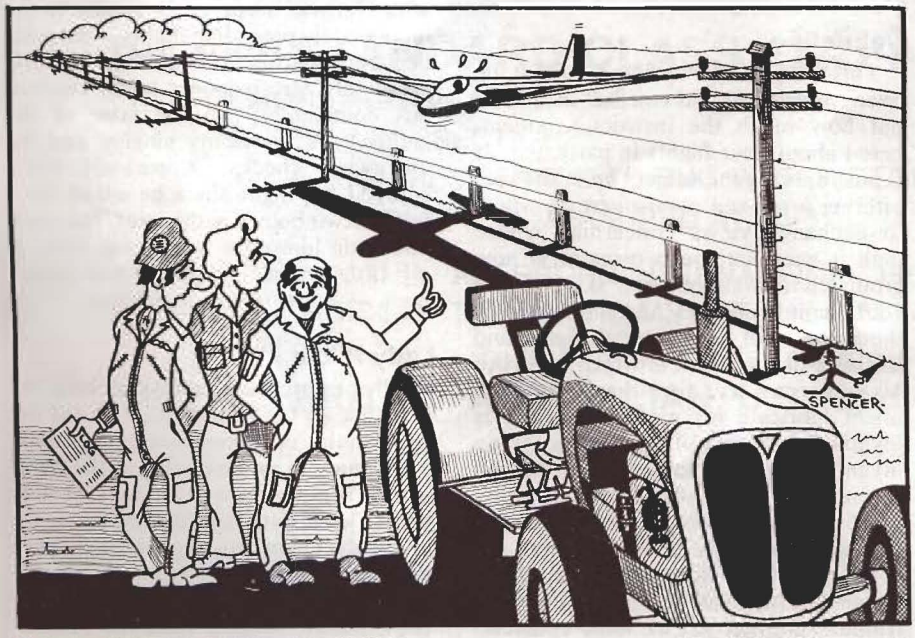
Lycoming engine

The Petrel prototype has a 160hp Lycoming engine and can take a 180 if required. It is intended to fully certify the aircraft to CAA requirements and as soon as we have carried out enough flying to be sure no major changes are required, a small production batch will be put down for sale.

I hope a full report on Petrel will be included in S&G in due course. Right now we are all recovering from the amazement of actually getting a new aircraft in the air, moreover one which looks as though it has a useful future.

Any inquiries should be addressed to Nash Aircraft, Trading Estate, Farnham, Surrey.

NB. On going to press we heard from Roy that materials are being ordered for a first production batch of five aircraft. □



Charlie's taken up hang gliding. **By Mike Spencer.**

INSTRUCTORS I HAVE FLOWN — Advice for *Ab-initios*

PAUL R. JAY

First Impressions

I clearly remember taking up my first gliding instructor. He was a very promising candidate and displayed such a comprehensive understanding of the tasks involved, that I felt safe in letting him perform the whole flight. I must confess to being a little apprehensive as he lined up for his approach, but carefully concealed my anxiety lest it should undermine his confidence at this early stage. On our second flight together, I was able to impart some of my extensive understanding of secondary effects of controls, whilst apparently demonstrating the primary features of the same. I'm pleased to say that my *protégé* coped well with the artificial difficulties and has since progressed to the higher echelons of BGA instructors' instructors.

Conversation

Ever since those early days, many opportunities have allowed me to show off my model "spot the hidden mistake" flying, and the responses of the various subjects have been interesting and at times colourful. For example, an excellent way to promote lively conversation with the pilot behind you is to select an aiming point some 50ft underground, but be on your guard, for if he is wise to your techniques this can develop into a game of "chicken" and seriously impair the relationship between student and instructor. Unfortunately the beauty and spontaneity of some of these "crisis comments" are frequently lost to the sound of rushing wind, especially with open canopy machines such as the T-21. Particular hazards are associated with open top gliders — the rapport that you develop with an instructor is most important and not assisted when you use his soaring hat to mark the centre of your first thermal. Whilst on the subject of conversation, do remember that your contribution is very helpful to the instructor; say what you are doing just in case it's not obvious, but keep checking that someone is listening. It is most annoying when you have carefully set up a difficult approach for your partner to get out of to find he is asleep through boredom induced by your hypnotic commentary.

Understanding

Patience and restraint are valuable qualities in those sent to teach us, and the extremes of these attributes may be most conveniently tested in good thermic conditions. Few instructors will appreciate that it takes great skill and concentration to dissipate a 6kt thermal merely by uneconomic flying (use of airbrakes is not allowed in this exercise), but it must be realised that the limited budget of many a trainee pilot simply cannot support such frivolities as soaring fees when launches and landings still require consolidation.

It is important to read between the lines of an instructor's comments to find compliments, for example when your carefully planned launch and subsequent search for a likely thermal have located rising air, then the rewarding "I have control" is a sure commendation of your skill, unless subsequently qualified by "let's see if we can find some activity over there . . . ".

Call My Bluff

Fortunately examples of this type of instruction are rare, but worthy of mention nonetheless. A recent example concerns a dual cross-country when P2 is suddenly presented with a map and the challenging "bet you can't tell me where we are!". While the poor student frantically tries to pinpoint the situation and justify himself, it becomes apparent that the instructor actually is lost and is busy selecting a suitable field in which to abandon the exercise.

Debriefing

This part of the training cannot be over-emphasised and consists of finding out how much the instructor remembered about your flights in particular. It is best to bring the subject up in the bar, offering a relaxed atmosphere in which to exchange views concerning whose fault it was that the two-seater is now grounded for want of a new skid. In case your mentor appears absent-minded at the mention of your mutual flights and the offer of a logbook in which to record his witticisms, try suggesting that a drink might lubricate his memory — this is invariably successful and promotes an inventive instinct that generates helpful comments from nowhere. Occasionally, however, your redoubtable efforts will remain clear in the tutor's memory for some time after the event. I recall an instance where our concentration on a fruitless thermal left us some considerable distance downwind of the airfield with sufficient height to try a no-airbrake, minimum sink approach, and a very very careful final turn. The encouragement I received stays in my memory to this day — so eloquent and thoughtful, conveying the whole nature of the situation in a concise epigrammatic "Let's really try and kill ourselves next time!".

Going Solo

There comes a time in every *ab-initio's* life when it seems that nobody wants to fly with you anymore. The early warning signs of this are not foolproof but certainly typical. Your instructor seems to progressively lose interest in your flying and his will to participate decays noticeably. Eventually, probably after you have scared him with a few mysterious cable breaks and a harrowing spin recovery, he will abandon you. Sitting alone in a T-21 in response to a curt "stay there" I watched as a huddle of instructors at the edge of the launch point obviously discussed my novel flying techniques. From the frequent glances and worried smiles I received, I could only conclude that they were casting lots as to who next must fly with me. The effect of my company must have been devastating as eventually one of the number emerged, and silently strapped a bag of fertilizer into the seat next to me. Nitro somebody he was introduced as — I didn't catch the surname, but flying with him was surprisingly similar to the immediately preceding flights — no practical contribution to the proceedings and absolutely zero response to my continuous commentary on the state of the launch, the view, my singing and the downwind checks. Apparently Nitro enjoyed his flight since he asked for a further two before getting out, but could not bring himself to make any entry in my little green "autograph and jokes" book — perhaps he was foreign.

Lady Pilots

All the foregoing comments belie the fact that so far I have been denied the opportunity of demonstrating my aerial techniques to an instructor of the fairer sex. It is however well known that such people do exist, indeed they must, for although I am no chauvinist I have noticed that female glider people seem to require much more attention and training than blokes. Judging from the detailed debriefings they receive in the corner of

the bar or half-way up the runway, and the particularly close scrutiny which our noble instructor will apply to a lady's logbook (especially the address page), a great many such pilots must achieve the status necessary to be trained as a trainer. If then you males find that your flying is not progressing at the required rate through lack of attention — try hormone injections! Ladies — try harder.

Epilogue

I must finish by commending the valiant contribution that the army of BGA instructors makes to the quality of the gliding movement in this country. This I must do not only to ensure that future tuition will still be available to me, but also out of a true sense of appreciation. It has become clear that the main motivation for being an instructor is not really the free flying, but that sorting out our problems is in some way rewarding. All I can do is apologise to those instructors for whom the rewards of flying with me have not been too apparent, and thank them for their patience and selfless dedication to the true cause of gliding!

□

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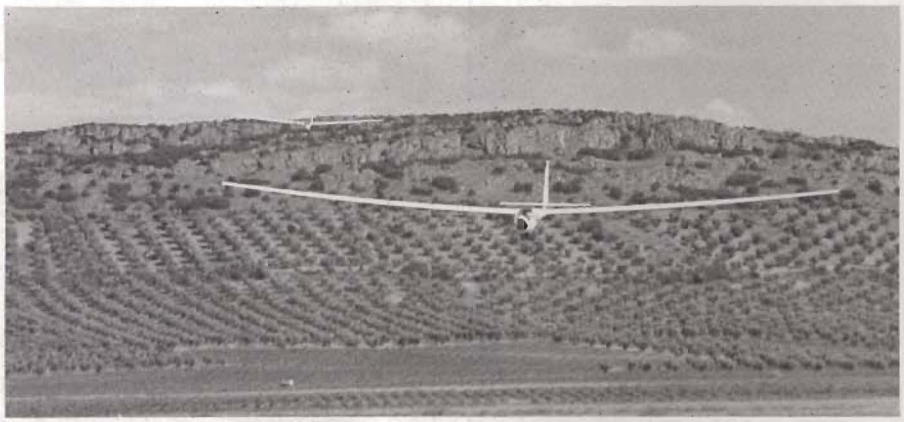
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OVERSEAS NEWS

Please send news and exchange copies of journals to the Overseas Editor: A. E. Slater, 7 Highworth Avenue, Cambridge, CB4 2BQ, England.



The final moments before crossing the finishing line during the Spanish Nationals. All triangles were south of Mora which brought them in over the 200m hill covered in olive trees. Photo: Rafael Serras.

SPANISH NATIONALS

The Spanish Nationals, at Mora from June 25-29, were described by the Open Class Champion, Angel Anglada, as a "mini Championship" with seven in the Open Class, nine in the Standard and three in the Club Class. But he asked readers to take into account that there are only 19 glass-fibre gliders in Spain.

On one of the five competition days a 513km triangle was completed by Angel (ASW-17) at 84.6km/h.

The final results were: Open Class, 1. A. Anglada (ASW-17) 5000pts; 2. P. Ayesta (ASW-17) 4245pts; 3. A. Lopéz (ASW-20) 3796pts; Standard Class, 1. J. J. Gresa (Std Libelle) 4542pts; 2. J. L. Meijide (Std Cirrus) 4510pts; 3. F. Hajek (LS-1f) 4409pts; Club Class, 1. J. Lopéz (L-Spatz-55) 5100pts; A. Muñoz (Pirat) 3694pts; 3. J. A. Ysac (Pirat) 830pts.

Record breakers

After the Championships, ambitious cross-countries were attempted resulting in National record claims, but as the weather service isn't sufficiently developed to offer help to glider pilots, it was a matter of using their own judgment in picking the good days after watching the TV forecasts the night before.

On July 1 Angel declared a 540km goal and return to Alcántara (near the Portuguese border), which he completed in 5hrs 45min at 93km/h for a National goal and return record claim.

The day after Angel attempted a 750km triangle, Alpera, Belmez (which is actually 786.6km) in company with his friend, Pablo Ayesta, also flying an ASW-17. Pablo completed the flight at 91km/h in 8hrs 40min to claim a National distance record while Angel landed 40km west of Mora.

SOARING AMONG THE VIKINGS

CARL ULRICH writes about gliding in Denmark

The population of this country is only five million, but nevertheless the Danish Gliding Association has 41 clubs with 2000 members. We have 360 gliders, one third of which are glass-fibre and almost 50% are privately owned.

All glider pilots are linked to the Association as members of a club and are taught to fly by instructors trained at the Association Soaring Centre.

Financial support from public (and private) resources is very scarce with only a small interest free loan and an annual sum to keep the buildings in good repair. Pilots under 25 also have small support from local authorities, enough to reduce their expenses by 10%.

The number taking part in competitions is rather small with about 60 in last year's Nationals, though more join in regional and local contests.

Because it is very flat, the highest points being about 500ft asl, wave flying and slope soaring are impossible and as cloud flying is prohibited, it is rarely possible to gain a Gold height. However cross-countries are very common and in 1978 more than 2000 registered flights accounted for 240 000km with a total of 24 250 soaring hours. But the shape of the main country makes it impossible to get more than 35 miles away from the sea, so 500km triangles are very rare. Danish glider pilots usually go elsewhere in Europe when they want to gain Diamonds.

Most of our clubs do a lot to make their sites attractive for families as well as pilots by modernising facilities, making children's playgrounds and allowing members to build their own cabins.

Although our gliding movement is non-commercial, pilots from other countries are usually welcome and treated just like members of other Danish clubs who can get cheap winch launches and sometimes a flight in a two-seater.

LATE NEWS

BRITON WINS SA NATIONALS

Mike Carlton, the British Team Manager, is the new South African Open Class winner and will be claiming two British National records — the 500km goal and return at 152.8km/h and the 500km triangle at 142.6km/h. Brian Spreckley, flying a modified Ventus, was second in the 15 Metre Class with fellow British Team member, Bernard Fitchett, in fourth place in a Vega.

The Championships, at Vryburg, ended on December 31 after 14 contest days. Early in the Comp Mike's ASW-17 broke in two after finding a rough spot on landing, but with Brian and others as dedicated they worked through the night and had the glider ready for the following day.

Klaas Goudriaan (ASW-17) was second in the Open and Laurens Goudriaan (ASW-20) won the 15 Metre Class — a father and son who were competing in the Nationals together for the first time and are members of the South African Team.

Bobby Clifford (ASW-20) was third in the 15 Metre Class, Brian Vanierek (ASW-17) third in the Open Class and Maurice Otto won the Standard Class — all South Africans. A full report will be in the next issue.

1250km TRIANGLE WORLD RECORDS

The first claimant for the world record of a 1250km triangle (introduced in 1979) is, not surprisingly, Hans-Werner Grosse of Germany.

On December 9, 1980 he flew his ASW-17 around a 1271.98 km triangle starting from Alice Springs, Australia.

Blue thermals to about 3000ft as far as TP1 "reduced" his speed to 90km/h with little hope at that stage to complete this mammoth task. Improving conditions, however, turned the day into a near classic with well developed thermals and rising cloudbase to about 15 000ft. This enabled Hans-Werner to return to base in under ten hours to claim a speed of 133.24km/h.

This flight also lays claim to the triangular distance record.

MOTOR GLIDER WORLD RECORDS

Two-seater world records for a 500 and 300km triangle at 111 and 133km/h on December 5 and 12, 1980, respectively are being claimed by Otto Wegscheider of Germany. The flights were carried out in a Janus-M starting from Bloemfontein, South Africa. His passengers were Karl Zuleck on the 500 and Mr Ascher on the 300km flight.

DORSET GOES DUTCH

DENNIS NEAL writes about his club's exchange, an arrangement which seems likely to snowball in the coming years with more groups following the Dorset GC's example.

The story began several years ago when the Dorset GC were visited by Bruno Zijp, CFI of a Dutch gliding club. He was on holiday and discovered our Tarrant Rushton airfield by accident. Since then he has visited us every year and we have watched the progress of his gliding family.

The idea of a club exchange was discussed and in July 1979 we arranged a special flying week for 20 pilots and their families who camped nearby. We had good weather, lots of flying, consumed vast quantities of the local brew and never stopped laughing. Personal friendships developed and we were invited to join them in 1980 for a flying holiday.

This August we set off with a party of pilots in a total of 23. We arrived at Lelystad airfield, Flevoland, an island of reclaimed land in the IJselmeer, 15ft below sea level, protected by dykes and drained by a multiplicity of canals and ditches, to a wonderful reception from old friends.

We were in a very different gliding environment having left our rolling hills and unrestricted airspace for an area where the only hills were man-made and the fields, roads and canals so regular navigation was a problem. There was also completely restricted air cover under the main airways and to remain beneath them we were on some days having to abandon unbelievable 8-10kt climbs after only a few turns. We also shared the airspace with a constant stream of light aircraft and parachutists.



Barbara Dyson preparing for her solo flight.

Much to the delight of everyone, Barbara Dyson was sent solo and is now in the unique situation of being the only British National with a Dutch A and B after first having to have a medical to comply with regulations.

The language could have been a barrier and we had learned the Dutch checks and a limited vocabulary of vital words, but soon found everyone understood English and no doubt had a private chuckle at our efforts with some of their impossible words.

In gliding and play we had an immediate accord, proof yet again that gliding folk are a breed apart. The hospitality and friendship shown by everyone made this holiday a memorable experience and we hope to continue the exchanges in future years with talk of twinning our clubs. To our Flevo friends, we say an enormous thank you for so many happy memories.

USSR NATIONALS

Unkind weather meant the 36 competitors at Oriel didn't get airborne until the ninth day. In the team score, the Russians were first with Nina Prosvirina, Mixael Udanov and Victor Kundin. Lithuania came second and the Ukrain third.

Marina Afrikanova, representing the Ministry of Aircraft Production, was the leading woman with Vladimir Shevchenko, representing the Ukrain, the first man.

A. KIVAL

(Translated and condensed from the October 1980 Krilya Ridiny by C. Wills).

SOARING EXHIBITION

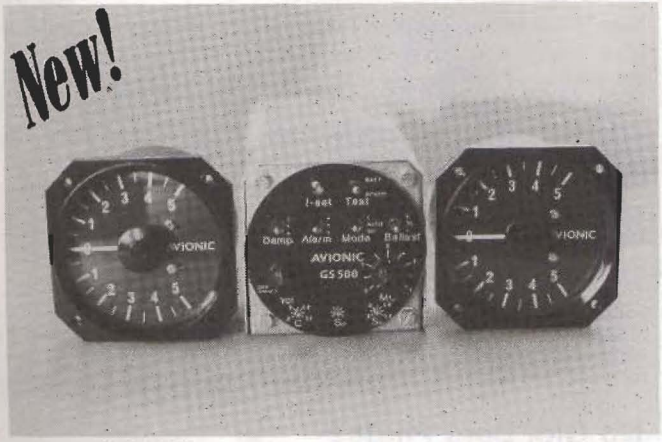
This annual exhibition was held at Valbrembo airport, Italy, in October when secondhand and new gliders were on show. Organised by Glasfaser Italiana, it is becoming an important shopwindow for gliders and equipment with many of the leading manufacturers represented.

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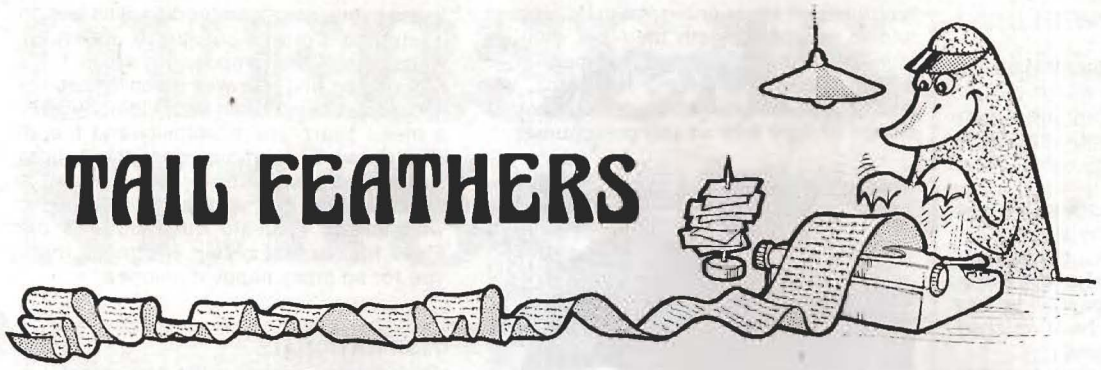
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TAIL FEATHERS



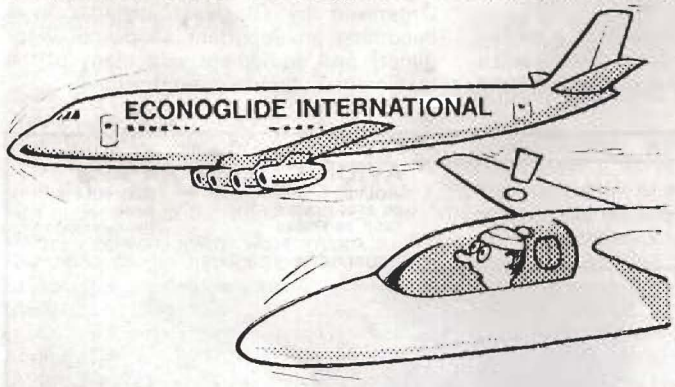
First in a new series of irreverent columns by

PLATYPUS

Are Glider Pilots Mad?

(See last issue, p306)

For Dr Brennig James, self-confessed hero of innumerable (but not untold) gliding escapades in many countries, including an abortive and ruinous expedition to the Himalayas (where the inscrutable local rulers rendered him every assistance short of actual help) to suggest that his fellow glider pilots may not have all the marbles that God gave them, verges, some would say, on *chutzpah*. (See the last issue, p306.) The burden of Doc James's argument, in case you are interested, is that by flying a motor glider on a light throttle you can get 40:1 and obviate the need for a £14 000 racing ship. A bit more power and you emulate the best the Open Class can throw at you. Hm. The *reductio ad absurdum* of that logic is to pack all the Booker members into a 747 (or better still, a DC-10, suggests a Dunstable pilot) and fly

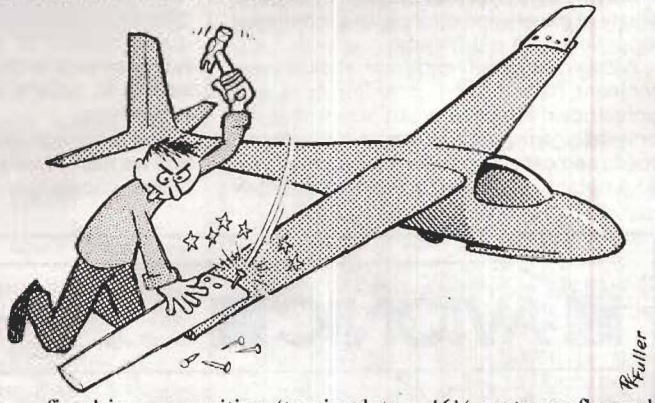


the whole show round the world on a light throttle. The cost per passenger mile would be far cheaper than gliding. I'm sure there's a flaw there somewhere, but I'm not sure what it is.

Nevertheless the strange things that Brennig says usually have embedded in them some nugget of truth: in this case he is raising the valid questions, are we paying an unnecessarily high price for performance these days and what is the most cost-effective way of covering the ground in soaring flight?

An incomplete answer to the first question (see Platypus, October issue, p210) is that it doesn't cost any more in real terms than twenty years ago. But of course we could still be paying more than necessary because of the artificial constraints of contest flying, which may improve the breed but only improves it from the point of view of contest pilots. The chief distorting factors are the entirely arbitrary 15 metre limit on the Standard and Racing Classes and the emphasis on speed-flying in the best part of the day. The best definition of cross-country cost-efficiency for the ordinary club pilot would be *the cost per closed-circuit mile across a whole year*. Clearly the glider that could soar cross-country before 11am and after 6pm not just in the summertime but in the early spring and late autumn or even the winter, daylight permitting, would do well in the mileage stakes. Let us therefore encourage the National Ladder and any other scheme that puts a premium on maximum utilisation.

As to cost I was impressed by the argument of the distinguished **Prof R. Eppler*** that for the cost of a flapped 15 metre wing one can build a much more efficient unflapped wing of 18 metres, or more. A 1981 equivalent of the Dart 17 or SHK will not be built however, because there is no place for them in National and International contests. A pity, since it would almost certainly be the most efficient machine by the criteria I have suggested. I've just had a thought: why don't we persuade the owner of an ASW-20L to fly with tip extensions but with



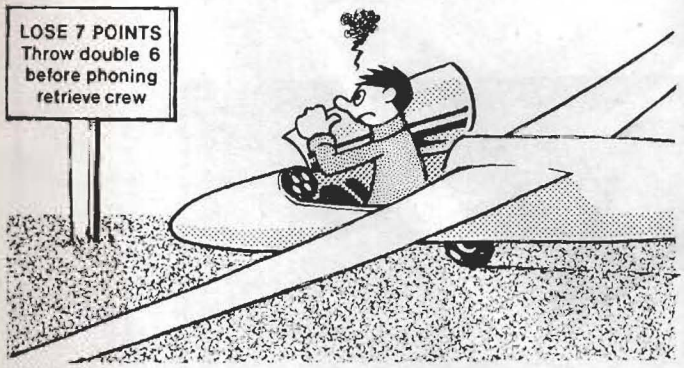
flaps fixed in one position (to simulate a 16½ metre unflapped glider) against an ASW-20 without tips but having full use of all the flappery? My money would be on the unflapped version — except for landing in small fields where the flaps are said to be superb. However that does not really affect the argument, since on a purpose-built unflapped glider a cheap but effective air-brake system is quite feasible. You see (if he says it again I swear I'll scream ED) — oh all right, out of respect for her feelings I'll say it under my breath: Th*r*'s n* s*bst*t*t* f*r sp*n!

**Footnote: See S&G, June 1977, p115 – "An increase in wing span costs very little compared with the installing of flaps. An 18m Class with all other restrictions of the present Standard Class would allow much better and cheaper gliders than the Racing Class, which is therefore fundamentally a regrettable development in the wrong direction."*

No Old, Bold Pilots?

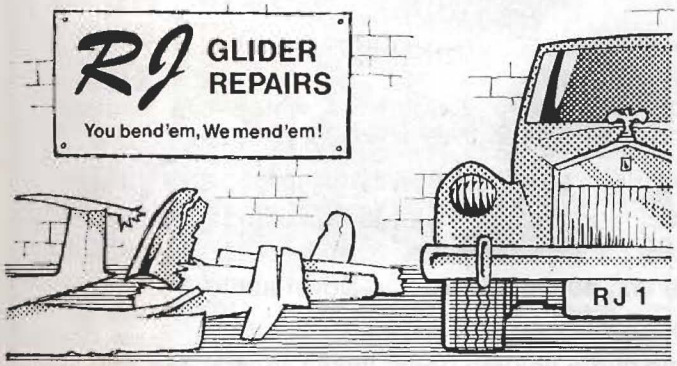


Another letter in the last S&G ("There is Always Knitting", p306) that caught my notice (at this rate no one is going to write to us at all in future! Ed) was a charge of buckshot fired at Mike Fairman's suggestion that, in contests, field landings away from approved sites should be discouraged by deducting penalty points. The writer pours scorn on what he sees as a pathetic



failure of nerve that accompanies creeping old age. Who, I ask as I read, is this virile young daredevil challenging us to get out there and risk all? Not merely the boldest pilot of our time, member of the Caterpillar Club* and Open Class National Champion, but the uncrowned King of the glider-repairers.

The last time I saw Ralph Jones (if one excludes the dreary meetings with the insurance assessors and wailing next-of-kin, *ie* partners) was at a party during a contest where he arrived tanned, flashing gold accessories, in an immaculate cream-coloured suit, looking for all the world like a character out of "Dallas" whose oil well had just come on stream. And well he might, since in that little comp there had been a mid-air collision, widespread field landing crashes and six or seven canopies



written-off. I wouldn't for a minute suggest that his profession colours his views, since he has always flown the way he works — hard. All the same I can imagine JR doffing his stetson to RJ and drawling "Smart fella!"

**or its equivalent depending on the brand of parachute used.*

What is a Grandad?

Talking about old age, a veteran pilot says:

★ Old Age is scanning the latest Rating List with anxious eyes, finding you do not qualify to fly in the Nationals next year — and falling back in your armchair with a great sigh of relief.

★ Old Age is telling a pack of (steadily improving) lies about what one did when one was young.

★ Old Age is flying, and retrieving, with the Guide Michelin instead of the ICAO maps.

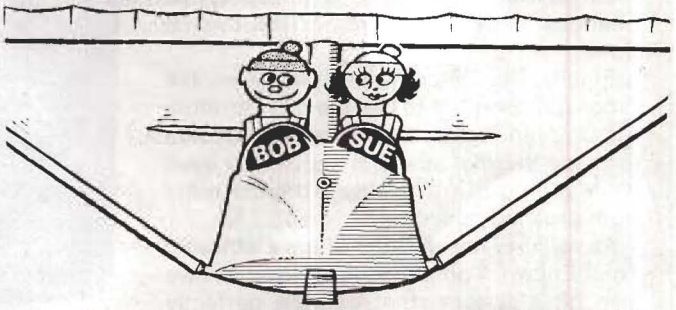
★ Old Age is soaring the wave while listening on the radio for the chink of ice in martini glasses, opening the brakes and descending in time for the Happy Hour.

★ Old Age is being so glad you have All Three Diamonds, not because you wish to show off but because instead of rigging before breakfast you can stay in bed.

★ Old Age is not being able to remember what you wanted to stay in bed for . . .



In a Sailplane Made for Two



How nice to have a new share in a really fizzy high-performance two-seater! A terrific fun-machine. The received wisdom is that top pilots don't like flying two up because they require single-minded concentration to give of their best. Speaking for myself, I need all the intellectual, moral and physical help I can get; two brains, twenty fingers and four eyes is the minimum I require to get any aircraft safely from A to B. On



one occasion flying solo on a free-distance day I unexpectedly found myself flying off the map and had to find and refold a North of England map. I spent an alarming twenty minutes wrapped in intractable fablon-covered paper which seriously impaired vision, control and language. Eventually the map was not refolded but had been pummelled into the approximate shape of a football, across which crumpled globe I managed to navigate up to Ilkley Moor, (which does actually exist, worms, ducks and all).

In the first two-seater I had the best navigator was a young chap with a Clark Gable moustache who eventually became Chairman of the BGA and navigated that very well too. It was

VARIOMETER SYSTEMS

The object of Total Energy (TE) is to remove the effects of airspeed changes on the vario display. What remains is the lift or sink which would be seen if you were actually holding a constant airspeed instead of manoeuvring.

Total Energy is not just for contest pilots. Any sailplane used for soaring needs TE compensation. Students have enough trouble trying to form a mental image of what a thermal looks like without the confusing inputs due to varying airspeed.

As one advances in thermalling techniques, one finds that the achieved rate of climb can often be increased by continuous manoeuvring including some abrupt speed changes. Only with good TE can this be done.

Finally, the TE compensator allows the cross-country pilot to use the glide stretching Dolphin flight manoeuvre and lets him evaluate thermal strength accurately even while pulling up in a chandelle thermal entry from cruising speeds.

As you may know, RICO offers Electronic Total Energy Compensation. However, we also offer systems that operate perfectly well from a good Total Energy probe. We offer a choice!

BUT which is best? The correct answer is neither or either. Electronic Total Energy relies on a first class static system in the glider, which it is not always possible to achieve. Probe Total Energy, on the other hand, is easier to get right but can suffer failure in rain, cloud or icing conditions.

THE CHOICE is up to you. If you need a system purely for fair weather VMC flying then the VAS is for you but, if you feel you need to be completely free of reliance on a probe, then the VACS will suit you best. It will cost you a little more but you will know that you possess the best that aerospace technology can supply. **REMEMBER.** Both the VAS and VACS models give you a flight director facility as well as the ability to have a read-out of air mass.



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- ★ Self-contained in just one unit to fit a standard size panel cut-out.
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in the days before audio variometers and he used to sing, the pitch going up and down as the vario rose and fell, so that the P1



could keep a good look-out. One moment it was Caruso, the next it was Chaliapin. His voice has never been the same since — nor after a couple of heavy landings (*ie* crashes) has his coccyx (for the ignoramuses amongst you, that means the lower vertebrae). The trouble with navigators is they can get ideas above their station. During one epic, (*ie* long and tedious) struggle, this dialogue took place.

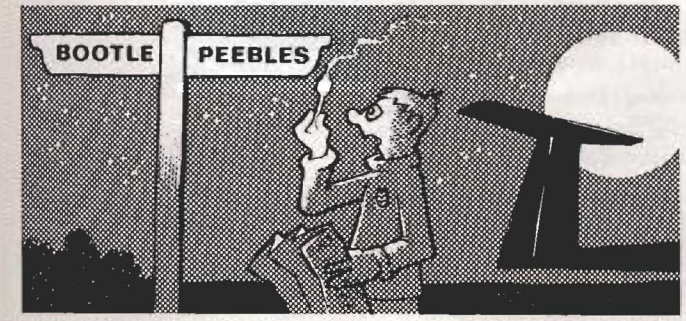
FCBGA (future Chairman, BGA): *You're not going very fast.*

P (Platypus): will the P2 kindly confine his observations to those of a purely navigational nature.

Long Pause.

FCBGA: *Navigator's Report coming up. The village we are over now is the same village we were over half an hour ago.*

Shortly after, we ran into a solid wall of sea breeze mist drifting inland from the Bristol Channel and, though thermals continued miraculously to bloom in this dense miasma, nearly every solo pilot got lost. In the K-7, however, our division of



labour into thermalling and navigating brought us to an almost deserted Nympsfield — the first contest race that I (sorry, *we*) had ever completed. Happy days!

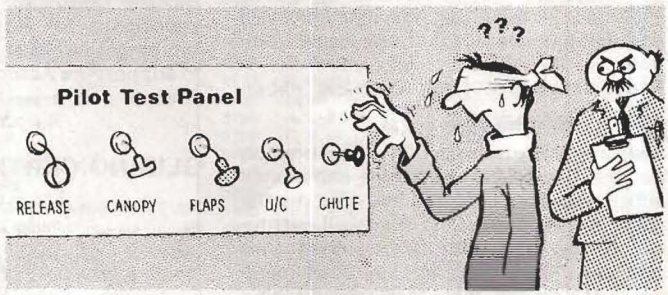
Fields and Fumbles: Knobs and Nightmares

When the Hammer House of Horror films have palled (they pall for me the moment the music starts) you can always make your flesh creep by reading the BGA accident reports in back copies of S&G. Besides the good old standby, the stall and spin



on the approach, two frequent sources of crashery appear to be 1) away landings and 2) confusion about knobs. Sometimes the two combine spectacularly, of course. I am an expert on safety only in the sense that a burglar is an expert on law and order, but it seems that so far as field landings are concerned there has been a dangerous clash of trends. First one does fewer field landings and gets out of practice because modern gliders can usually get back home. Secondly (until very recently at any rate) manufacturers have been much more interested in sheer performance than in safe and simple approach control. So you can go five miles from 600ft — a great temptation in contests — but you can be in deep trouble if you don't use all of that 600ft *now* to select a good field and plan your approach properly.

As to knobs, there are a number of cases of people mistaking the undercarriage or some other lever for the dive brake lever, not in emergencies but in the course of a perfectly normal, panic-free (initially, that is) circuit. That is baffling: aren't people at all curious about how far the brakes stick out of the wing at various positions of the lever? Don't they expect some buffeting? Maybe they get obsessed about what is going on inside the cockpit and become relatively incurious about what is happening outside. Before flying a new type why don't we each have a blindfold lever-identification check?



In panics, knobs present different problems. For instance, it is all too easy to push the (almost invisible) parachute release knob of the Nimbus 2 right through the gate and so deploy and jettison in one go. Great games of Hunt the Chute then follow, assuming you've landed in one piece.

On two-seaters, tell your passenger to touch *nothing* until instructed. "That little ventilator knob" can jettison the canopy, release the towline or deploy the parachute (the last has happened fatally on the continent).

Come to think of it, the only law that is invariably observed in gliding is Murphy's. **If it can go wrong it will.** □

Competition Kitty: *A. Southard, who was in the Dunstable competition, was omitted by the scorer from the Rating List given in the last issue, p263. It has been found that his ASS score of .62 places him in 47th position with everyone else dropping down accordingly.*

WINTER BAROGRAPHS

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BGA AND GENERAL NEWS

CARBURETTOR ICING — AVGAS/MOGAS
On each November 1st the volatility of motor-spirit (BS 4040) is raised (as measured by the Reid Vapour Pressure) to assist with starting in cold weather (the RVP of Avgas remains constant). Tests with the BGA's Airedale trials aircraft have confirmed that the effects of the higher volatility of winter grade Mogas is to reduce the carb choke temperature by some 7°C when compared with summer grade Mogas or Avgas.

Therefore, there is a need for increased vigilance in detecting the symptoms of carb-icing (power loss) at any throttle setting.

R. B. Stratton, *BGA Chief Technical Officer.*

NEW GLIDER REPAIR FIRM
Specialised Mouldings Ltd, a Huntingdon based FRP company with wide experience in the aerospace industry, have entered the glider repair market and may well eventually design and manufacture their own sailplanes. They have already been involved in the design, manufacture and racing of Formula 1 aircraft.

Cliff Ross, their marketing manager, explained: "Peter Jackson, our company Chairman and MD, is a very keen aviator. Some years ago he bought and rebuilt a Tiger Moth which he regularly flies at displays and exhibitions. He also flies as a member of a F1 air racing team.

"Some while ago, after a weekend gliding, he asked — 'Why aren't we in the sailplane repair business?' A good question. The facilities exist, the expertise is there and the enthusiasm. Also one of the staff, Philip Henderson, is a glider pilot and a BGA approved inspector. As a result, we are now in the repair business and, who knows, could eventually design and construct our own breed of sailplanes," he added.

CHURCHILL AWARD
Nominations are invited for a gliding project to capture the Churchill Award for 1981. This annual award of £100 is available to individual pilots for organised projects of some kind of research into gliding or related subjects such as meteorology.

Full details and entry forms are available from the BGA office and the closing date for the receipt of entries is April 30.

MORNING WATCH!
A remarkable story about a missing watch was reported by Paul Cullen, club news contributor for the South Wales GC. Apparently their member Steve Reed lost his watch out of the clear vision panel of a Skylark.

It dropped into a farmyard and at every milking time the farmer was aware of a strange noise — the alarm on Steve's watch. One morning the farmer went out earlier to try and discover the source of the sound and found the watch with Steve's name on the back.

INTER-UNIVERSITY TASK WEEK
This next task week will be at Duxford from June 28-July 5. For further information write to Michael Samuels, M3 Trinity Hall, Cambridge.

OBITUARY

GRP CAPT ROY GOODBODY
Grp Capt Roy Goodbody OBE died at Halton Hospital on October 1, 1980, at the age of 66. During his service he rose to become Chairman of RAFGSA and later, after his retirement in 1969, one of its Vice-Presidents. He will be remembered as a painstaking and wise administrator devoted to building the RAFGSA. It was during his Chairmanship that the Centre at Bicester assumed its permanence and importance for RAF Gliding, and in his retirement he never missed an opportunity to support the Association. He will be sadly missed.

J. DELAFIELD

GLIDING CERTIFICATES

ALL THREE DIAMONDS

No.	Name	Club	1980
109	R. I. Cowderoy	RAE Farnborough	30.9
110	A. D. Piggott	Lasham (in USA)	3.9

DIAMOND DISTANCE

No.	Name	Club	1980
1/166	D. S. Innes	Lasham	24.8
1/167	A. Pybus	in Australia	15.12.79
1/168	A. D. Piggott	Lasham (in USA)	3.9

DIAMOND GOAL

No.	Name	Club	1980
2/997	D. A. Wilson	Enstone	25.8
2/998	M. Ward	Lincoln	25.8
2/999	N. R. Foster	London	12.6
2/1000	R. J. Nicholls	Midland	24.8
2/1001	Maria Boyd	Surrey & Hants	26.8
2/1002	R. Walton	Airways	25.8
2/1003	P. Purdy	USA	31.8

DIAMOND HEIGHT

No.	Name	Club	1980
3/465	J. P. McNamee	Cambridge Univ	2.9
3/466	F. Hemmings	Shropshire	3.10
3/467	J. A. Knowles	RAE Farnborough	30.9
3/468	R. I. Cowderoy	RAE Farnborough	30.9
3/469	M. J. Evans	Lasham	4.10
3/470	W. J. Stout	Newcastle	6.9
3/471	J. A. Davies	Surrey & Hants	4.10
3/472	P. L. Bisgood	NAE Aero Club	29.10
3/473	G. W. Sturgess	Wyvern	31.10
3/474	I. D. Bell	Essex & Suffolk	29.10
3/475	M. A. Dean	Trent Valley	13.11
3/476	J. N. Ellis	Yorkshire	11.11
3/477	P. J. F. Hewitt	Portsmouth	31.10
3/478	J. Williams	Trent Valley	13.11

GOLD C COMPLETE

No.	Name	Club	1980
780	D. A. Wilson	Enstone	25.8
781	M. Ward	Lincoln	25.8
782	A. J. Norrie	Surrey & Hants	4.10
783	J. D. Holland	Cotswold	8.10
784	A. Wright	Thames Valley	4.10
785	A. Pybus	in Australia	31.12.79
786	P. Purdy	USA	31.10
787	J. M. West	Surrey & Hants	19.10
788	R. J. Nicholls	Midland	24.8
789	L. J. Sole	Lasham	19.10
790	A. P. Walsh	Norfolk	29.10
791	M. J. Lawry	Bicester	31.10

GOLD C DISTANCE

Name	Club	1980
D. A. Wilson	Enstone	25.8
M. Ward	Lincoln	25.8
N. R. Foster	London	12.6
P. Purdy	USA	31.10
R. J. Nicholls	Midland	24.8
Maria Boyd	Surrey & Hants	26.8
R. Walton	Airways	25.10

GOLD C HEIGHT

Name	Club	1980
A. M. Batchelor	Pegasus	2.5
P. Burns	Two Rivers	2.4
E. W. Moore	Northumbria	6.9
R. H. Pursey	Cambridge Univ	2.9
A. J. Norrie	Surrey & Hants	4.10
R. E. Brown	Essex	30.9
P. B. Irving	Newcastle	6.9
G. D. Pickles	Clevelands	6.9
Ann Thompson	Clevelands	6.9
J. D. Holland	Cotswold	8.10
R. W. Partridge	Surrey & Hants	8.10
P. Walley	Thames Valley	30.9
D. Harris	Thames Valley	30.9

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D. B. Almey	Cranwell	30.9	
J. A. Hull	Cranwell	30.9	
J. Healey	Essex	8.10	
R. Fry	Essex	30.9	
A. Wright	Thames Valley	4.10	
K. Martin	Hereford	6.9	
A. Pybus	in Australia	31.12.79	
P. Purdy	USA	9.3	
M. A. Newland-Smith	Essex	8.10	
J. M. West	Surrey & Hants	19.10	
V. J. Chambers	Surrey & Hants	8.10	
M. A. Germain	Deeside	30.9	
D. Loraine	Wyvern	31.10	
R. A. Slade	Bath & Wilts	19.10	
L. J. Sole	Lasham	19.10	
W. H. Bush	Bicester	31.10	
A. P. Walsh	Norfolk	29.10	
A. P. Beaumont	Yorkshire	13.11	
M. J. Lawry	Bicester	31.10	
T. Wilkinson	Twinwood	29.10	
J. L. Riley	SGU	21.8	
M. E. Dry	Bicester	31.10	
A. M. Thomson	Fulmar	19.10	
P. J. F. Hewitt	Portsmouth	31.10	
P. J. Sowden	Bicester	27.10	
J. Williams	Trent Valley	11.11	
C. S. Miller	Yorkshire	11.11	
A. A. Priestley	Yorkshire	11.11	
G. Higgins	Yorkshire	11.11	
T. A. Hollings	Yorkshire	11.11	
S. Savage	Portsmouth	31.10	
S. N. Lawrence	Fenland	29.10	

SILVER C

5702	Charlotte Wilson	London	10.8
5703	I. Hughes	Lasham	28.7
5704	J. H. Roberts	Buckminster	31.7
5705	M. Clarke	Peterboro' & Spalding	10.8
5706	P. S. Butt	Bannerdown	9.8
5707	D. N. Campbell	Eagle	15.6
5708	R. Cousins	S. Yorks & Notts	10.8
5709	D. W. Squire	Culdrose	17.8
5710	F. Aspinall	Two Rivers	10.8
5711	P. J. Smith	Rattlesden	16.8
5712	K. R. Davis	Peterboro' & Spalding	16.8
5713	M. L. Boxall	London	24.7
5714	C. Fox	RAE	16.8
5715	J. G. Reid	Peterboro' & Spalding	18.8
5716	G. J. Phillips	Phoenix	10.8
5717	P. Etherington	Doncaster	10.8
5718	J. Nicholson	Upward Bound	9.8
5719	M. J. Mayo	Bristol & Glos	21.8
5720	D. P. Wilson	Humber	23.8
5721	J. H. Belk	Bicester	23.8
5722	A. L. Garfield	London	24.8
5723	A. V. Sullivan	Southdown	23.8
5724	J. C. Hollenberg	Lasham	24.8
5725	J. C. R. Rogers	Cranwell	16.8
5726	M. J. Hastings	Oxford	18.8
5727	B. Fairston	London	17.8
5728	C. S. Edmonson	Humber	23.8
5729	J. Bridge	Woodspring	25.8
5730	G. Waldock	South Wales	24.8
5731	A. N. Ely	Strubby	16.8
5732	H. R. Thomson	Buckminster	25.8
5733	D. G. Rose	Phoenix	25.8
5734	M. F. Phillips	Hambletons	23.8
5735	P. G. Myers	Blackpool & Fylde	24.8
5736	Susan Marshall	Woodspring	24.8
5737	G. Wright	Yorkshire	24.8
5738	M. Gibson	Wolds	28.8
5739	J. Nelson	Phoenix	25.8
5740	C. Chapman	Coventry	22.8
5741	L. W. Bizley	Bristol & Glos	25.8
5742	A. K. O'Fee	Bannerdown	24.8
5743	B. Searle	Thames Valley	9.5
5744	P. Housley	Thames Valley	16.8
5745	G. Gilmore	Cotswold	24.8
5746	S. Matyear	Wyvern	24.8
5747	K. A. Tinker	Welland	25.8
5748	M. D. Joyce	Doncaster	25.8
5749	S. M. Hinder	Surrey & Hants	25.8
5750	M. N. Martin	Buckminster	8.9
5751	J. S. Wilson	SGU	21.8
5752	M. T. Elston	Peterboro' & Spalding	16.8
5753	B. Perks	Wyvern	24.8
5754	P. Ryland	Coventry	25.8
5755	T. J. Satchell	Four Counties	31.8
5756	D. P. G. Butt	Enstone	16.8
5757	S. W. Brown	Avon	25.8
5758	R. C. Tyler	Culdrose	30.8
5759	K. J. Gouldstone	London	23.8
5760	H. W. Lock	Swindon	25.8
5761	P. A. Winchester	Lasham	23.8
5762	P. B. Irving	Newcastle	24.8
5763	P. L. Wood	Wyvern	3.9
5764	A. P. Beaumont	Yorkshire	6.9
5765	A. H. Powling	Norfolk	24.8
5766	A. J. Birkbeck	Derby & Lancs	31.8
5767	P. L. Poole	Kent	22.8
5768	T. Gornall	Blackpool & Fylde	25.8
5769	P. E. Clay	Four Counties	16.8
5770	J. Croxall	Coventry	16.8
5771	A. E. Hirst	Yorkshire	8.9
5772	D. Hey	Ouse	24.8
5773	J. T. Insworth	Norfolk	31.7
5774	A. J. Rees	Yorkshire	6.9
5775	J. Cook	Trent Valley	28.8
5776	R. Hannigan	Trent Valley	25.8
5777	F. Prime	Cambridge Univ	25.8
5778	D. P. Bailey	Midland	30.5
5779	Jayne Lee	Two Rivers	17.5
5780	R. C. W. Ellis	London	25.8
5781	M. D. Williams	Wrekin	31.8
5782	G. H. Williams	Imperial College	31.8
5783	N. Edmonson	Chilterns	25.8
5784	R. Buckley	Blackpool & Fylde	23.8
5785	A. Durbin	in USA	15.6
5786	L. Everitt	South Wales	14.9
5787	D. M. Badley	Shropshire	25.8
5788	D. J. Garnett	Cambridge Univ	6.9
5789	M. Blair	Southdown	4.9
5790	W. Gordon	Pegasus	23.8
5791	C. Nugent	Lasham	24.8
5792	B. Briggs	Cranwell	18.5
5793	P. Burns	Two Rivers	6.7
5794	P. Southam	Fenland	25.8
5795	A. S. Edlin	Stratford on Avon	24.9
5796	C. S. Miller	Yorkshire	23.8
5797	J. W. Macro	Thames Valley	9.6
5798	E. Rigby	Airways	10.8
5799	O. Wylie	SGU	9.10
5800	J. S. Forster	East Sussex	2.10
5801	W. J. Hill	Trent Valley	4.10
5802	A. G. I. Dodds	SGU	9.10
5803	P. Walley	Thames Valley	30.9
5804	R. Fry	Essex	30.9
5805	Ellen Prothero	Booker	2.10
5806	P. C. G. Wyld	Airways	18.10
5807	P. Airey	Humber	9.10
5808	L. F. Parris	Kent	10.10
5809	P. Purdy	USA	31.8
5810	R. Goodman	Coventry	24.10
5811	Sarah Bailey	Two Rivers	14.11
5812	A. Blowers	Norfolk	25.8

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ANNUAL STATISTICS — OCTOBER 1, 1979 TO SEPTEMBER 30, 1980

GLIDING CLUBS	AIRCRAFT				LAUNCHES	HOURS	CROSS-COUNTRY Kms	FLYING DAYS		COURSES		MEMBERSHIP	
	Club 2s	Club 1s	PO	Tugs				Total	Soaring	No.	Pupils	Flying	Non-Flying
ALBATROSS	1	1	3	—	670	78	—	36	13	2	48	35	11
ALTAIR	1	2	2	0	1198	106	164	60	7	—	—	15	3
ANGUS	2	2	2	—	4223	648	360	102	41	—	—	63	12
AQUILA	2	1	9	1	1899	534	6000	90	35	—	—	31	—
AVON SOARING CENTRE	1	1	10	1	1265	850	4000	149	104	—	—	34	—
AVRO	4	1	1	0	4354	510	34	104	50	—	—	150	20
BATH & WILTSHIRE	2	3	20	2	3511	1627	7500	114	60	—	—	98	8
BLACKPOOL & FYLDE	2	2	15	0	3690	1710	1000	107	75	—	—	120	14
BORDERS (Milfield)	2	3	6	—	3140	588	600	117	50	—	—	54	4
BRISTOL & GLOUCESTERSHIRE	3	3	28	3	6408	3892	11 871	224	147	24	143	281	66
BUCKMINSTER	2	2	17	1	3405	1130	10 300	184	64	13	51	89	5
CAIRNGORM	2	0	4	0	1460	250	1100	80	41	13	75	25	10
CAMBRIDGE UNIVERSITY	3	5	28	3	8079	3785	34 425	195	103	10	55	182	101
CONNEL GLIDING CLUB	2	0	0	—	1198	135	—	54	28	—	—	43	—
CORNISH	4	0	6	1	4080	794	1340	89	86	21	115	89	23
COTSWOLD	4	1	22	—	7495	2325	9070	161	87	1	7	133	41
COVENTRY	4	2	43	4	6104	3515	19 970	193	75	24	90	265	82
CRANFIELD	1	1	10	2	1166	515	2000	76	29	—	—	80	—
DEESIDE	3	2	5	2	3090	2150	1300	215	140	1	4	103	—
DEFFORD (RSRE)	2	1	—	—	1373	136	150	56	33	—	—	26	5
DERBY & LANCS	3	3	22	—	6352	2276	4300	170	109	10	162	176	74
DEVON & SOMERSET	2	3	15	1	7328	2163	12 277	200	111	6	45	186	39
DONCASTER	3	4	15	2	5432	2094	7425	174	73	—	—	152	15
DORSET	3	3	10	2	3117	1078	1577	122	54	—	—	129	50
DUMFRIES	1	0	3	—	329	63	112	41	23	—	—	18	—
DUNKESWELL	2	1	3	1	3489	321	1200	160	50	6	48	45	5
EAST SUSSEX	2	2	11	1	4240	625	1500	109	50	2	12	92	30
ENSTONE	2	0	18	1	3551	800	10 500	105	41	—	—	60	3
ESSEX	3	2	24	1	8138	1527	13 886	—	—	25	146	196	7
ESSEX & SUFFOLK	2	2	9	2	2636	1327	5500	126	52	—	—	112	—
GLAMORGAN	0	1	0	0	INCLUDED IN SOUTH WALES RETURN							5	1
HAMBLETONS	2	4	4	3	2346	846	2500	166	69	—	—	162	—
HEREFORDSHIRE	3	1	18	2	3137	2230	3600	204	129	25	93	120	—
HIGHLAND	2	2	1	—	2733	395	1100	99	48	—	—	40	—
IMPERIAL COLLEGE	0	3	0	0	707	352	7500	137	87	1	6	44	12
INKPEN	3	0	5	1	2100	1000	2200	43	25	25	25	35	—
KENT	4	3	20	2	10 612	8647	5075	250	96	28	280	236	59
LAKES	2	1	5	1	2066	683	—	42	32	9	79	57	6
LASHAM	5	0	104	5	30120	8520	200 000	320	212	80	252	710	270
LONDON	4	5	74	6	15 635	7540	—	—	—	33	248	347	80
MARCHINGTON	1	1	7	1	590	277	600	52	26	—	—	85	2
MIDLAND	3	3	18	—	9507	3642	12 453	210	160	28	274	181	68
NENE VALLEY	1	—	2	—	503	71	—	36	20	—	—	27	—
NEWCASTLE & TEESIDE	2	1	6	1	1750	525	1000	120	60	—	—	50	5
NORFOLK	2	2	21	2	3631	2331	18 810	191	88	8	63	140	20
NORTHUMBRIA	3	1	19	1	3380	673	2000	159	73	7	42	118	24
NORTH WALES	1	1	—	—	891	91	—	48	17	—	—	25	—
NORWICH SOARING	0	1	5	1	147	151	1200	36	26	—	—	18	—
OUSE	2	1	8	1	621	297	4067	53	15	—	—	89	18
OXFORD	2	3	12	—	2559	814	2002	108	—	—	—	70	5
PETERBOROUGH & SPALDING	2	2	8	2	1549	—	—	101	—	—	—	54	—
POLISH AFA*	—	2	1	1								25	6
RATTLESDEN	2	2	5	—	2490	340	700	81	45	2	40	50	—
RIDGEWELL OATLEY	2	2	6	—	1800	154	—	85	30	—	—	33	2
ROYAL AIRCRAFT ESTABLISHMENT	2	3	4	—	4472	1128	3391	133	53	—	—	74	14

ANNUAL STATISTICS — OCTOBER 1, 1979 TO SEPTEMBER 30, 1980

GLIDING CLUBS	AIRCRAFT				LAUNCHES	HOURS	CROSS-COUNTRY Kms	FLYING DAYS		COURSES		MEMBERSHIP	
	Club 2s	Club 1s	PO	Tugs				Total	Soaring	No.	Pupils	Flying	Non-Flying
SCOTTISH GLIDING UNION	5	5	30	2	10 798	6013	10 102	284	201	26	252	271	15
SHALBOURNE	2	1	6	—	3417	452	1070	98	—	—	—	61	—
SHROPSHIRE	0	0	10	1	541	684	4757	78	58	—	—	27	—
SOUTHDOWN	2	3	18	1	6506	2033	9464	190	70	—	—	190	44
SOUTH WALES	2	2	14	1	2405	949	—	—	46	4	24	110	2
SOUTH YORKS & NOTTS	1	1	4	0	3059	515	400	94	52	1	7	50	—
STAFFORDSHIRE	1	1	4	0	2285	304	30	93	56	1	6	65	7
STRATFORD ON AVON	3	3	18	2	6051	1392	3250	144	35	4	40	125	12
STRATHCLYDE	2	1	1	—	1250	79	76	61	18	—	—	70	—
STRUBBY	2	1	4	—	4176	551	472	116	44	—	—	55	—
SURREY & HANTS	—	12	—	—	5062	2158	19 000	—	—	—	—	295	—
SWINDON	2	3	10	1	4711	1730	16 300	140	58	—	—	85	10
THAMES VALLEY	AS WYCOMBE											313	—
TIGER CLUB SOARING	—	—	—	3	66	21	—	9	1	—	—	10	—
TRENT VALLEY	2	2	12	—	6634	1510	7420	111	60	—	—	79	2
TYNE & WEAR*	NO STATISTICS RECEIVED											26	—
ULSTER	2	0	7	1	515	351	100	37	33	—	—	29	—
UPWARD BOUND	3	—	1	—	2870	480	350	60	17	Cont. Prog.	16	31	3
VALE OF NEATH	2	1	5	1	2484	874	900	155	121	2	16	29	4
WELLAND	2	—	3	—	1933	181	270	62	27	—	—	24	2
WEST WALES	3	—	2	—	1200	330	—	55	32	—	—	26	—
WOLDS	3	1	9	1	5000	860	7130	134	47	2	12	111	11
WOODSPRING	2	2	6	—	4608	670	400	144	75	—	—	85	—
WYCOMBE (AIRWAYS)*	NO STATISTICS RECEIVED											487	—
YORKSHIRE	3	5	45	3	6406	1829	—	318	256	23	210	279	25
CIVILIAN CLUB TOTALS:	164	142	923	78	294 743	102 225	519 150	8570	4449	465	2986	8810	1357
ARMY GLIDING ASSOCIATION:													
KESTREL	3	4	3	1	5880	982	10 106	99	40	—	—	80	30
SOUTH WEST DISTRICT (Wyvern)	2	4	7	1	6584	1499	13 596	135	52	3	24	95	—
ROYAL AIR FORCE GSA:													
ANGLIA	NO STATISTICS RECEIVED											49	—
BANNERDOWN	2	3	4	—	10 067	1651	12 813	155	68	2	12	140	—
BICESTER	8	18	—	4	18 479	6107	21 178	241	—	12	260	280	—
CHILTERNS*	3	2	2	—	2331	662	3509	101	35	—	—	35	5
CLEVELANDS	3	4	9	2	5028	1090	17 592	164	164	—	—	198	20
CRANWELL	3	2	9	1	7000	1150	3000	110	33	—	—	70	—
FENLAND	3	2	3	—	6173	1160	4500	127	31	—	—	60	—
FOUR COUNTIES	3	4	10	—	7200	2416	31 555	134	76	—	—	110	6
FULMAR	3	3	2	—	4307	614	1371	70	22	—	—	67	—
HUMBER	2	2	6	—	6976	1372	8824	99	39	—	—	65	2
WREKIN*	4	1	6	1	5575	1005	1550	125				149	—
ROYAL NAVAL GSA:													
CULDROSE	3	2	3	2	1936	554	2826	44	25	1	13	61	—
HERON	3	2	5	1	2148	727	462	85	44	—	—	104	—
PORTSMOUTH NAVAL*	4	3	3	3	3276	807	2007	105	25			180	10
SERVICE CLUB TOTALS:	49	56	72	16	92 960	21 796	134 989	1794	654	18	309	1743	73
CIVILIAN CLUB TOTALS:	164	142	923	78	294 743	102 225	519 150	8570	4449	465	2986	8810	1357
GRAND TOTAL:	213	198	995	94	387 703	124 021	654 139	10 364	5103	483	3295	10 553	1430

CLUB NEWS

Copy and photographs for the April-May issue of S&G should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 47725, to arrive not later than February 10 and for the June-July issue to arrive not later than April 14.

December 3, 1980 **GILLIAN BRYCE-SMITH**

BRISTOL & GLOUCESTERSHIRE (Nympsfield)

Apart from a superb ridge day on November 29, autumn was no more spectacular than the mediocre summer. We have seen some wave but few pilots have managed good climbs. We are now hoping for good winter westerlies.

Jed Barrett is giving a slide show on his gliding exploits in the French Alps and Chalky and Sue are running the Christmas party. Our Secretary, Eric Drummond, has retired and will be replaced by James Metcalfe. John Patchett has completed an instructors' course and joined the duty rota.

At long last we have the new engine for the Super Cub so we should be back to full tug strength early in the New Year.

R.A.R.

CAMBRIDGE UNIVERSITY (Cambridge and Duxford)

The annual search for the big waves by our lowland pilots resulted in a Gold height for Bob Pursey and a Diamond for John McNamee, both at Aboyne on the same day.

The club fleet has been further reduced by the sale of a Swallow but a K-8 or similar should soon be acquired.

Our own hangar is being built at Duxford which will mean learning to hangar pack after having the luxury of a quarter of one of the original WW1 hangars.

P.E.B.

DEESIDE (Aboyne Airfield)

Snow and bad weather have brought the season to a dismal close after a generally poor year. Several good thermal and wave days in summer got cross-country hopes up, with little success. During the autumn wave season visitors squeezed every possible Gold and Diamond height out of the few soaring days.

However membership rose during 1980 to 110 and club launches were up on previous years. Work has at last begun on the clubhouse.

Rumours of grants from local authorities have rekindled hopes of expanding the club fleet to include a glass ship, but we are still waiting for confirmation.

C.B.

DEVON & SOMERSET (North Hill)

Our AGM reports indicate that 1980 was pretty healthy apart from the weather.

Chairman, David Minson, (Skylark 4) is Club Ladder leader after several worthy Gold distance attempts. Other good flights have been made by Eric Shore (Dart 15), Tim Gardner and Julian Hine (DG-100), Chris Miller, Gordon Peters and Reg Welch (Club Astir) and Dave Reilly (Skylark 4). Gordon collected a Silver height and Reg — for the last time — the inter-club pot from Tarrant.

Bar management has changed and also the flying. CFI, Mike Fitzgerald, has stepped down for personal reasons. We are sad about this but thank him for all his hard work in a most exacting task. Terry Jenvey is his successor.

The club's Dart 15 has been sold at last, to an on-site syndicate. The proceeds and a Sports Council Grant (awaiting confirmation) have boosted consideration of a two-seater replacement.

Tony Thomas and Arthur Ball have completed their Bronze, Arthur having graduated from the wartime non-soaring types. Quentin Browell, Bob Metcalfe, David Palmer and Ron Smith have soloed, and some enterprising *ab-initios* organised their own course in late October to build up experience. Wave on November 1 stayed for several hours and was contacted both from winch launches and from the south ridge.

I.D.K.

DORSET (Henstridge)

We have now had to leave Tarrant Rushton for Henstridge until we can find a permanent home.

Congratulations to our CFI, Robin May, on coming ninth in the Standard Class Nationals and to Bob Collins on Silver distance, but it was hard luck for Steve Chivers to miss his duration by 1½min.

J.L.C.

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ESSEX & SUFFOLK (Hadleigh)

We have had two months of disappointing weather with little achieved. However, Ian Bell took the Libelle to Portmoak and climbed to 20 000ft for his Diamond.

Bonnie Haughton and Peter Smart have converted to the K-6. We have four members with PPLs who are converting to the Condor.

We are looking forward to the highspot of the month — our end of the soaring season supper/disco.

J.A.S./V. H.

HEREFORDSHIRE (Shobdon)

We had a lively AGM with lots of participation from the floor. Special attention was paid to the needs of our Bronze C pilots. Tony Maitland topped the Club Ladder and was presented with a bottle of vintage port. (He was eighth on the National Ladder).

The Erdisland trophy (for hard work and effort) went to Ken Martin, an invaluable club member and instructor.

Tony Greatrex, Dick Bavin, John France and Mike Wylde have bought a Pilatus. Kevin Jones completed his Bronze.

Autumn wave was quite good and Tony Maitland had a nice flight on October 21 in his Mini Nimbus with a climb to 14 000ft.

The Dunstable mob (who are an education to us) had wave on four out of their seven days. The Norfolk Club expedition had Gold and Silver heights and we were visited by Chris Rollings and the Booker Twin Astir.

R.P.

INKPEN (Thuxton Airfield)

We doubled our membership last year and in spite of the poor weather many of the newcomers went solo.

Our Chairman, John Francklow, and Committee have decided that in view of the success of our courses last year we should extend our seven day flying from April until September. We shall run courses but members and visitors will be welcomed any day of the week to keep our Citabria busy.

We are well equipped with a Blanik for basic training and two new IS-28s for more advanced and cross-country flying. We still have our faithful Oly 2B.

At our Christmas party a presentation of a weather vane with a silhouette of their own glider was made to Isobel and Mike Whittingham who did so much to help the club in the past.

P.P.

KENT (Challock)

We look back on a successful season both from the soaring and financial viewpoint, which is particularly encouraging in the current economical climate.

Tony Moulang and Mike Kemp did well in Competition Kitty, also taking part in the Nationals and Northern Regionals respectively. Terry Bramfitt achieved fifth place in the club division of the National Ladder which is the highest attained in recent years by a Kent GC pilot.

The annual dinner-dance was well attended and the trophies were awarded to Tony

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Moulang (League One); Dennis Wright (League Two); Jill and John Hoye (Two-seater cup); Mike Kemp (best flight); Terry Bramfitt (best 100km and best flight from Challock in a club glider); Alan Garside (instructors' bowl) and Michael Moulang (*ab-initio* shield).

We hope to have a K-8 soon, maybe two, the club Swallow having been transferred to a syndicate within the club.

The winter lectures have proved a great success and helped to bridge the gap between the old and new seasons.

D.H.

NEWCASTLE & TEESSIDE (Carlton)

After depressing summer conditions September and October were an improvement. On September 6 we had good wave and John Stout (LS-3) achieved a Diamond with over 23 000ft and Peter Irving (Sie 3) a Gold. Peter had to break off at 14 000ft as he hadn't any oxygen.

Congratulations also to Mark Fulton on going solo during Alan Spellman's course at the end of October. Our achievements have surpassed previous years with six solos, four Bronze Cs, ten Silver legs (with two Silver Cs completed), two Gold heights and a Diamond height.

We hope the K-6E, damaged on a cross-country, will soon be back.

W.R.I.

NORFOLK (Tibenham)

About half the club went to Shobdon after wave at the end of October. Our thanks to the organiser, Anthony Walsh, and to Shobdon. Anthony went to 15 000ft for Gold height and Andy Currell to about 11 000ft for Silver.

Our thanks to deputy CFI, Nigel Riley, for acquiring a large room for our MCPPL navigation class and to Mike Bean for the instruction.

M.J.R.L.

NORTHUMBRIA (Currock Hill)

To most people 1980 was the worst season in memory but John Greenwell's statistics prove that 1978 was as bad, which shows what short memories we have. Wave in September gave some notable flights for our awards, presented at the annual party in November. It was a successful evening with 80 present.

The awards were: Club Ladder, Andy Townsend with John Greenwood as runner-up; Cawthorne trophy, Andy Townsend for a 227km triangle; best achievement in a club glider, Bob Nichol who gained two Bronze legs soon after going solo; Wave trophy, John Westwood with a gain of 11 500ft; best dual flight, Charlie Douglas with 13 000ft and non-Silver C Ladder, Ernie Moore with a five hours and Gold height to become the first holder of the Rik Walton trophy; runner-up Derek Staff. Solo wings went to Ken Harrison, Bob Nichol, Mike Pearson, Alan Donaldson, Dick Blundell and Norman Levinson who also received copies of **The Principles of Flight** by Bill Scull.

We say farewell to Pauline Little who has moved to Perth and to the two doors from George's trailer lost on separate journeys.

J.W.

OXFORD (RAF Weston-on-the-Green)

Our neighbours the Chilterns RAF Club have gone to Halton leaving us to fight for our share of the airfield alone. However the situation between ourselves and the parachutists is fairly stable and there are some signs to suggest that our launch rate, which has fallen by 30% in two years, may improve next season.

Reflecting this decline the club membership stands at 70, and only about 50 turned up for the AGM. The meeting elected a new Chairman, John Giddins, and there was a general re-shuffle of other officers.

For a small club we were pleased to have three pilots at the Nationals this year; well done Phil Hawkins, Richard Hall and Jane Randle. A total of 14 pilots competed in various Regionals, the best placing being Janis McGill's fifth at Booker.

Latest arrival on the airfield is John Smoker's Grunau, finished at the wrong end of the season after years of effort. He now has a choice between the Grunau and his big heavy Kestrel.

P. H.

PETERBOROUGH & SPALDING (Crowland Airfield)

We finished our season with a roaring Hallowe'en party attended by 70 members and friends.

The Bocian is on its back having its tummy painted as well as other C of A items and we are hoping to complete most of the C of A

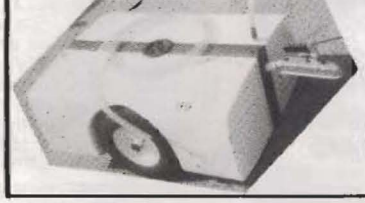
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Kelvin Davis has been selected along with two others (see December issue, p294) to submit full proposals in the BGA Home-Built Sailplane Competition. The best of luck Kelvin from us all.

"Syndicate shuffleitis" is appearing with the possibility of the Pirat, Swallow and Skylark 4 being updated, but sadly as this is written we have lost one of our tugs. Ron, on the last tow of the day, suffered engine failure and landed safely in a nearby field, only to find a near invisible ditch at the end. Never mind Ron, not every club has had a retrieve with a JCB and low loader.

M.S.C.

SOUTHDOWN (Parham Airfield)

It was an eventful summer with 13 completed Silvers Cs and two Diamonds, one by Angus Buchanan on the last day of the Nationals when he flew over 500km, and another when John Frampton gained Diamond height at Aboyne in September.

Ria Ward flew her 50km to Lasham while her husband, John, displayed remarkable field selection by landing out within 200 yards of a pub during opening hours. CFI, Keith Mitchell, and Brian Bateson went cross-country on a very scratchy day and kept members in the clubhouse busy making a book on their chances; both managed to scrape home.

The annual trip to Portmoak was enjoyed by all who appreciate a good joke and three members learned to swim in the carpark while waiting for the rain to stop. There were first solos by Ron Creswick, Alan King and Naomi Collier, while Roger Coombs completed his Bronze.

It's nice to see ex-CFI, George Constable, instructing again after many years in the hot seat and finding more time to give his vast experience to the *ab-initios*.

B.A.B.

SOUTH WALES (Usk)

Some good ridge and wave days at the end of the season enabled Dick Dixon to make his first flight into the Brecon Beacons. Congratulations also to Phil Edwards and Peter Stephens on their Bronze C and to Xenakis Symeonides for going solo.

The skills of our tug pilot, Norman Evans, were put to the test when at 800ft with a K-13 in tow a pot on the engine nearly disintegrated. But Norman landed the tug safely.

We were pleased to have Roddi Morgan and his Fauvett for a week at the end of which Chris Rollings's gang arrived with a Twin Astir which Ivor Shattock landed out for them.

Ivor Shattock, the man who started the South Wales GC on a mountain top by putting an advert in a local paper, was made Vice-President at the AGM.

P.A.C.

OBITUARY

D. H. Roberts

It is with a sense of deep loss that we have to report the death of Danny Roberts as a result of one of those things medicine, in all its wisdom, hasn't got round to yet. Everyone who knew him whether at work, at instructing or repairing, quickly came to realise that here was a dependable, industrious and caring man. If he chided you it was because you needed chiding and yet if you needed help he would be there.

Our club started on his father's farm and it was there he quickly became a solo pilot and qualified inspector. On our move to Usk when we acquired a tug he was one of our first tug pilots and eventually our CFI for several years, taking up the reins again when I became ill for a while.

His love of flying was evident in the enthusiastic way he soared and taught almost every Sunday without fail, never as much as scratching an aircraft and trying his hardest to prevent you from scratching yours. If you did scratch it, he was often the one to help you put it right.

In Danny we have lost a pilot, an inspector, an instructor and an example of a good club member that newcomers will find hard to emulate. We will miss him for a long, long time.

Ivor Shattock

STAFFORDSHIRE (Morridge)

Our K-13 is now as good as new after being stripped, recovered, resprayed and given its C of A. Total launches for the year ending September 1980 was 2285 compared with 1572 for the previous year, and 304hrs compared with 223hrs. Quite an improvement.

Our forage harvester has been refurbished and painted ready for action and work on the new winch is continuing with the winch engine being installed. The diesel generator for the hangar was reconditioned and a new transformer installed to increase the voltage from 110v to 240v. Our "mod cons" are now complete with rewired hangar, hot and cold water, "his" and "hers" toilets and a radio. We are planning four courses for next season — one public, one club, one cross-country and one expedition to another site.

At the last winter lecture, Eric Clutton, the designer and builder of the Fred Homebuild Aeroplane, gave us a slide show on "How to build your own aircraft," and "Oshkosh 1980."

In June, we will have an open day and exhibition to support Leek Sports Week.

P.F.

STRATHCLYDE (Strathaven)

Weeks of wet and windy weather have seriously curtailed flying since the end of September. With only Falke flying possible most days due to unfavourable winds, we have concentrated on the drainage scheme at the west end of the field.

The club Swallow has been on two expeditions to the Cairngorm GC at Feshiebidge where Lawrence Ward gained his Silver height. Congratulations also to David Johnson, Martin Robertson and Joan Prentice on going solo; also to Tim Barnard on gaining his Bronze C and duration while at Portmoak.

Our Chairman, Arthur Hughes, retired at the AGM in November. We thank him for all his hard work and welcome Des Tait as a replacement. We are considering the possibility of having a tug.

P.A.

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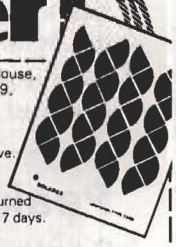
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ULSTER (Bellarena, Co Derry)



Gliding experience at an early age for 7 year-old Gemma Rodwell, photographed by Mike Poloway before one of several back-seat rides in the UGC's Twin Astir.

If it is not invalidated by his barograph winding down, Jim Weston will have completed the club's fourth Gold C with a wave climb in the DG-100 to 12 000ft from an exceptionally low point on November 23, one of our best days in a rotten year. One point on which Jim is determined is that his Gold, if and when he gets it and unlike the other three, will have been obtained in solely Irish air.

The newly erected hangar is adding immensely to our enjoyment of winter flying, with earlier starts, later finishes — and arrival at Rosie's or Marie's fireside for the obligatory *aprés-vol* hot whiskeys comfortably by 5pm. It easily accommodates both two-seaters, rigged; the de-tipped Skylark 3 and the tug and when we have side-wheeling dollies made, and a floor laid, it will probably be persuaded to hold more, including one aircraft slung from the roof.

Due in December was a brand-new power-plant from the USA for the Citabria which, since mid-November, had been running happily on two-star Mogas to the Treasurer's evident delight. Also arriving in December was a venerable Grunau Baby 3 which Alan Sands was collecting from Bamberg as a step-up from flying his Pik 20D. Alan has also bought a Kestrel 19 in Mississippi in anticipation of a long sojourn in the States next year.

Another import is a Monnett Monerai kit which Louden Blair has ordered and plans to build at his home in Larne. Meanwhile, the badly broken K-6 which Bob Rodwell purchased in that state — it saved him the bother of breaking one himself — escaped the Hallowe'en bonfires and is now beginning to look like a sailplane again.

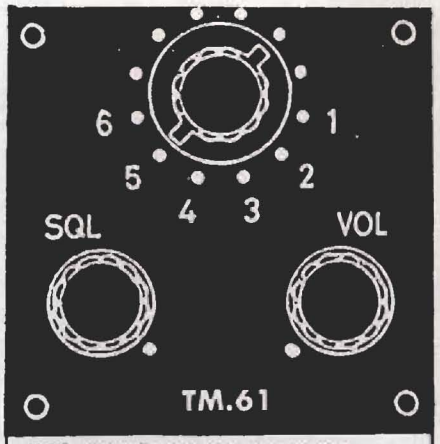
R.R.R.

UPWARD BOUND TRUST (Aylesbury Thame)

After our front page splash in the October issue (well one of our members is holding the bungey) we thought it was time to contribute a little more. We fly from Aylesbury (Thame) airfield at Haddenham — it's the place you landed at when you didn't quite make it back from Lasham to Dunstable or Hus Bos to Booker. Our fleet, club and private, totals two T-21s, a Bergfalke 2 and a Pirat: a small but enthusiastic club.

Congratulations to Chris "Giblet" Shepard who would have gone solo on his 16th birthday but it rained, so he got away on the next flyable weekend.

A.D.



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WOLDS (Pocklington)

Our annual dinner-dance was on November 14 with prizes awarded to Bill Young (Club Ladder), Eddie Room (longest flight) and Bernie Svenson (the most meritorious flight and most progress).

One of our K-7s is being given a "face-lift" by Bob Fox and helpers and should be as good as new and back on the line before Christmas. We have a new scheme with each instructor and a group of members being responsible for a piece of equipment, so that maintenance etc is carried out with the minimum of aggravation.

H.N.

WOODSPRING (Weston-Super-Mare)

The first of the winter's north-easterlies gave John Toy, Phillip Hogarth, Em Williams, Ray Snelling and David Nichol their five hours with David's father, Alan, and Alan Hume completing their Bronze Cs on the Hutton ridge. Congratulations to Gary Humphries on successfully completing his instructors' course and to Peter Adshead and Stan McCaffrey on going solo.

We are negotiating for the use of a field as a soaring site on the south-west facing Mendip Hills just above Cheddar Gorge. To this end we are converting a three ton truck as an expedition winch.

A.J.H.

SERVICE NEWS

BICESTER (RAFGSA Centre)

The Libelle on its usual autumn trip to Aboyne was joined by the Cirrus, DG-100 and Kestrel in the first major Bicester expedition there for three years. About 20 members enjoyed their visit and although there were no Diamonds — Ken Hartley was only about 250ft short — most had some wave flying with

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Gold heights for Whitson Bush, Mick Dry, Peter Sowden and Martin Lawrey, Martin completing his Gold C.

Our bus winch launches are in demand and there has been flying and occasional soaring most weekends and on some weekday courses, with Jackie Hymers having a thermal flight of 2½hrs in November. A few more members have gone solo including a B52 pilot on a visit and Mick Alexander and Mick Dry have become full Cats.

J.W.

CRANWELL (RAFGSA)

We have had a good autumn with first solos for Doug Ramsey, Sally Youngs, Ted Scarborough, Peter George, Nigel Olding, John Gunns and Malcolm Scott. Vicki Garndon and Robin Simpson have resolved after long layoffs; Bill Barker has his Bronze C; Dick Kenny silver height and Ken Pick Silver height and distance.

Ian Barrow (K-8) climbed to 10 000ft in wave but couldn't continue as oxygen wasn't fitted. The Tutor is flying again after its C of A and recovering and the L-Spatz is in the hangar naked, ready for a recovering job.

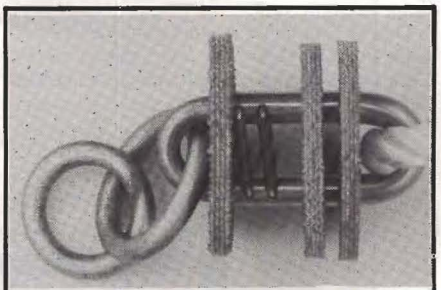
Our new bus winch is on line and giving good, efficient launches and has launched the K-8 to 3000ft. (J.R. again.)

Dave Almey has his instructor rating but will be busy repairing our Eagle which was badly damaged. We held our AGM and fancy dress party and it looks as though we will be hosting the Vintage Glider Club early in the season. Finally, best wishes to Ken Pick and his family who have been posted to Germany.

G.A.B.

FENLAND (RAF Marham)

Our expedition to Portmoak was quite successful with Gold heights for Ken "Shirley" Reeves and Stu Lawrence, who both reached 12 000ft. Sue Smith and Mitch Page gained Silver heights. Mitch also getting his five



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hours on the same flight. Altogether we did 115hrs and had six gliders airborne.

This month we say goodbye to Tony Povy, posted to Harlton, and Phil Southam who joins Four Counties.

S.S.

FOUR COUNTIES (RAF Syerston)

Our AGM was a great success with Tim Brailsford, John Taylor, Tony Satchell, Warren Fearon and Trevor Gorely winning cups. We thank Claire Farmer for the splendid catering.

Two of our pilots, Chris Curtis and Gary Stingemore, are through to the next year of Team Training Week sponsored by the BGA. Another, John Marriott, is doing year one again due to bad weather.

We now have the sound of Police dogs at our airfield with kennels inside the hangar.

G.P.S.

PEGASUS (RAF Gütersloh)

First news of our AGM. Our cross-country kilometres have been limited by poor weather but launches are up on last year and funds are healthier. Trophy winners were J. Edyvean (most notable achievement); A. Batchelor (unsung hero) and J. McGivern (most progress by *ab-initio*).

Our Vennebeck expedition went well with two Bronze legs for J. McKnight and durations for D. Pennock, T. Wiseman and Geoff Ridgeway. More than 80hrs were flown and a great deal was learnt.

We have a lot of ground work to do and a Christmas party coming up. Planning has started for our comps next year and we look forward to going to Systeron.

B.P.

TWO RIVERS (RAF Laarbruch)

The final quarter of 1980 saw some expeditions to Vennebeck with good flying including a duration for Sarah Bailey to complete her Silver C. We have five new Assistant Cats to give a favourable instructor/pupil ratio.

The AGM is on January 17 and some members are going to Sisteron in March.

J.R.N.

WREKIN (RAF Cosford)

Our thanks to Andy Miller for spending a weekend with us and giving the club two new full Cats — Mick Davis and John Richardson.

On the flying side, congratulations to Taff Agius and Dave Wakefield for their conversions to the Blanik and to Gary Feeley for his Gold height in Scotland.

Our AGM in November was a success with trophies won by Mick Davis, Rhod Evans, Rod Witter, Bob Jones, Al Stacey, Mossie Williams, John Lambert, Al Marshall and Les Cadogan for hard work and flying achievements.

Sadly we will soon be losing our airfield entertainment, Keith "Teggy" Tegg, but no doubt Fulmar's MT member will welcome him with open arms.

J.L.R.

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DEREK DAVIS, Lasham Gliding Society, Lasham Airfield, Nr. Alton, Hants.
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NATIONAL LADDER WINNERS

Dear Editor,

Congratulations to the pilots who have done so well on the National Ladder, especially the winners.

It seems to me, however, that the purpose of the National Ladder is being defeated. The privileges enjoyed by a member of the British Team and officials of the BGA in being able to use the back-up facilities of Met, launching etc at a National Championships would seem rather unfair to those lowly club mortals who would not get the same privileges.

Shouldn't these pilots be satisfied with their competition flying and the extra facilities given to practise for World Championships without also stealing the bread from the ordinary club members?

ROGER HARLOW, **Enfield, Middlesex.**

WHAT IF HE DID HIDE HIS VARIO?

Dear Editor,

Peter Riedel in his article in the October issue, p228, suggests that in publishing his book in 1932 Kronfeld deliberately changed the word "variometer" to the word "altimeter", in order to keep secret his use of the instrument. There are a number of twists to this strange story which throw some doubt on it.

First, the manuscript was not written in English, so it could have been a translating error. (It was translated by J. Manchot with the help of Rudolf Flinsch and family, so there is one possible line for further inquiry if any of those people are still alive.)

Secondly, contrary to what Peter Riedel says about the book being published in English only, a version of it was also published in French in 1935. It was translated by W. Korporinde, but it does not say from what language. The pertinent passages also use the word "altimetre".

Thirdly, C. H. Latimer Needham's book **Sailplanes** was also published in 1932 and not only mentions the vario but includes a photo of a ±5m/sec instrument, presumably German, because it reads *Steigt* and *Fällt*. So the "secret" was out anyway; to be followed by an article in *Sailplane and Glider*, March 3, 1933, by someone rejoicing under the *nom de plume* of "Ventre a Terre", which mentions that Wolf Hirth had insisted on the indispensability of the vario at the London Club Christmas dinner. There may have been earlier references in S&G, my set is incomplete, but my point is clearly that Kronfeld had no reason any longer to hide his vario, because it was already being talked about.

If, however, Kronfeld *had* hidden his vario in a paper bag in 1928, there must have been a conspiracy with others involved, for it is hard to believe that, working at the Wasserkuppe, Kronfeld could have hidden the instrument or its significance from Professor Georgii, Fritz Stamer and A. Lippisch. All three of these pioneers contributed long, important articles to the early numbers of *The British Gliding Association Journal* (Nos. 1, March 1930, and 3, January 1931) and none of them mentions the vario! Or perhaps there was no conspiracy: they merely did not think it was very important for slope soaring, and thermal soaring was still in its infancy.

In any case, what if he did originally hide his vario in 1928? Wouldn't most of your readers have done the same in his place to gain a little time over the competition?

WILLIAM MALPAS, **Upper Montclair, NJ, USA.**

MANDARINS BEAT RETREAT

Dear Editor,

After my letter in the October issue, p254, it is a pleasure to report that the Sports Council for Northern Ireland has been reprieved and is to continue as an effective body with executive powers and a dedicated, qualified staff rather than become a powerless ministerial plaything.

The relevant minister, Lord Elton, was taken aback by the huge volume of protest which his previously ill-considered plan produced from about 120 voluntary bodies representing sports and recreations ranging from aeromodelling to water skiing and youth hostelling. In December the government beat an almost complete retreat and announced that the SCNI would continue as an executive and professionally-staffed body, with only a minor trimming of its powers in one respect.

Gliding's voice was in there with the protesters in the form of effective pressure from the BGA through the Chairman, Tom Zealley. Our thanks go to Tom — and to anyone else in the movement who, in response to our appeal, found the opportunity to express a view.

The BGA has served us, one of its smaller clubs, very well on this occasion and we are duly grateful.

BOB RODWELL, **Secretary, Ulster GC.**

STAMPING OUT FIELD LANDINGS

Dear Editor,

Well, any reaction is better than none! (See "Competition and Field Landings" letter in the August issue, p203.) I am grateful for Ian Patterson's letter (October issue, p255), and would have liked to discuss any points he might have made, but apart from telling me I am talking rubbish, and suggesting where I should go, he hasn't said anything.

However, I take his point about the Competition Enterprise people being a wonderful crowd (aren't we all?) although I am not sure whether John Fielden's attitude to field landings differs any from the BGA's.

I am particularly pleased to get some opinions from Ralph Jones (last issue, p306), because when someone in the glider repair business disagrees as strongly as he does with my ideas about field landings, then I begin to think that I may have said something valid. He makes the point that some people get less adventurous with old age, and some people get more adventurous ... a profound statement which is difficult to argue with. However, it must be very difficult in Ralph's position to be completely objective about the "average" attitude to final glides, in the same way that an outbreak of the plague must give rise to confused emotions in the breast of an undertaker.

I agree that the real damage caused to farmers' property by field landings is minimal, but my fear is that the general resentment against gliders landing near gliding sites might not remain in proportion to the damage. There is very little romantic adventure about stretching one's glide unnecessary to an unknown landing field. All competition pilots have a good idea how to force land without injury to themselves (which takes care of the personal courage aspect) so I must conclude that the stimulation is the prospect of a loss of insurance no claims bonus, or telling the syndicate partners that they have nothing to fly for the rest of the season. If this excites the youthful, then perhaps I *am* getting old — please send me your measurements Ralph, and I'll knit you something for next Christmas.

As to general reaction since my letter, the people I have spoken to have generally expressed cautious approval (including, I am pleased to see, Platypus in the October issue, p210). Does this mean that the silent majority of readers can't be bothered to write because they don't feel strongly either way?

Offhand, I can think of no other sport where a competitor gets proportional score points for partly completing the course. Marathon running, dinghy racing etc, you either finish or you have "retired" and so it should be with *modern* gliders. In my "Proposition One" I suggest that passing 2X is a means of crediting a competitor with actually competing on the day, whereas "Proposition Two" and "Three" are my British compromise suggestions which hopefully would lessen the inducement to stretch final glides.

The chief difficulty in getting competition organisers to use new scoring systems is their fear that the BGA will decide that any deviation from the accepted Competition Handbook will render that particular meeting invalid for rating purposes.

Some years ago, a "Placing System" was tried at a Dunstable Regionals, and the final results differed only slightly from those arrived at using the official system. I suspect it didn't catch on (a) because it was too simple (the present system must be superior, just look at all those lovely computers!) and (b) it couldn't give the pilots a National Rating figure. I would like the BGA Competitions Committee to give their approval to any Regional competition that

wishes to experiment with more up-to-date ideas on scoring (*eg* mine) and give it a Rating qualification nevertheless.

It is no good saying "by all means go off and organise your own competition, but it won't carry a Rating", because the event in question will then appeal only to Competition Enterprise type pilots who are not induced or inclined to play "Final Glide Chicken" and show suspicious tendencies of enjoying gliding for its own sake.

If approval were given, we would get some genuine feedback of opinions from both organisers and competitors in the field (preferably an approved one).

MIKE FAIRMAN, **Welwyn Garden City, Herts.**

MORE LIKE OVER-REACTION

Dear Editor,

Although Mike Fairman asked for reactions to his proposed amendments of BGA competition rules I consider that the two reactions you have published so far read more like over-reaction. Are their authors *really* unable to see the connection between the prevalent loading of our insurance premiums to discourage competition flying, and the essence of Mike's letter? And do the young and fearless *really* believe that they can escape the consequences of their actions, or even isolate themselves from the rest of the gliding fraternity?

CHARLES ELLIS, **Ilford, Essex.**

S&G CRITICISED

Dear Editor,

I purchased my very first copy of S&G and started to read. With growing concern, I looked again at the cover. Yes, it definitely said "Gliding", but what had these articles in common with the delightful weekend I had just spent as a new member of a gliding club? Nothing! Quite frankly I understood not one word. Nevertheless, I have persisted with my subscription confidently expecting that sooner or later articles of a less advanced nature, written especially for newcomers to the sport, would be bound to appear. I am still waiting.

I am firmly convinced that we beginners, struggling towards that magical event "the first solo" and hopefully on to the dizzy heights of Bronze C, greatly outnumber the elite sect of noble folk performing brilliant feats in the various gliding competitions to whom this magazine addresses itself. S&G has not always been so esoteric — look at your early 1970 editions.

Kind sir, we are full of enthusiasm eager for knowledge — we love gliding — alas, we are not very good at it. Please *speak to us*, encourage and educate us, we will then become your most attentive and loyal subscribers.

VAL CARTER, **Taunton, Somerset.**

(We always contend that S&G should be judged over one year for content, not on each issue. We try and get a fair balance but are very dependent on the quality and variety of contributions. However we do normally pitch ourselves above the early beginner, simply because there is already a wealth of basic literature for the *ab-initio*. Glider pilots learn fast and they would soon be bored with a magazine which didn't try and encourage, and keep abreast with, their aspirations. Nevertheless, thank you Val for your criticism. It is always helpful to have some feedback and we hope that as the months go by you will find us better value. ED)

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BGA ACCIDENT SUMMARY

Dear Editor,

I note the BGA Accident Summary published in the December issue, p293, Accident Reference No. 121 Mini Nimbus — which stated "On landing reported by witnesses to be normal the undercarriage GRP legs failed allowing fork ends to move rearward and become embedded in fuselage at bottom of wheel-box. Inspection suggests failure was progressive." I would point out, as both the Schempp-Hirth Agent in UK and repairer of this particular accident damage, that the "normal landing" was sufficient to burst the tyre and tube, write-off the wheel hub and distort the steel tube frame on which the undercarriage is mounted — and this is a "normal landing"? Perhaps in future the compilers of the accident summary will restrict their comments to the damage caused and not set themselves up as structural experts!

R. JONES, **Lambourn, Berks.**

Arthur Doughty, Chairman of the BGA Safety Panel, replies:

Accident summaries have been published in S&G for the past year because it was hoped a wider exposure of the details through this medium would assist in effecting a reduction in the currently poor accident rate. The summaries are compiled from the accident reports submitted by clubs.

In the case of the subject accident to which Mr Jones refers, the landing was observed by the CFI, a pilot with over 1100hrs experience. The comments on the technical aspects were supplied by an inspector who has held BGA approval for



about 17yrs and whose experience includes 3yrs as an instructor fitter in the RAF. The compiler of the summary was in no way setting himself up as a structural expert but merely summarising for publication the comments contained in the accident report.

I suspect Mr Jones considers the words, "Inspection suggests failure was progressive" infers some criticism of the product. This is not the case. The failure may have had its origins some time previously and each subsequent landing, take-off and ground run could have contributed a small part to the final collapse.

The purpose of accident reporting is, *inter alia*, to attempt to determine the causes with a view to preventing accidents of a similar nature in the future, not to ascribe blame. Defects frequently manifest themselves when products pass into the hands of users and rectification or modification is sometimes required. In this case there is nothing to suggest such action is necessary but as GRP for undercarriage structures is a relatively new application for this material the accident prevention message is that owners should look at their undercarriages.

However, as Mr Jones indicates, there was rather more damage than one would expect from a simple collapse so it may well be the landing was somewhat heavier than indicated in the report. Without this additional information (and it is quite impracticable to follow up each and every report for further information) it is only possible to summarise the contents of the report as submitted.

In conclusion, it may interest Mr Jones to know the accident was assessed as "undercarriage collapsed" Group 11 in BGA analysis and not as a "technical" accident Group 19.

CREATING FRIENDLY FARMERS

Dear Editor,

Taken from the American magazine *Soaring*, creating friendly farmers, is a very good idea to be promulgated.

When landing in a farmer's field one should always have a camera and take a picture of him, or preferably his child, sitting in the cockpit. One cannot really offer the farmer money, although a 50p piece to his child would be appreciated, but he would be thrilled and most grateful to have a photograph.

Personally I have done this on a few occasions and have had some lovely letters of thanks. Normally I always write and thank the farmer for the use of his field, but in future I must use the camera too.

My Lasham club holds a Farmers' Party every year for those who have been helpful. Having been born and worked on a farm myself I am able to talk farming to the farmer. As a group they are only too pleased to have the opportunity to converse with each other, and at the Farmers' Party they are more interested in themselves than us.

Perhaps other pilots and clubs will take up these ideas which must give our sport the best possible image.

HUMPHRY DIMOCK, **Gosport, Hants.**

FIRST INTERNATIONAL

Dear Editor,

The first International Gliding Contest was held in July 1937, but is not included in the list of International Contests given at the end of **The History of Gliding** by Ann Welch (reviewed on p47), who came into British gliding just after it was over. It is not in the index but mention of it will be found on p135-6 where it is stated that "The British team won no prizes . . ." Actually on July 9 Flt Lt P. M. Watt (later Sqd Ldr) won the daily prize, which was for height with a climb of 2330m. On the 12th W. B. Murray of the RAF and J. S. Fox put up an international two-seater duration record of 9hrs 48min — the first to be recognised by the FAI.

Unfortunately Sqd Ldr Watt lost his life early in the war in an RAF plane which the pilot was trying to land in fog.

A. E. SLATER, **Cambridge.**

WEEKEND CLUB TRAINING

Dear Editor,

The major problem with weekend gliding for *ab-initios* is having a host of different instructors from one weekend to another, resulting in a slow progress rate and the need to jostle for flights on the daily list. Some clubs operate evening courses and by having the same instructor/student combination continuity is achieved. It is fairly simple to do the same at weekends and has been done with great success at some clubs.

The weekends are divided into four with morning and afternoon courses. Some clubs even add an extra course in midsummer by starting at 6 to 6.30am until 10am.

Even if one doesn't reach this admirable level of enthusiasm, one can improve on the somewhat haphazard morning list. I have found instructors will always respond to such suggestions because the reward is that they start to fly with the same people instead of a chaotic mixture where the first flight is a "get to know you" trip in spite of logbook notes.

Team spirit also results, especially from new members who really feel they belong to the club instead of turning up on the field and being asked who they are. Also there is more time for proper ground instruction, wives don't lose their husbands for a whole day and the "waiting all day for a flight" syndrome is eliminated. The system can be supplemented by having a casual list for check rides etc.

Try it out at your club. You will be surprised at the interest it generates.

J. S. DOWNES, **Booker, Bucks.**

FIVE YEARS IN FIVE DAYS!

Dear Editor,

Following V. J. Chambers' letter in the August issue (p204) about gliding at the Sebring Soaring Centre in Florida, USA, I can endorse his recommendation wholeheartedly; not only for the gliding but as an all-round holiday with visits to attractive diversions such as Kennedy Space Centre and Disney World close by. I decided to visit the Centre on the way back from attending a computer training course in the USA and was well rewarded.

My experience of gliding as a tug pilot for the last five years has been to try and get some gliding hours in between comps when tugging at the Northern Regionals, but due to the English climate achieving only 14hrs in five years! In five days at Sebring last March I flew 14hrs, and as the previous correspondent also stated, I could have easily doubled that time.

J. J. SMITH, **Leigh on Sea, Essex.**

"WE MUST REMAIN BROTHERS"

Dear Editor,

I am a fellow aviator, a brother not a brother-in-law (see the last issue, p271). I am a hang glider pilot and a British Hang Gliding Association Council member. I am in the thick of things which is limiting my flying like it does any who get involved with the organisation of our delightful silent forms of recreation in the sky.

I am very concerned, as you are, that we seem to be coming into conflict in certain areas and are in danger of limiting all our activities. I have been charged with the BHGA responsibility for trying to prevent this.

Recreational flying is based on the concept that the air is (relatively) free. We would have no future in the sky if that idea were completely abandoned. Those who own the land beneath us would be too restrictive as they just do not understand or support aviation, except perhaps when they want to travel on a commercial airline.

We all fly gliders, although their characteristics are different to a degree. We all search for rising air. We rather resent someone else using it when we want it and there just is not room for another in reasonable safety. Our experiences tend to enable us to predict and fit in with the movements of someone flying a similar machine. Patterns can be developed more readily if all using constricted airspace are travelling at similar speeds.

We seem to resent a fellow aviator more if he is not only using air we would like, but is also flying a machine that is rather different. Too often the resentment and differences are magnified because we do not get together afterwards and socialise.

Suitable hills are rather scarce adjacent to some of the more highly populated areas in this country. Greed for the space available is beginning to show itself and we are beginning to quarrel. There is no doubt at all that open quarrels will be viewed with concern by others, particularly if there is a lack of harmony in the air.

None of us want a collision and we try to fly in such a way as to minimise the risk of this. We still fly. Ground lubbers think we are all too brave to be safe anyway and will strongly oppose our activities if we give them the chance. If we are quarrelling and apparently prepared to have conflict in the sky, then it presents them with every reason for wanting more control. I would not blame them. Collisions are unpleasant for those immediately involved. They are

very emotive happenings, particularly if you happen to be underneath when the debris is falling.

What can we do to prevent this quarrel becoming more widespread? We have to reach agreement and that means talk. The latest attempt to produce a BHGA/BGA strategy is being considered by BGA representatives. An agreement can be reached at the national level, but it will need to be fully supported at club level too.

The only acceptable solution is to share airspace. If we start dividing it off, where will it end? Exclusive use around take-off points will in my view be very unacceptable, even if they are aerodromes only in the aviation sense.

I can understand that there is resentment where crowded areas are becoming more crowded. That resentment must be constrained and agreement for necessary controls must replace it. We must remain brothers.

DAVID BEDDING, **Monks Risborough, Bucks.**

BENT NAILS AND COACH BOLTS!

Dear Editor,

Contrary to his expectations, Mr I. D. Smith (see the last issue, p306) may be even more horrified to learn that I am quite prepared to fly a glider held together with bent nails and coach bolts if:

a) It was designed to be held together with bent nails and coach bolts and

b) Said bent nails and coach bolts conform to the designer's requirements.

It is possible that the answer to my question "Why does flying need special regulations?" (see August issue, p202) is contained in Mr Smith's assertion "... the potential hazards are greater ..." Probably, like Mr Smith, the instigators of special treatment for flying justified their attitude by emphasising its "potential hazards." I mentioned some other products that can be bought and operated without regulations similar to those required for flying, because these too present "potential hazards" just as formidable.

The passage of time has revealed one other aspect of the non-uniqueness of "flying", for it has demonstrated that since they must depend ultimately upon the human factor, legislated procedures introduced to improve safety cannot be relied upon to the extent previously imagined, and their justification now becomes questionable. With hindsight perhaps we might have guessed that if we institute procedures that insert more humans into a chain of events we are also increasing the number of "weakest links" and the corresponding chances for error.

CHARLES ELLIS, **Ilford, Essex.**

PARACHUTE ASSOCIATION WARNING

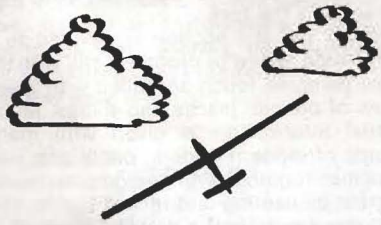
Dear Editor,

During the past two years, the number of individuals participating in sport parachuting in the UK has doubled to some 23 000. There has, naturally, been a concomitant increase in the intensity of operations at our drop zones, both on airfields and notified sites. These sites are promulgated in the **UK Air Pilot** RAC Section 5.8.1. In most cases these sites are notified on the 1:500,000 aeronautical charts by a small parachute symbol.

A recent incident has highlighted a misunderstanding of the inherent dangers of flying into such airspace without prior communication. Sport parachuting takes place from heights (QFE) of up to 12 000ft with the parachutist(s) falling at a terminal velocity of some 120mph (176ft/sec) before opening their parachutes at 2500ft agl. Only a few months ago in the USA a free falling parachutist hit a Hercules. The parachutist was fatally injured and the aircraft severely damaged — if it had been anything less than a Hercules it is likely that the aircraft would have had to force land at best.

The aim of this letter, therefore, is to give this potential danger situation the maximum publicity because the Safety and Training Committee of the British Parachute Association believe that, if light aircraft and gliders continue to fly blatantly or at random over promulgated drop zones, it is only a question of time before the tragic USA accident is repeated in this country with an equally tragic outcome.

DOUG PEACOCK, *National Coach and Safety Officer of the British Parachute Association*



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BOOK REVIEWS

The Story of Gliding (second edition) by Ann Welch, published by John Murray at £9.75.

A new book from the pen of Mrs Welch is usually an event of note in the gliding world and this book is no exception. Strictly speaking it is not a new book being the second edition of the original work by Ann and her husband Lorne published way back in the 1960s. However it has been extensively re-researched, revised and rewritten and in its present form it deserves a place on the bookshelves of anyone interested in our sport and indeed of anyone interested in an excellently written, informative and entertaining book.

In the last decade or so there has been a greatly increased interest shown in the history of man's efforts to fly and Mrs Welch has kept up to date with the latest research and has included many anecdotes and incidents which one has not previously heard of. But this is no dry as dust historical chronicle. It is essentially a book about human endeavour and human idiosyncrasies and the great characters and eccentrics who pioneered and developed human flight to its present advanced state. Perhaps the best description of the book is in the authoress's own words in her introduction "This book . . . is about some of the people who wanted to fly in the same manner as the birds — on their own wings, using the energy of the sun and the wind".

Fascinating anecdotes

Part 1 lightly sketches in the early beginnings of aerial knowledge from the Chinese kites of 3000 years ago, through the fumbling development of airborne man-carrying devices and on to the Wright brothers and the start of the first World War. There are fascinating anecdotes, mostly with a humorous touch, and much speculation on the reasons why it took mankind so long to realise his dreams of flight. A splendidly written mixture of legend, fantasy and fact from which the scientific basis of modern flight slowly emerges, but without any of the often tedious theory of flight and aerodynamics which can often confuse and bore the layman.

Part 2 takes us through the early days of soaring in Germany, Britain and elsewhere with scores of stories of the pioneers — exciting, humorous and sad, and all excellently told within the framework of historical fact. Many famous names and many less famous ones are included and there is much lively description of what Ann calls the "Golden Age" — the discovery of how to use thermal currents and waves and to soar across country. This Golden Age ends with the start of the second World War.

There are many photographs and drawings of the early gliders and their pilots in this first half of the book which add much interest and will bring nostalgic memories to those of us old enough to remember the 1930s.

The third part covers the early British soaring pilots and the developments that took place in this country from 1929 to the present day. The enthusiasm and spirit of those days is well captured in the stories of the first gliding camps and competitions and of the personalities who abounded and who left their mark on the sport. The first cross-country flights, the first Channel crossing and the first British Gold C (number three in the world) are all here, often in the words of the pilot himself and always graphically and sometimes lyrically described. Some splendid photographs accompany the text.

Finally the last section is devoted to a world-wide review of progress, still with the same personal touch and filled with anecdotes of people, places and things. Much factual information is given with many photos of modern gliders, pilots and personalities together with personal accounts of great pioneering and record flights. In a final chapter there is a detailed account of how the wheel has come full circle in the development of the hang glider. Ann is President of the British Hang Gliding Association and as such is better qualified than most to describe this latest of aerial sports which she does in considerable detail including the two World Hang Gliding Championships so far held.

All in all this book is a story of people first and foremost and gives a fascinating picture of the struggles of the pioneers and their successors. The first half of the book is especially good and of interest to anyone who enjoys a good story well told. The second half is of more interest to the devotees of gliding and contains enough information to settle many an argument about who did what and when. The illustrations are excellent throughout and the book is very well printed and produced. A worthy addition to anyone's bookshelf it will undoubtedly take its place among the classics of gliding literature.

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In search of World Records by George Worthington. Published by Hang Gliding Press 1980. Price $9.95 plus $1.50 p&p. PO Box 22552-B, San Diego, Calif 92122, USA.

In this book the author describes his tremendous need for personal recognition and in trying to achieve this pursued many sports including gliding which he took up in 1967, gaining his Diamond and some Californian State records in the course of the next few years. He bought an ASW-12 in 1970 and relates some hair-raising stories while he was learning to fly this glider. In the end he became rather scared of it and very wisely sold it.

He moved over to hang gliding in 1975 and at last has found his *niché*, getting the recognition he so badly wanted by becoming a well-known American hang glider pilot with four world records to his name.

The book is crammed full with incidents and close calls, however, he has been flying for forty years, first as a US Navy pilot, then glider pilot and now hang glider pilot and has amassed over 10 000hrs without personal injury. So, perhaps, taken over this large amount of hours the incidents are few and far between.

Unfortunately there are rather a lot of printing errors in the book which is rather irritating for the reader.

RIKA HARWOOD

British Gliders, edited by P. H. Butler and published by the Merseyside Aviation Society Ltd. Available from the BGA for £3.90, plus 35p p&p.

This third edition of **British Gliders** has been completely revised and given more photographs and pages. It is a comprehensive listing of sailplane registrations and identities used in the UK from 1930 to June 1980, the last entry being SB-5B — No. 2690.

The register makes fascinating reading, allowing us to follow up the fortunes of gliders flown and known, and the column for extra details about the sailplane adds greatly to the interest.

A new trend noted by the editor since the last edition in 1975 is the variety of vintage types brought to the UK through the efforts of our enthusiasts.

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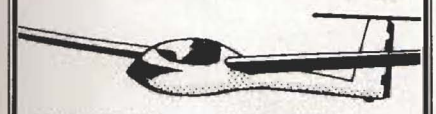
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