Mountain Flying Talgarth

John Bally

The Site looking south-south-west to the Brecon Beacons in snow.

Photograph by Malcolm Haynes.

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ACKNOWLEDGEMENTS

Throughout the period of writing this book numerous pilots have contributed in various forms, as to compile it has involved a long period of evaluation and measuring the feedback from pilots. To this end I am most grateful to all Club members and to pilots I have taught to fly at Talgarth.

I am especially indebted to:

Derek Eckley — without his support and hard work the Club would not be in existence.

Dave Hodsman — for his contributions to and criticisms in constructing this book.

Bill Scull — for writing the foreword, and providing a lot of official support, and quotations.

Derek Piggott and Ivor Shattock — for quotations

Chris Garton — for writing his article on Flying at Talgarth

Lastly Evelyn, my wife, for all the typing and help in preparing this book.

FOREWORD

It is not often that new gliding sites appear on the map; when they do they are usually of the basic T21-and-winch variety. Talgarth was not of this sort. Instead it offered a new and challenging soaring opportunity. However, to become established it needed the basis of a club in the more usual sense with ab-initios and basic training.

It soon became apparent to the Club's management that there was a need to select students because the site is quite a difficult one and there was even the view that the site should only be used by "experienced" pilots. In any case the use of the site by visitors increased to the point where it can continue to exist with their support.

Even the visitors found the site to be a tricky one, on occasion, and there was clearly a need for expeditions to Talgarth to be controlled by C.F.I.'s of the Clubs involved. This they can only do if they know the site themselves. The reason is that Talgarth and the local soaring opportunities are, for the most part, different to anything that one may have experienced at other UK hill sites. The decision making based on "what height to leave the ridge" cannot be laid down as simply and as arbitrarily as at most other sites and the need is for more comprehensive briefing and checking than is required elsewhere. This the 'locals', especially John Bally the Club's C.F.I., have come to recognise, and this small book represents a step along the way towards communicating the opportunities (and the hazards) of soaring in the area.

The need for the first-time visitor is to absorb as much as he can by reading these notes and pouring over maps before flying at all, so as to better visualise the risks and also to comprehend the briefings. Even then you must recognise the fraught nature of some of the soaring opportunities and heed the words of the briefing. If John Bally says "don't try to get back to the site (in given circumstances) . . . land at field 'X'", then his words are as near to 'gospel' as you will get.

These notes will undoubtedly be revised in the light of experience. You can play a part in this by giving the author the necessary feedback. If you do others will enjoy the soaring the area offers with the minimum of risk.

W. G. Scull
Director of Operations,
B.G.A.

INTRODUCTION

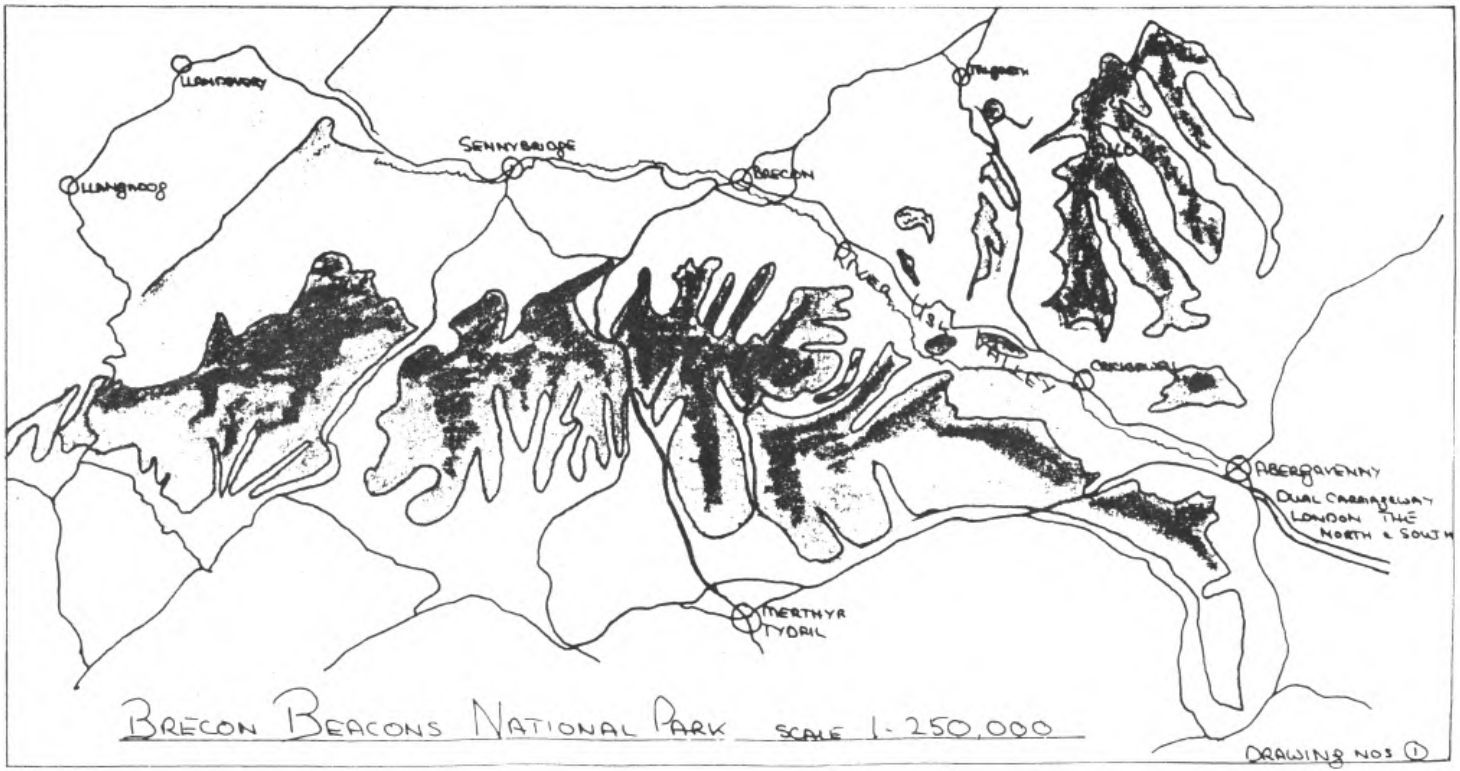
The airfield is on Derek Eckley's farm. A keen glider pilot for a number of years, he found that it was difficult to combine gliding with farming committments. A chance discussion with me in 1978 started the following events. Derek thought he had enough room for an airstrip, and after pacing out a couple of fields, despite the difference in stride size, we agreed that it was possible! Work started immediately; hedges were bulldozed out, ditches filled in, and two weeks later, having purchased an Auster, we flew it in. For the rest of the summer and following winter the site was evaluated with this aircraft, and improved. In June 1979 the Black Mountains Gliding Company Ltd. was formed. The Auster was sold and a Rallye 180 Commodore and a Blanik bought from Shobdon. The Club has been growing ever since. In 1980 we built a hanger and a Club House; in 1981 we replaced the Rallye with a Pawnee 235; in April 1982 we obtained full planning permission; and in January 1983 officially formed the Club and joined the British Gliding Association. We have a steady flow of visiting pilots from all over the southern half of the British Isles. A chance discussion and a lot of hard work have created a highly prized gliding site; perfectly positioned, offering the longest ridge routes in the country, combined with wave flying contactable from the ridges in more directions than anywhere else in the U.K. So, you no longer need those 2-3,000'-plus tows; and to find out how and why — read on.

THE SITE

A study of the Brecon Beacons National Park (see Drawing No. 1), reveals the Black Mountains (2,600'), the Brecon Beacons (2,907'), Fforest Fawr (2,379'), and Camarthan Black Mountain (2,636'). This is our playground, amongst one of the most beautiful areas of Wales. (O.S. sheets 159, 160, and 161).

The site is an advanced mountain flying site (O.S. Map 161, reference 1735.3200). It is at the foot of the westerly escarpment of the Black Mountains, facing the prevailing winds. It is 950' above mean sea level, and 530' above the valley floor. The field (see Drawing 4) is 27-acres of well-drained land, enabling us to operate all year round. The ground is highest in the middle, sloping downwards from west round to north-east; enabling gliders landing in an easterly, south-easterly, southerly or south-westerley direction to land with an uphill gradient. The main runway is east-west; 440 yards, with a further 250 yards overshoot field. On westerly take-off, after 250 yards the gradient is downhill, there are no obstacles to clear. The field is small in comparison with flat gliding sites, however it is perfectly adequate, and in direct proportion to the surrounding fields.

We are restricted by planning permission to a maximum of 20 gliders and one tug at any one time on the airfield.


LLANDOVERY
LLANGADOG
SENNYBRIDGE
BRECON
ABERGAVENNY
DUAL CARRIAGEWAY
LONDON THE
NORTH & SOUTH
MERTHYR
TYDFIL
BRECON BEACONS NATIONAL PARK SCALE 1-250,000
DRAWING NOS ①

SITE CHECK

Minimum qualifications are 100 hours p.1, Silver 'C', and flying experience at two hill sites.

All pilots, without exception, are subject to site checks and gradings for conditions and areas of operation according to ability and experience. The check by design will place a certain amount of pressure on the pilot, particularly to those who have not experienced soaring in close proximity to the ground. It is designed to evaluate a pilot, and his ability to land in the surrounding country safely.

Pilots who are not very experienced or who fall short of requirements will have the opportunity to learn under a programme of training designed accordingly, and backed up by a tutorial element.

Two-seater flying/instructing is by experienced, site approved, pilots only. There is normally a separate test first for passenger carrying, despite a pilot possibly being a qualified instructor; and later for instructing. Instructors will appreciate the need for a period of evaluation and assessment of the site. An instructor on the site is responsible for, amongst other duties, site checks. Some of our visiting pilots have a lot of experience. In evaluating them a certain amount of stress has to be imposed; it is unlikely that an instructor with, for example, 200 hours, would have flown the site enough, unless the product of it, to impose sufficient pressure on a 1,000 hour pilot without putting himself under pressure and the combination in danger. A detailed knowledge of the site is therefore a prerequisite, and can only be gained over a period of time. The higher the expertise and skill of pilots flying from Talgarth, the more gliders we can operate. Since an increase in members makes the operation more viable, we dictate and strive for higher standards. To this end instructors have to be well above average requirements and experienced.

FIELD OPERATIONS FOR GLIDER AND TUG PILOTS

Launching

Launching takes place in the following directions — south-west, west, north-west, and north-east. A launch towards the mountains in easterly winds is not recommended except in certain circumstances due to flying into sink created by the mountain; no cable-break fields; and rising ground. In easterly and south-easterly winds, launching is done in a south-westerly/westerly direction in light winds, and north-easterly in strong winds. The former is not as odd as it might appear, for the following reasons. The Pawnee 235 has an excellent cross-wind capability. Its acceleration is fast giving aileron and rudder control quickly; the take-off run combines a downhill run; all cable-break fields slope down predominantly north-west; in the event of a cable-break a glider is downwind for an into-wind uphill landing. In southerly winds, take-off runway 27, 15 knots and over, take-off southwesterly. In north-west, north and north-east winds, take-off runway 27, 15 knots and over, launch into wind.

In the event of a cable-break in the worst position on these last three launches, there is no problem in flying down the valley on the north side of the field on a westerly heading, to fields in the main valley 530′ below (see Drawing

4). The runway 27 is used primarily for launching. Gliders landing when possible do so on the north side of the runway. This ensures the minimum delay in launching. The runway is to be considered active at all times. Aircraft landing on it to clear into the taxi area marked on Drawing 2. Gliders on the north side of the runway to be cleared promptly by ground staff.

1. Before you launch know your options. Most fields can be viewed from the end of the runway.
2. Know the last safe point to abort flight.
3. Know the height where, depending on wind conditions, a 180° turn for a down-wind landing, cross-wind or into-wind landing on the airfield can be safely achieved. Bear in mind that on a westerly take-off the overshoot field can be landed in for a 180°.
4. Select field, circuit if applicable, and land. (see section on Field Landings).
5. Controlled crash. In the unlikely event of an imminent crash, plan a controlled one — where you can dictate events, i.e. leaving your wings behind between trees coming into a field rather than have a head-on into a tree or wire at the other end. Far too few pilots even consider this an option.

Knowing your options reduces thinking time, it could be the difference between a safe landing; an accident; or walking away instead of being injured or trapped. After all, the tug's engine could fail — and if you think you have a problem in a glider, what about the tug pilot.

Drawing 4 is also displayed in the Club House, and coloured for clarity.

Circuits

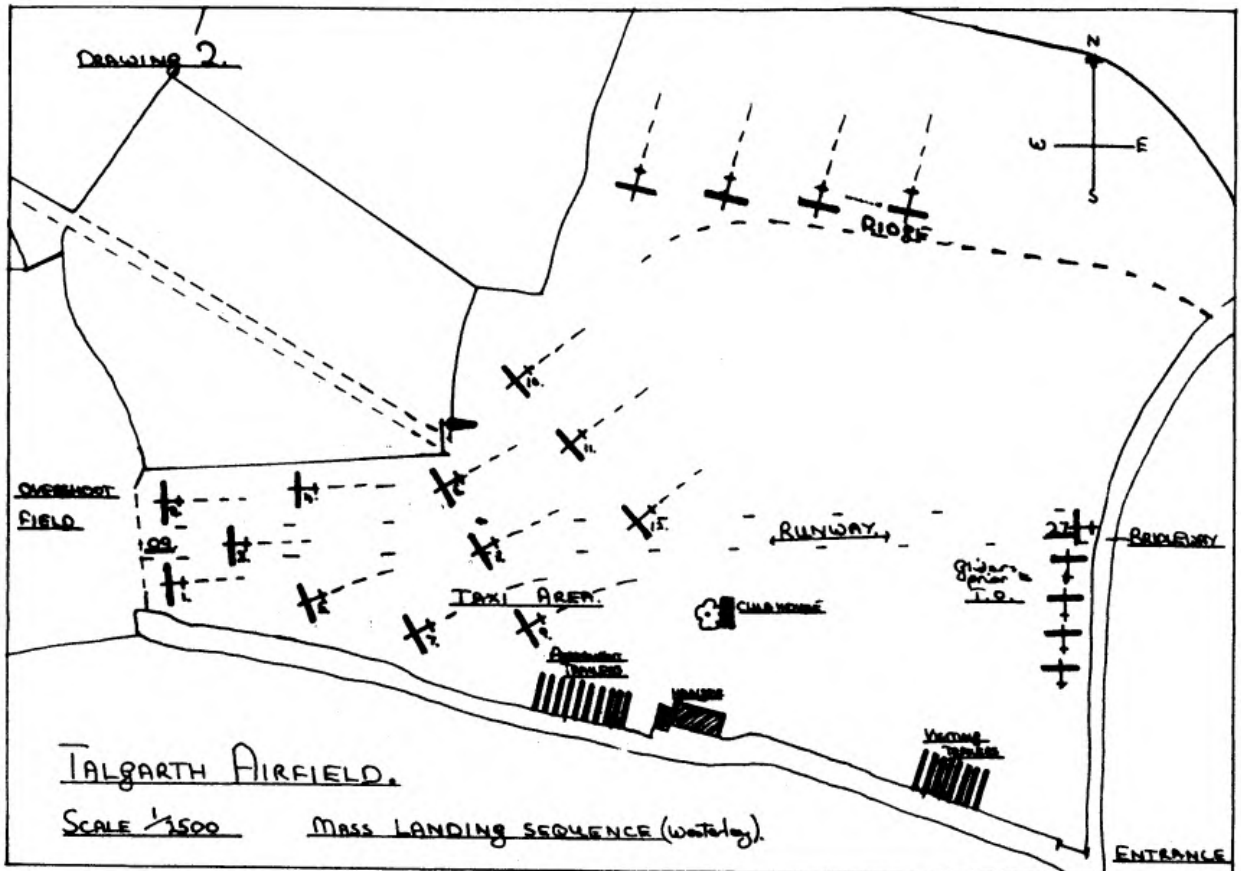
When landing in a westerly direction we favour a northerly circuit (right hand) because at any point on the down-wind leg abeam the runway a glider can turn finals and land; because of this facility that the field provides, it is possible for a number of gliders to land at once. (see drawings 2 and 3.) In strong winds circuits are on the down-wind side of the field so that pilots when compensating for drift have good vision and the arc enscribed in a turn is smaller as opposed to the same turn in a circuit on the upwind side.

North-west landing

This direction of landing should only be attempted if a glider is unable to land on a westerly heading due to strong winds. The ground run is effectively 150 yards, most of which is down hill, as having cleared the entrance gate the ground slopes downwards to the runway where there is a small rise; it is at this point a good 60 yards in where most gliders will touch down. It would also be difficult for a number of gliders to land this way.

Easterly and North-easterly landings.

In these directions there is a lot of sink on the approach. In this case the normal overshoot field can serve as an undershoot! All other approaches have no undershoot, and whilst no serious problems have arisen, a pilot should always be aware of wind gradient, and occasionally wind sheer.


DRAWING 2.
N
W
E
S
RUNWAY
OVERSHOOT FIELD
TAXI AREA
CLUBHOUSE
ENTRANCE
TALGARTH AIRFIELD.
SCALE 1/2500
MASS LANDING SEQUENCE (westerly).

Approaches/Sidesliping

In general we favour higher than optimum approaches for safety. The ability to sideslip holding a good attitude with accurate speed control is a pre-requisite, and a subject we teach.

MASS LANDING PROCEDURE

It is important that every pilot is familiar with the above procedure. In the unlikely event of it taking place accurate, disciplined flying is required. If the standard of flying is not such, then the Club will have to restrict membership and the number of gliders on the site drastically, which would have severe overtones. Certain considerations come to mind:

1. The larger two-seater gliders, for example Janus, Astir and K21, and some of the larger single-seaters, have a lot more inertia in the ground run.
2. Some of the first generation glass gliders, for example standard Cirrus and Libelle and Nimbus B, do not have such effective brakes as a more modern glider. They consequently require a longer distance to land in.
3. A newcomer to the site, or early site solo pilot's work load, in the event of the above, is going to be a lot higher than a seasoned site pilot.

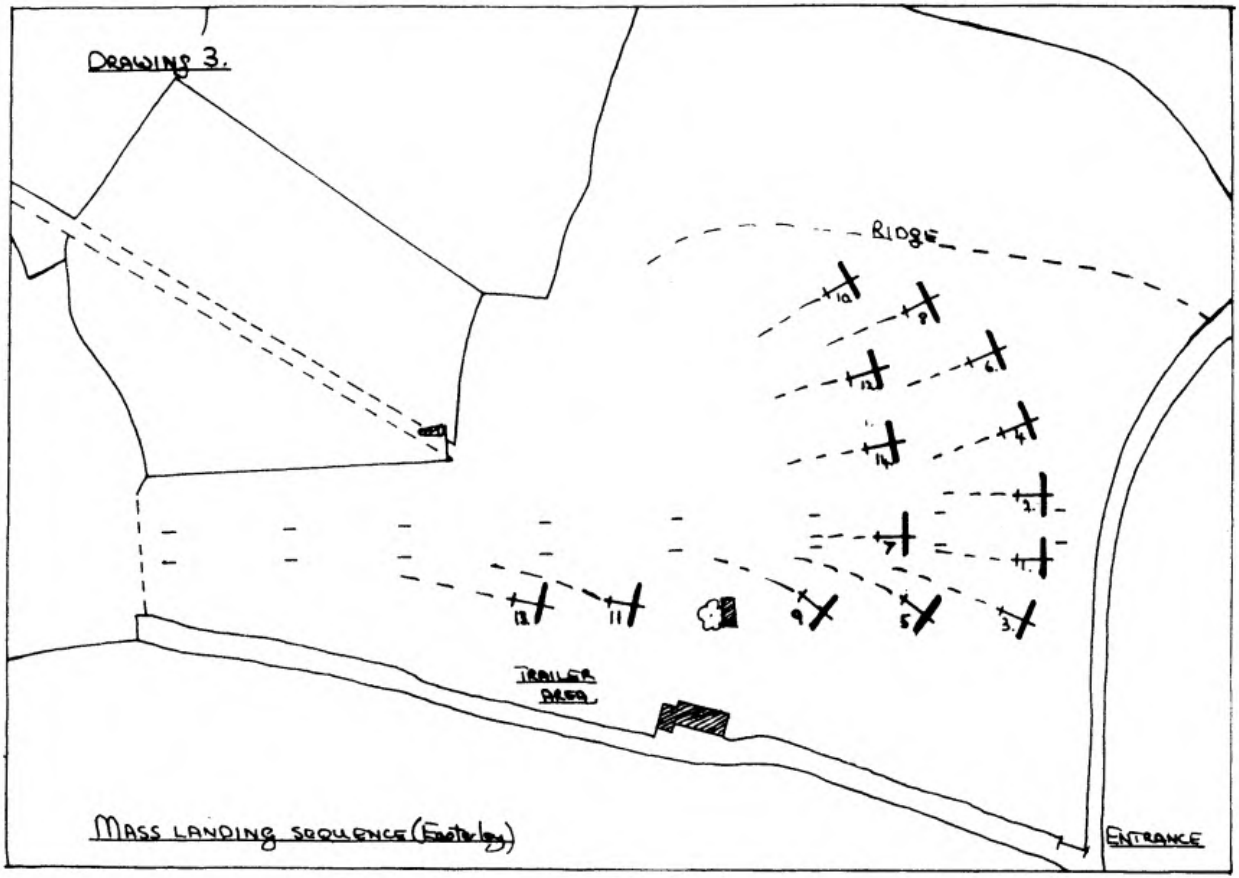
South-west Direction (see drawing 2)

1. Land long on the southern side of the runway, finishing ground run at the electric fence.
2. Land long on the northern side of the runway, finishing ground run at the electric fence.
3. Land long centre of runway, finishing behind 1 and 2.
4. Land on the north side of the runway, finishing behind number 2.
5. Land on the runway, clearing left into the Taxi area behind 1.
6. Land in a south-westerly direction, to finish south of the windsock.
7. Land on the runway, clearing left into the Taxi area.
8. Land in south-westerly to finish alongside 6.
9. Land in south-westerly direction, to finish on lefthand side of 8.
10. Land in south-south-westerly direction, to finish behind 6.
11. Land in south-south-westerly direction, finishing by Club House.
12. Land in south-south-westerly direction, to finish between 10 and 11.

The basic rule is: land, clearing the runway to the south. When this is not possible stack up the landings on the north side of the field. It is important for pilots to call their landing numbers when joining the circuit downwind.
In addition to the above, or the sequence not working out to plan, other options include landing short up the slope on the north side of the field, where four gliders could land, or overshooting and flying down the valley to a suitable field.

Easterly Direction (see drawing 3)

The sequence here is simpler, on account of the widening of the field as one gets further into it. The basic rule is: land easterly, clearing the runway to the right (south-east corner of the field). When this is not possible stack up the landings on the north side of the runway. In addition to this, the overshoot field can accommodate a number of gliders comfortably.


DRAWING 3.
RIDGE
TRAILER AREA
ENTRANCE
MASS LANDING SEQUENCE (Easterly)

WIND AND WEATHER

In south-west, west, and north-west winds we get what we call a clean wind. Because of the elevation of the site, ground effects and turbulence are less compared with launching in a valley. It means that we have a very high wind launching capability and a very good tug-plane to do it in. We therefore quite often operate when other sites cannot. Pilots are restricted to launching initially in a maximum of 20 knots, until they have flown the site a few times and gained more experience of our wind gradients. If the wind is strong, then a re-ride may be necessary.

When flying in the mountains we sometimes fly in rain, occasionally we get iced up, sometimes we have squalls. We fly rotor, weather and conditions change; whilst we are sunning ourselves in wave at 18,000′, and often we are instrument flying doing a climb or let-down. Yes, it is challenging flying — it is also flying that you may possibly never have experienced before. We would like to help, and introduce those of you who are new to it by teaching the skills, thus taking the risk out of it and injecting greater professionalism. Those more experienced pilots — we welcome you aboard. You can help, your experiences and advice might benefit a lesser pilot.

WIND GRADIENT

On a number of occasions in strong winds we have observed some approaches into the field which were not as they should be, sometimes by experienced pilots. It is necessary therefore for me to re-inforce certain points on this subject. Derek Piggott's book 'Understanding Gliding', for those of you who have not read it, is a must. He covers the subject in detail.

The Airfield is an elevated area of ground. It is not uncommon in a 15/20 knot wind to have 40/45 knots at 1,000′ above site, as there is quite a lot of friction between the air and the ground, reducing the actual wind at airfield level. There are three main areas where pilots mis-judge the situation.

1. They misjudge the wind and turn base leg too late.
2. They select an approach speed for the wind that they are experiencing high up and not the ground speed. (It is fortunate that most modern gliders have good brakes!).
3. They turn onto finals at too low an altitude.

In high winds I prefer to join a circuit into a field on a long base leg, having studied the field from several vantage points, as from this position I can view the field strategically and avoid turning some 140° plus downwind onto base. At any point on this leg I can alter my position downwind by only bearing away a few degrees, and letting the wind do the work for me. At all times I am updating myself on the wind gradient that I am experiencing, and ensuring that my reference point is well into the field, bearing in mind that it is not so easy to move to windward.

If, for example, a pilot sets up a landing speed of 50 knots, plus half the wind strength that he/she is experiencing at 1,000′, as opposed to the actual wind in the field, an approach speed in excess of 70 knots could be flown. Apart from hopefully managing to stop before hitting anything at the far end of the runway

because the wind at airfield height was only 15 knots, there are other considerations. In strong winds bad turbulence can be expected. In some gliders 70 knots is close to if not over the maximum rough air speed. In these conditions I for one fly well within the maximum rough air speed, and providing you are positioned well, with plenty of height on a full brake steep approach, particularly in the last few hundred feet, you will have stored energy in reserve to cover any contingency.

An old pilot in windy conditions will always have plenty of extra height. In some of our more high wind flying days, finals have been turned at 1,000' almost over the boundary fence. In strong winds low turns are absolutely out. Recovery from a stall into wind can loose an alarming amount of height.

Finally, if you have not flown in high winds, do so with a competent instructor. It is a lot of fun, and you can land in a very small area. After all, on a nice summer's day you could get caught out in a squall, and gliding does breed fair-weather pilots — which can be dangerous. We have the facilities and expertise here, so make use of it.

THE TUG

Designed as a crop sprayer, the 235 h.p. Pawnee 'C' is also an excellent tug. In America and Australia they are used a lot; it is a real work-horse and unlike most tugs is not a compromise. We were the first club in the country to use one with this horsepower and if flown efficiently we get an average of one gallon per launch. It has an excellent cross-wind capability; it is indispensable with field retrieves, and it is superb for high wind operations. We have only a few experienced proven tug-pilots who are cleared to fly it. They are also glider pilots. The reason for this is that all the pilots remain totally current and switched on and procedures standardised. Experience has shown that the greater the number of tug pilots, the more mechanical problems; whilst we would like to give other pilots the opportunity to fly the plane, they will appreciate the above and also that the greater the number of pilots cleared to fly it, the less hours individual pilots amass. It is essential that our tug pilots fly regularly.

The Tug is fitted with an automatic release hook to reduce the risk of a 'hang-up' situation, so do not get high out of position.

The tug pilot varies the climb out according to pilot requirements, taking into account noise impact on neighbouring farms. Normally he will climb out into wind turning left or right to avoid over flying an area sensitive to noise. A 1000' launch, take-off to landing, takes three minutes; 2000' five minutes. The rate of climb for glass single-seaters is approximately 800' f.p.m.; fabric gliders 1000 f.p.m. plus. In strong winds on take-off 1500' f.p.m. can be expected — so don't get left behind, it is a powerful tug.

Releasing

On release a clearance turn should be executed. On this site we clear both left and right. When launching we tow out to a variety of ridges; at the selected release point the ridges are often close to and above the combination. The glider must therefore do a clearance turn towards the ridge, allowing the tug room to dive away. It is important that the glider pilot shows his/her intentions clearly to the tug pilot.

Landing/Cable drop

The tug mostly lands with the tow rope attached, when this is not possible he will drop the rope across the take-off area near the threshold, doing a pass at right angles to the launch, a pull up, and land.

Gliders at all times have the right of way, and the tug pilot must ensure that he is not responsible for a glider pilot having to change his plan at the last minute. However, glider pilots are expected not to hold up the tug unnecessarily, and whilst flying a circuit, in particular to make his/her intentions clear **at all times.** Gliders waiting to be launched, get your fetling done before going on line, you will not be popular for holding up the tug unnecessarily.

Crosswind take-offs

If a glider stays behind a tug in the direction of take-off in a strong crosswind it will cause the tug to drift/slip downwind. The tug in this uncomfortable position can do little about it apart from running with his windward wing down to try to counter drift. If this fails to have the desired effect and obstacles like hedges are getting close, then he will back-release, leaving the pilot with a difficult problem. A glider pilot can avoid this by assisting the towing combination to weather-cock into wind on take-off. This ensures tug and glider flying cleanly and the combination climbing away from the ground with maximum gradient.

Normally the glider is airborne before the tug, in our case we rotate at 60 m.p.h., 52 knots. If, for example, the glider was airborne at 38 knots the ground for the tug thereafter is some 100 yards. At 38 knots the tug has good control response; if the glider sideslips out of position, downwind of the tug, thus weather-cocking the tug some 20° or so, it makes a favourable difference for the tug pilot. Pilots who have been trained on a large site may not have been taught this technique. This oversight has in the past given us a problem or two and we are anxious that it should be remedied.

Taxi-ing

In strong winds it is sometimes difficult for the tug to taxi, particularly if the ground is wet. Pilots who are not flying should be aware of this, and if necessary help by holding the wing to assist the aircraft in turning or to avoid weathercocking. There have been occasions when the tug has been stuck at the end of the field, with pilots doing nothing about it. This could be an unnecessary hazard, and is costly in engine time.

Tow Ropes

Out standard tow ropes are 120′. Mitty weak links are attached either end; on the tug end 1,100 lb (yellow staples) and on the glider end 900 lb (red staples). In strong winds we use a longer rope, minimum length 150′. In winds of 20-40 knots (approved pilots only) we sometimes, in common with a lot of Alpine sites, do not use weak links. We use short ropes, minimum 60′, for field retrieves, and also on the airfield when training. Ground crew and pilots please check that the two staples are in place before attaching to the glider.

Signals

The tug pilot in the Pawnee is seated high and has good all-round vision. Unless requested, a forward signaller is not necessary; he represents another obstacle. If the wing of a glider is down the tug will not launch. "Take up slack" and "all out" signals remain as standard. If a tug waves a glider off during flight it must be obeyed immediately, regardless of circumstance.

Brakes-out signal

If the tug pilot waggles his rudder, check that your airbrakes and tailchute, if applicable, are not out or deployed.

SAFETY

The philosophy of the Club is to avoid unnecessary bureaucracy and petty officialdom. We believe this is possible because we are a small Club, provided all members are prepared to help, thus creating a pleasant, informal atmosphere. We assume that as members you are responsible pilots, and will support this objective. We do not want to reprimand pilots — we fly for pleasure. Pilots are expected to be self disciplined about their flying and work within a framework of safety which we help to provide. If this is not the case, then Talgarth is quite simply not the place for you, and your base Club and C.F.I. will be notified accordingly. All members are therefore responsible for helping to ensure the smooth and safe operation of the airfield. Several points particularly come to mind in the policing of the airfield.

Spectators and Dogs to be kept under control, clear of the active area of the field, and clear of the launching point.

Runway to be kept clear, always excepting landings and launches. Gliders unable to clear runway on landing to be cleared immediately.

Retrieval of gliders. Crews to be efficient and well organised, other gliders might have to land. To avoid cars on the field please push gliders to the launching point. It is only a short field, and the exercise will do you good!

Stock. During flying operations stock must be off and kept off the field, and gates shut. They are clever at getting back in.

Cars and Trailers. Cars, except those engaged in moving glider trailers, should be parked at the entrance of the field or alloted areas. The airfield is farmed, and stock do not like flattened muddy grass. Cars damage and mess up the ground and Club members must appreciate that farming is Derek's livelihood. If we are to fly throughout the year we must look after the ground. Trailers to be parked in allotted areas.

Bridleway. At the east end of the runway is a bridleway running north-south and frequently used by pony trekkers. To avoid over-flying them, for obvious reasons, ground staff must control equine bridleway traffic. The pony trekker organisers usually know, however if not, suggest they move on quickly and if they want to spectate do so by the entrance at the south-east corner of the airfield. Pilots can also assist by checking on down wind, and if necessary and safe choosing another final approach and landing area.

Rigging and de-rigging in allotted area. Please do not leave trestles and other objects around, they could damage taxiing aircraft.

Radios. Visiting gliders must have serviceable radios. It has frequently been found necessary for important information to be passed on, and enables us to monitor and control gliders if necessary.

CABLE BREAK EMERGENCY FIELDS (Drawing 4)

Know your options?
Area and direction of landing.
Length and height above mean sea level.
The fields, and gradient of ground run.
Take off directions repossibility of tug retrieve.
Wires/obstacles.

(1) Good in north-west, west and south-west winds.
(2) Good in west and south-west winds.
(3) Good in south-west, south and south-east winds.
(4) Good in north-west, south-south-west, and south-east winds.
(5) Good in south-west winds.
(6) Acceptable in strong south or south-east winds *only*.
(7) Good in north-east winds, also for 180° in event of insufficient height for airfield or overshoot field.
(8) Good in north-east winds.
(9) Good in north-east, south and south-east winds.
(10) Good in north-west and north-east winds.

All pilots to inspect by car.

FIELD SELECTION AND LANDINGS

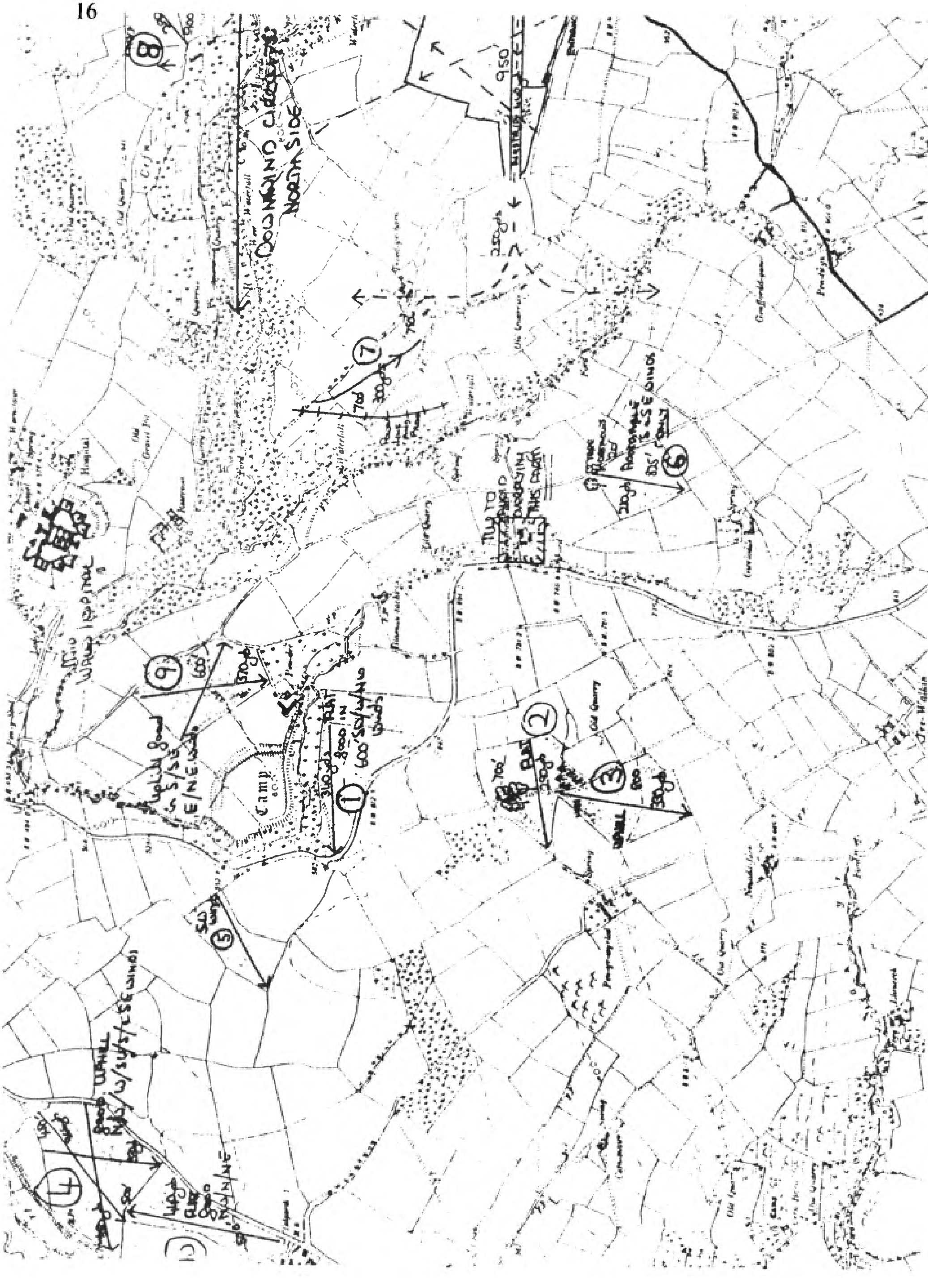
To cover this in detail it is well worth while reading Bill Scull's book 'Soaring Across Country', chapter 5.

If you are to fly in the mountains a high standard of airmanship is required in the following areas (unless of course you are under training).

Skill. The ability to fly accurately with good speed control when under pressure and a high work load is essential. You may for example have to fly down a valley in close proximity to obstacles on the ground in order to get to a field after a low cable break.

Knowledge. Detailed briefing, to include a study of the area on 1:50,000 and 1:25,000 Ordnance Survey maps. Get as much information as possible from experienced local pilots. Comprehensive site check, covering safe landing areas, cable-break fields, and other important information. Previous actual field landing experience and detailed knowledge and experience of the glider type to be flown are essential.

Judgement — windspeeds, gradients, obstacle heights, length of fields, surfaces, heights of ground, and of your glider in relation to the fields, and appropriate speed selection.



As a rough rule fields get smaller the closer and higher they are to the mountains. In Wales it is nearly always possible to glide clear of the mountains and pick a field in an open flat area, emphasis on OPEN. It is essential in selecting your field to be dealing with predictable elements. For instance, selecting a field in a small valley is fraught with danger because of wind shifts, funnelling effects, and rotor that are likely to be encountered in different levels. Imagine 100' on finals, headwind component 20 knots — and suddenly this shifts 140°. Plan you flight and height margins so that you are always within gliding distance of a safe landing area assuming the worst could happen.

The following mnemonic is a good summary:-
S - size; S slope; S - surface; and S - stock.

Under these headings certain points needs emphasising, particularly for mountain flyers.

Size. The fields in our area are small in comparison to most sites. 300 yards is a good field, 250 yards average. A corner-to-corner landing can give valuable extra length. Remember *obstructions* on the approach cut the useable length of a field by approximately ten times the height of the obstacle, see drawing 5.

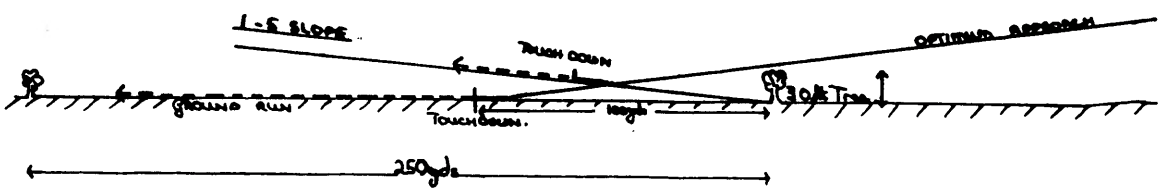
Slope. The slightest down-slope in fields our size is unacceptable. We do use up-slopes to our advantage, and steep ones too. It shortens the landing run, and most important of all, the angle of approach vis-a-vi the angle of the field; means that obstructions will not have the same effect (see drawing 5). Experience is required in executing a steep uphill landing to avoid a heavy one. If landing uphill into wind, expect turbulence; better land uphill crosswind. The steeper the slope, the higher the round-out starts, and the greater the approach speed for the round-out uphill. As a rough rule I add a minimum of ½ knot for every degree — a 1-in-7 slope is approximately 8°; 1-in-5 10°. Often up-slopes are the only options available here, particularly for heavier gliders with a lot of inertia in the ground run. On the north side of the airfield at Talgarth we have a 1-in-7 slope approximately 90 yards from the hedge to the crest, where we practice uphill landings. If you need the practice or experience ask, this is what we are here for. It is sometimes difficult to judge the degree of slope and this area provides a useful guidelines. Plan a circuit, not just for the wind and landing, but where you can study the field from a better vantage point. The maximum of slope that a glider can land on, assuming the pilot has the necessary skill, is governed by whether or not the glider can hold its landing position without sliding back down again. Develop your skill and judgement in uphill landings and soaring in the mountains can be done with a greater confidence, as there are a lot more landable fields around than would first appear to a flat site pilot.

Surface. A detailed examination is important; the colour is a good indication of the type of crops. Particularly important for us is that we might well have to use wheel brakes. To this end a well-drained field is important. You can slide a long way on lush and wet grass, another reason for a field with a slope. Do watch out for ridges and furrows if the field has been ploughed in the past, in which case do not land across them.

DRAWING 5.

UPHILL LANDING ADVANTAGES

1. Obstacles cease to have the same significance.
2. Touchdown point is not so far into the field.
3. Ground run is dramatically less.
4. More fields available to land in.



Do not land on the mountains, they might look smooth, but underneath are all sorts of nasties. Apart from the difficulty of a retrieve, if you can be found; if you are injured then you will not be able to get help and could end up an exposure case, or worse.

Stock. Sheep scatter — cattle will not. Above 1,000' in this area sheep farms predominate, the cattle are generally though not always lower down. If a field full of sheep is the only safe option, keep your wings level and make your intentions clear. They are more able to dodge you than you them — the odds are in your favour.

Other points:

Wind. Know the strength and direction of the surface wind. Because of the slopes here it is not always possible to land into wind. Do not attempt down-wind landings in small fields.

Undercarriage. If in doubt as to whether the field is long enough land wheels-up every time. Apart from maybe scratching a bit of gel-coat off you will be unlucky if you do anything worse. It is a life saver by reducing the ground run enormously.

Tailchutes. If you need the tailchute and are unlucky enough to have a malfunction on finals, then you crash uncontrollably at the other end of the field. Deploy it downwind or base leg, if it fails then you still have some options left. If you have a glider with a tailchute and have not flown a circuit with it deployed you would be well advised to do so.

Accidents. At the time of writing approximately 1 in every 38 field landings is an accident, this is unacceptable. We demand high standards, we have to, our surrounding terrain dictates so. Reduce risk factors; for example know your options and fields before take-off, this reduces thinking time and allows the pilot to concentrate on accurate flying. Remember, a good approach into a poor field is better than a bad approach into a good one.

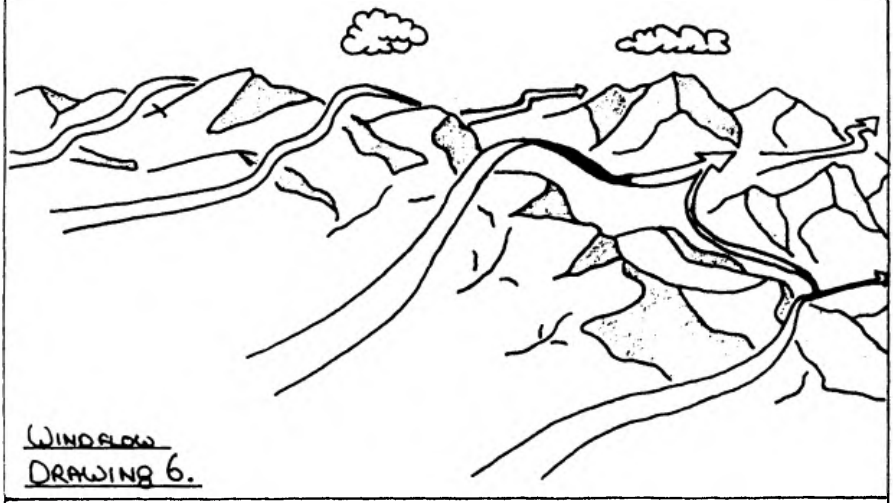
RIDGE SOARING

Right of Way. A glider who has the ridge on his right hand side has the right of way.

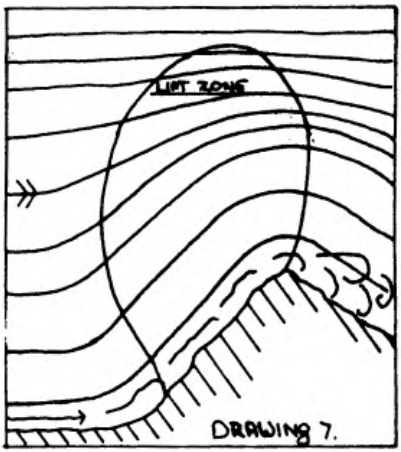
We know that as the air flows over the ground it is deflected by objects in its path. It will rise over the ground, in the case of valleys it might even funnel up. For pilots who fly on hills and in mountains these elements present a challenge. Endless pleasure can be had soaring the rising air on the windward slope of a hill.

Drawing 6 examines the airflow on a ridge.

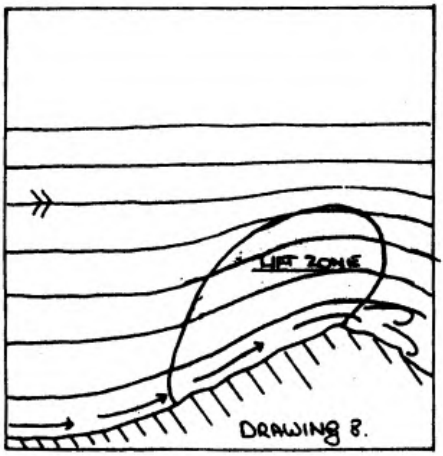
If we take two typical cross-sections of this ridge (see drawings 7 & 8) it is possible to examine the lift areas and imagine how these alter shape for every bit of the ridge we fly, according to the shape of the slope. Thus when flying ridges we fly over changing lift patterns; we therefore must explore these areas to the fullest in order to find the best lift region possible. One of the best techniques is that of flying in a figure of eight, making one's turns into wind, at the same time as flying to the shape of the contour of the hill.



WINDFLOW
DRAWING 6.



DRAWING 7.



DRAWING 8.

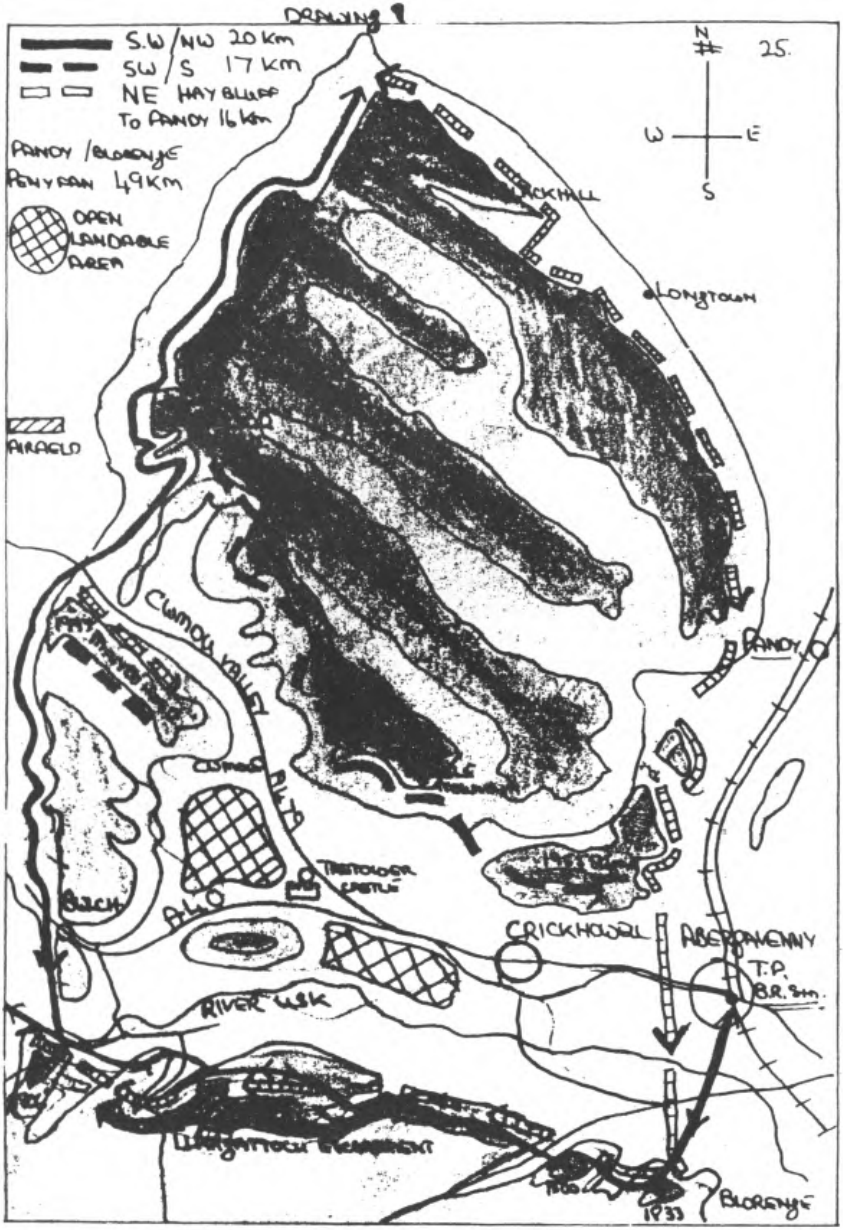
When flying a steep facing slope the band of lift is much narrower, particularly lower down, perhas 50′ or even less. In this case another flying technique can be deployed. A pilot has to learn to fly this with precision owing to the invariably close proximity of the ground, if he is going to remain soaring. First we must appreciate that a glider in a conventional 30° turn flies a circumference of approximately 1 kilometre, the diameter of which is approximately 450′ if the band of lift is, say, 50′ wide from a steep slope. It can be clearly imagined that a pilot will spend more time out of the lift zone than in it if the length of the beat is not a long one. This situation often occurs when flying from one mountain range to another, as is often the case here, since more often than not one arrives at the ridge halfway down. It is possible with practice to turn a glider in a very tight turn indeed, some pilots put this technique to good effect when centering in a thermal. Firstly having got the desired angle of bank, which in the main must be at least 30° for this manoeuvre, the pilot applies a backward force on the stick, ensuring that the glider retains a good altitude, and effectively pulls the nose of the glider around. The manoeuvre must be started as the glider faces away from the mountain, and completed before he converges, taking into account wind drift etc. It is a precision manoeuvre that requires practice in view of the higher than normal stalling speed because of bank and elevator force, and should be practiced with plenty of height and space in hand. Its value, however, can only be seen when soaring close to the ground as the area covered can then be appreciated more effectively. It is a manoeuvre that is best taught and demonstrated by an experienced pilot in a two seater trainer.

Warning, do not become complacent. A ridge at almost right-angles to the wind might produce a source of min sink, flying the ridge beat downwind, lulling one on with a sense of security. However, to return into the headwind one would fall out of the sky because of the wind gradient, and the sink, depending on the performance of the glider having to be flown at speed to penetrate. Ensure that your source of lift will if necessary work both ways before flying on. Always explore the area to windward of your ridge, a mass of sinking air could cause your source of lift to fail. This could be caused by thermal, rotor or wave. However, if they are in phase phenomenal lift can be found. Build up a picture in your mind of what the airmass is doing. Our ridge beats are miles long, and one is quickly out of gliding distance of the airfield. Do not get behind the ridge unless you have sufficient height to alight clear, as always, to open country, expecting the worst possible sink that could be encountered. (see section on Rotor).

Do not beat up hill walkers. It is very tempting at times, however, the implications should be obvious, apart from presenting a problem for the Club.

Ridge Routes on the Black Mountains.

Main Beat (see drawing 9 — also O.S. sheets 161 and 160, scale 1:50,000). Our main beat is from Hay Bluff to Bwlch, 20 km in a straight line, 24 km to fly. The north-west escarpment rises out of the Wye valley to 2,660′ a.m.s.l., dominating the country from the west around to the north and east for many miles.


DRAWING 1
S.W/NW 20 km
SW/S 17 km
NE HAY BLUFF
TO PANDY 16 km
PANDY / BLORENGE
PENYFAN 49 km
OPEN LANDABLE AREA
ARAGLD
#25.
N
W
E
S
LONGTOWN
CWMYOY VALLEY
PANDY
CRICKHOWELL
ABERGAVENNY
T.P.
B.R. 8m.
RIVER USK
1933
BLORENGE

A launch to 1,000′ above site is normally adequate once experience of the site is gained. A glider is then boosted, sometimes at rates of climb which are off the clock, to great heights. The merest hint of a wind on the airfield — and somewhere on the range it is soarable.

The main beat works best in south-west to north-west winds, but can also be soared in south-south-west and north-north-west winds providing a pilot concentrates on the areas which work and discards those that don't quickly. We find in general that pilots are initially slow in reacting and anticipating sink. Time is needed to develop these skills, as well as to develop local knowledge and the ability to read terrain. We experience at times what to some pilots must be extraordinary rates of climb, it should go without saying that we also experience the sink. (see section on Rotor). The main beat is ideal to get to know the site. On the north-west side of Hay Bluff is a large common on the lower foreground, parts of which can be landed on. Coming back to the airfield from this area, 2/3rds along is another large common called 'Rhos Fawr', also landable. In both cases a careful inspection prior to landing is required for furrows, sheep, etc. In addition to these areas there are also a number of other good farmed landable fields, not forgetting that the ground drops away to the valley floor some 560′, where there are good fields and where it is easier to retrieve a glider.

Lower Beat

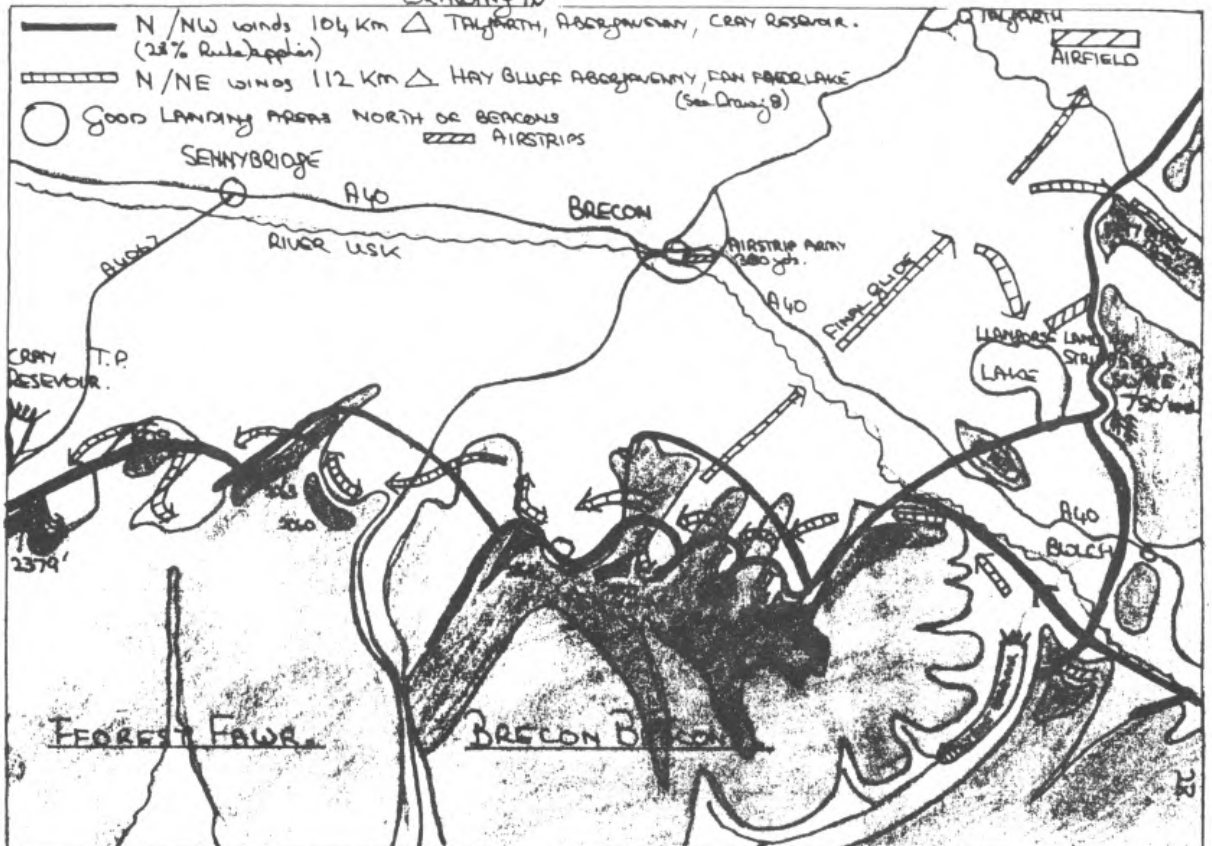
South of the airfield is our 'Lower Beat'; this can be soared when the cloud is halfway down the main escarpment, and extends from Mynydd Troedd south to Bwlch, with minor variations such as soaring the Allt (just south of Llangorse) in a south-westerly. At Llangorse Lake is an airstrip, which has proved enormous value, particularly when scraping back from the Beacons. It is 550 yards long, 750′ a.m.s.l. (200' below our airfield), sloping south-west. Land uphill, north-east, unless you have aproximately 10 knots tailwind; in which case land south-west. If sheep are on this airstrip the field on the south side is almost identical and as good, as well as a number of others in the area. On the east side of the lake are two bowls, on the south one is a spur with forestry. This is the point of departure for the Beacons, which I will cover later. Pilots who have been cleared for flying the main beat only will have to be upgraded for other beats and conditions.

Cwmdu Valley Run (Black run, south-west/south winds).

This run is graded a 'black run', linking it with the grading system on ski slopes. Ironically, two accidents have occured here, one serious. So take heed of this briefing — they need not have happened.

The run provides some very exciting flying, it extends from Mynydd Buchan down the Cwmdu valley to the Sugar Loaf, 17 km in a straight line, 20 km to fly. The ridge is mostly above 2,000′. To the south-west the other side of the valley is Mynydd Troedd, highest point 1,997′. This mountain can provide a lot of lee turbulance and rotor, depending on wind strength and direction. The consequences for the pilot vary with the height of the glider flying the beat. On the upper slopes one is in cleaner air, but if one gets below the main ridge severe turbulence and sink can be expected, together with wind shifts caused by valley funnel effects in the lower levels. One can be drawn down to the stage where an accident is the only possible result. In addition to this, when wave has set up in

DRAWING 10


N/NW winds 104 km △ TALGARTH, ABERGAVENNY, CRAY RESERVOIR.
(28% Rule/applies)
N/NE winds 112 km △ HAY BLUFF ABERGAVENNY, FAN FOEL LAKE
(See Drawing 8)
Good Landing Areas North of Beacons
AIRSTRIPS
TALGARTH
AIRFIELD
SENNYBRIDGE
A40
BRECON
RIVER USK
A470
AIRSTRIP ARMY
HAY BLUFF
A40
LLANDDOSE
LAKE
CRAY
RESERVOIR.
T.P.
2379'
A40
BWLCH
FFORESTFAWR
BRECON

the Usk valley we get the wave rotor (see section on Rotor) and this ridge route provides a way of going south to make contact — generally speaking above Tretower Castle.

In light of the above conditions that can be encountered, the Cwmdu valley is on NO ACCOUNT TO BE LANDED IN. If you cannot make it back to the airfield, then select a field in the areas marked (see drawing 9), approximately 600′ below the site, 350′ a.m.s.l. Also, east of Crickhowell and Abergavenny the fields are good. When flying the beat the lift is rarely constant, and often positive decisions are required in going for an area that could be a lift source. Only in more southerly conditions can the hop from Table Mountain to the Sugar Loaf be achieved.

Hay Bluff to Pandy (Blue run, north-east winds)

An aerotow to approximately 2,000′ towards Hay Bluff and a glide in to the ridge is the start of this 16 k long route, with more options open if conditons are good — such as our 112 km triangle.

Fly south-east to Black Hill and beyond it spur, turn downwind and pick up the ridge along which the Offa's Dyke path runs (O.S. sheet 161 to Pandy). It is a very pleasant ridge; occasionally even a hang-glider flies it, though in general they confine themselves to Hay Bluff. The ridge is normally straightforward enough; however, if it should go wrong, fields get better towards Pandy. Between Longtown and Black Hill the fields are not very good, but if one flies east one can alight clear of the bad area. Between Black Hill and Hay Bluff the common previously mentioned is the obvious.

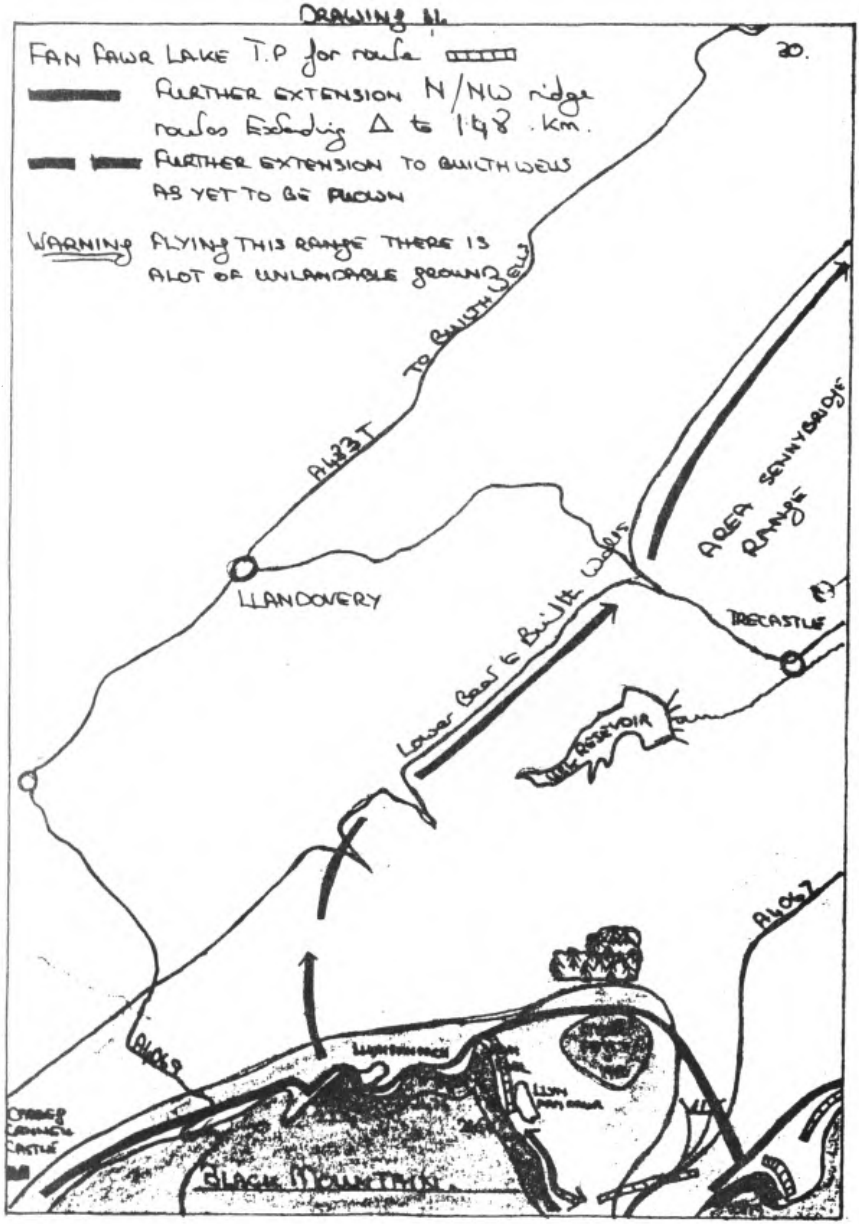
To return to the site is a final glide with, if the ridge has been working, a tail wind. The Blanik generally makes it back from 1,500′ above site with a minimum 5 knot tailwind. Route back via the west end of Rhos Fawr common, thus avoiding the largest sink areas. If you still have 800′ in hand you should be alright for the field.

So far we have covered what we call our local main beats. To take this further let's go south from Pandy, although for certain tasks we would normally come in the reverse direction.

Llangattock, Brecon Beacons, Fforest Fawr & Black Mountains (Drawing 10).

To run down to the Llangattock escarpment from Pandy one takes the line of minimum sink. The first hill facing north-east is only 1,260′ a.m.s.l., if going north one would soar this. At this point one should have sufficient height in hand not to bother with it, and continue to the east side of the Sugar Loaf, the Deri, just north of Abergavenny; have a top-up if necessary and cross the town for the north-east bowl of the Blorenge; 1,833′. The route is west-north-west from here onwards, and a hop is made to Gilwern Hill; 1,500′. If sufficient height at the Blorenge was achieved this will serve as a line of min sink only, so don't hang about, and cross the Heads of the Valleys road by Gilwern to the rock faces of the Llangattock quarries, south of Crickhowell. Ivor Shattock, author of 'Soaring at Usk', describes it well: "It's beautiful countryside, but it gets better, so keep going. The lower one gets the faster one can go, but for the first few tries take it High and Slow". It is fair to say that Ivor was the pioneer for this type of flying in

DRAWING No.


FAN FAWR LAKE T.P for route
20.
FURTHER EXTENSION N/NW ridge
routes Extending Δ to 1·48 km.
FURTHER EXTENSION TO BUILTH WELLS
AS YET TO BE FLOWN
WARNING FLYING THIS RANGE THERE IS
A LOT OF UNLANDABLE GROUND
TO BUILTH WELLS
A483
AREA SENNYBRIDGE
RANGE
LLANDOVERY
TRECASTLE
Lower Road to Builth Wells
A40
A40
GLACH MOUNTAIN

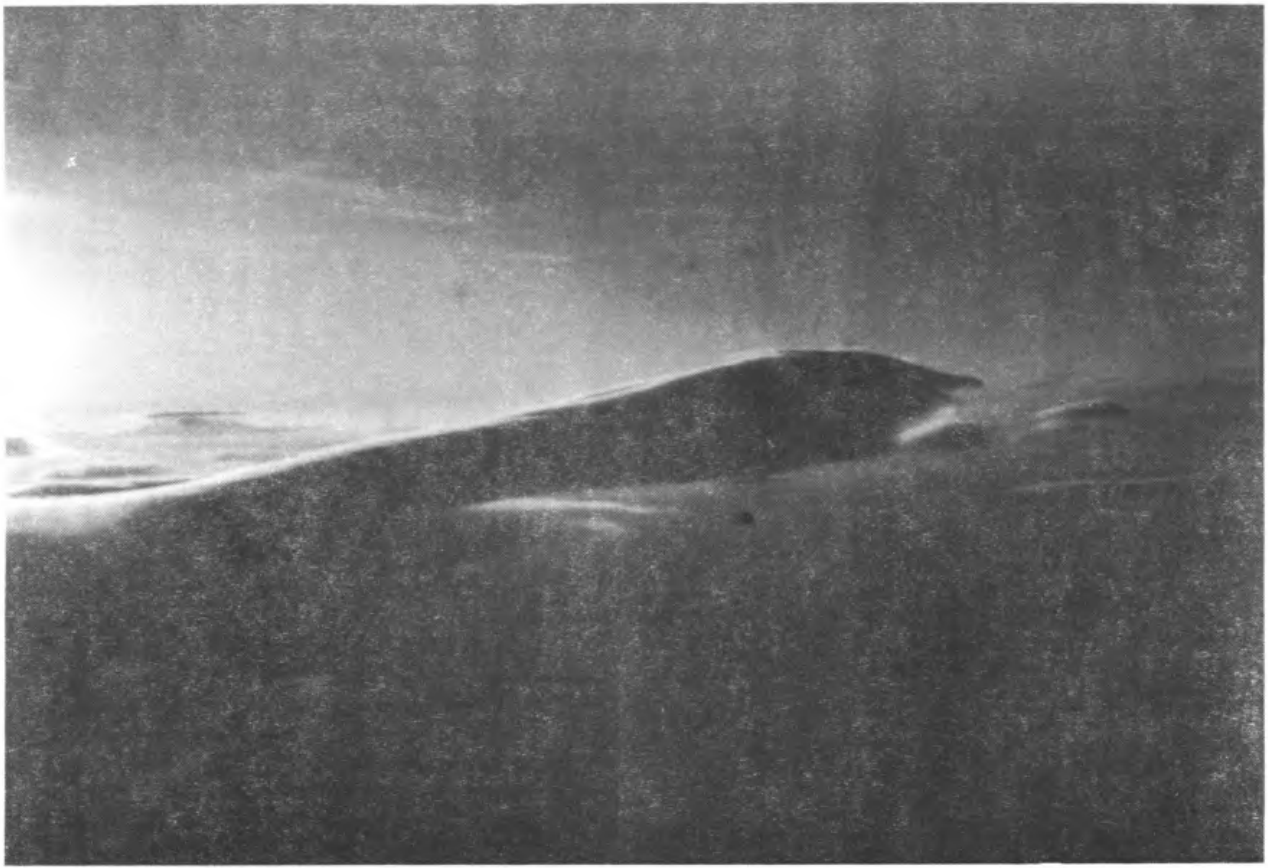
Wales, and he deserves a lot of credit. When you do it try imagining, if you have time, what it was like to do it for the first time. Fly on west, keeping to high ground. South of Llangynidr the escarpment is around 1,600' a.m.s.l. Then jump across to Tory Foel; 1,806', just south of Talybont, which is triangular in shape. In north-easterlies one can head due west, crossing the reservoir for Craig Pwllfa on Waen Rydd; 2,501' (O.S. sheet 160). This jump is also possible in a north-westerly, providing one has a boost from a thermal; otherwise the way is over Talybont and around the north side of the Bryn; 1,842' south of Llanfrynach. Tracking south-west from the well defined escarpment of the Brecon Beacons and their bowls one climbs dramatically.

When crossing from the forestry east of Llangorse Lake in a north-west wind the Bryn is the point to aim for. This track takes one the north side of the Allt, and is the best line of min sink as well as being the shortest distance.

The part of the Brecon Breacons you fly depends on the wind direction. The bowls work from the north-east to north-west. Sometimes in a north-west wind it is difficult to cross the north-east spurs because of sink and turbulence, in which case I fly around them, tucking in on a bowl; 1,600'; south-east of Libanus that faces into wind, where I climb and fly back into the main north-west bowl of Pen-y-Fan; at 2,907' the highest mountain in South Wales. The way on in north-west winds is head into wind to Fan Frynych: 2.063', a really nice ridge. In north-west wave I have often made contact here as it is four miles further to windward than the Black Mountains escarpment and sometimes is in phase when the other is not. From this ridge head west, rounding Fan Bwlch Clwyth, identifiable by a quarry on its north-east side; then track south-west for Fan Gihirych; 2,379', due south of Cray reservoir. This, together with Abergavenny Railway Station, is the turning point for our 104 km north-west triangle. Bear in mind that having turned at Abergavenny you have to fly back to the Beacons before crossing to the Black Mountains, as this is the only way back.

From Pen-y-Fan in a north-easterly the way on is west to Craig Cerrig Gleisiad; 2,073', a nice north-east facing bowl. At this point get as much height as possible and head for the quarry on Fan Bwlch Clwyth — if you have sufficient height cross the back of Fan Frynach. From here fall back on Fan Gihirych. It is important to arrive at it's north-easterly bowl with at least 2,000' Q.N.H. in hand, as in this wind direction it will be turbulent in the lower levels, influenced by the high ground you have just come from. Fly on west for the escarpment of Fan Hir. You can relax now until you start back, the ridge is a very impressive one. Fly up it to Fan Foel; 2,650' (see drawing 11), and turn the Lake, Llyn y Fan Fawr. Before heading home use this high ground to get as much height as possible.

The adventurous, experienced pilot; if the north or north-west conditions are good, might like to continue west from Cray reservoir. In which case, having got as much height as possible at Fan Gihirych, head north-west rounding Moel Feity; 1,950', above the forestry, and glide into the north-west bowl of Fan Foel. This has proved to be the best line unless thermal help is available. This tricky bit having been achieved, relax and get as much height as possible. In this area no one needs encouraging! Head on, west-south-west onto OS. sheet 159, and turn Carreg Cennen Castle. This castle, described by Wynford Vaughan-Thomas in his book 'Wales' as "a breath-taking fortress perched on a limestone crag on the



N.E. Wave bar, looking down wind. Photograph 3 shows next stage.
Photo by author 1981.

western end of the great escarpment behind Llandeilo", is a good turning point. I am sure a pilot will not have the time to appreciate its qualities before retreating to the 1,500′ ridge down-wind of it at Tair Carn Isaf and heading for home!

Hay Bluff, Abergavenny Railway Station, and Carreg Cennen Castle is a 148 km triangle, and possible in a 15 knot north or north-westerly.

In addition to the above, there is a low beat south of Llangadog running north-west to Builth Wells with some interesting problems yet to be crossed — perhaps a final link to Shobdon. The scope for mountin flyers at Talgarth is unique for the U.K., and at the time of writing a lot is still untapped.

WAVE

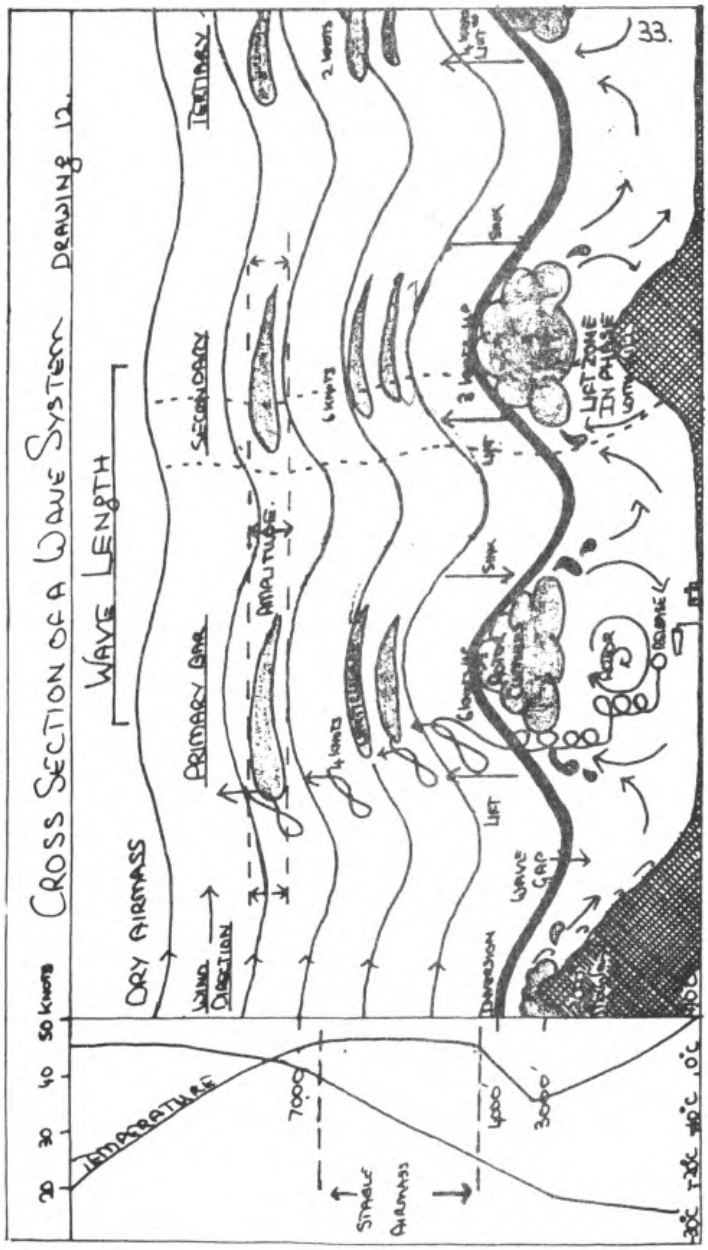
When autumn comes, plans are generally well afoot for expeditions to the Wave sites, the start of the winter season. Ironically however, some of the best wave flying we have is in the summer! Wave happens all the year round, a point a lot of pilots seem to forget. One of the best wave cross country flights I have had was in the summer — Talgarth, Carmarthen, Snowdon, Talgarth — 346 km. I dream of leaving Snowdon 16,000′ for Ireland, under the lee of the Wicklow hills and down to Bantry Bay, then working north-east to Scotland. Before you laugh or comment wait until you are flying in wave at Snowdon, looking across to the wave in Ireland; and if that does not get your adrenalin running nothing will. Flights of 23,000′ have been recorded in Wales. In the right conditions there is no reason why 30,000′ plus cannot be reached.

Topography

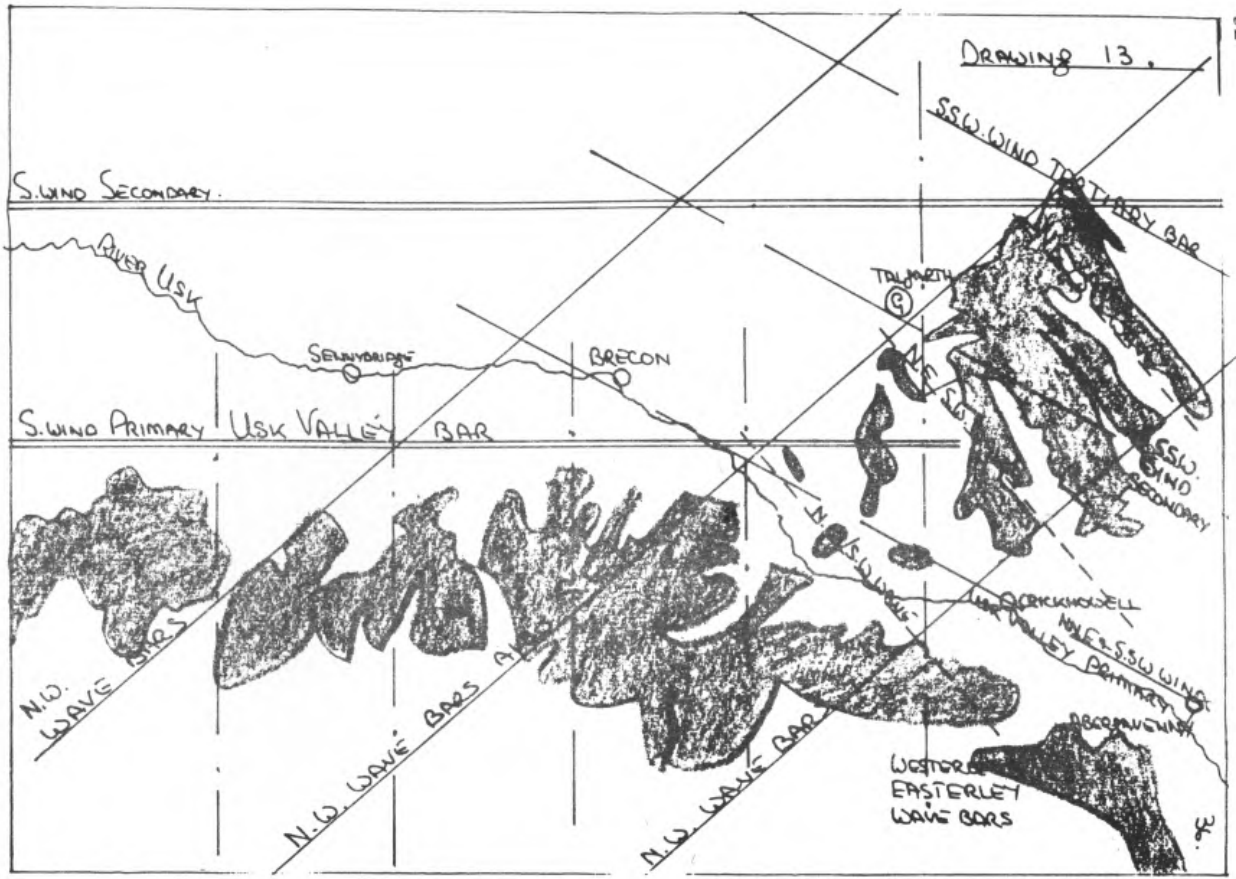
The terrain is one of the most important factors; through its shape it is responsible for generating the wave. How efficiently it does this depends on its slope. Emphasis has to be made on the ingredients, they have to be correct, one cannot function without the other. For example, if the meteorological conditions are ideal but the land is flat, or the mountains do not run at almost right angles to the wind, the wave will not form; and visa versa.

Ideally the higher the mountains are, the greater the possible amplitude, excepting certain cases.

The most important part of the mountain is the shape of the lee slope (see drawing 12). A concave shape is ideal, the ridge or mountain needs to be long so that the wind does not flow around it. A cone-shaped mountain does not produce wave. If the mountain shape matches roughly the shape of the leewave, the amplitude will be greater. In this instance small hills can often produce wave which can be soared to heights out of all proportion to their size. Conversely, a large mountain within a range might be too big for the wave, and not produce the expected results. A further mountain positioned downwind exactly a wave length or multiple thereof, will produce an 'in phase' condition, and it is possible for the amplitude to be greater downwind of the primary. To take our study further, and concentrate on the area of the Brecon Beacons, armed with the knowledge of the layout of the mountains from reading the section on ridge routes; drawing 13 shows how the wave bars set up locally in different wind directions. It can be seen how it is possible to manoeuvre around the mountains


CROSS SECTION OF A WAVE SYSTEM
DRAWING 12.
WAVE LENGTH
DRY AIRMASS
WIND DIRECTION
PRIMARY CAP
SECONDARY
TERTIARY
AMPLITUDE
4 KNOTS
2 KNOTS
LIFT
SINK
WAVE GAP
DOWNDRAUGHT
LIFT ZONE
33.
20
30
40
50 KNOTS
TEMPERATURE
7000
4000
3000
STABLE AIRMASS
30°C 25°C 20°C 10°C

'The end of a good day'. 16,000 in Blanik over Brecon Beacons, N.E. Wave.
Photo by author 1981.


DRAWING 13.
S.S.W. WIND TERTIARY BAR
S. WIND SECONDARY.
RIVER USK
TALYBONT
SELNYDDAN
BRECON
S. WIND PRIMARY
USK VALLEY BAR
S.S.W. WIND SECONDARY
N.W. WAVE BARS
N.W. WAVE BARS
N.W. WAVE BAR
CRICKHOWELL
WESTERLY EASTERLY WAVE BARS

on the various ridge routes in order to contact wave without necessarily needing a high tow into it.

The north-westerly wave system becomes more apparent by studying the drawing of Wales, number 14; as the main valleys and ranges run north-east/south-west; for example the Cader Idris/Aran/Brwyn range. The potential that Wales offers for cross-country in wave is enormous.

Meteorological conditions for wave.

Good wave days occur in a region between high and low pressure systems, the best position is that area which is downwind of a straight line joining two centres. The best wind direction depends on the topography. In the case of Talgarth we have wave in several directions. Overall in the U.K. the best direction is north-west/north-north-west.

An Inversion occurs when the temperature in the airmass rises before dropping off with height (see drawing 12). It exists always when cold air underlies warm air, and is a boundary found frequently in the free atmosphere, particularly well defined on anticyclonic days. The air is hazy, sometimes discoloured. Above the inversion the visibility improves dramatically. The importance of the inversion and any stable layer above is that they ensure the persistence downwind of the oscillation triggered by the air falling down the lee slope and rebounding off the low ground. Preferably, the inversion wants to be above the highest mountains in the area. Inversions are responsible for most wave formation and accompanying cloud development in the airmass.

The wind (airstream) needs to remain fairly constant, and preferably have a maritime influence, above the inversion; altering no more than approximately 15°. Below on the ridge, the wind should be within 30° of right-angles. The wind supplies the energy for the wave to form, and ideally it needs to be at least 15 knots at the tops of the mountains. The velocity needs to increase with height, the stronger it is the greater will be the amplitude of the wave formed.

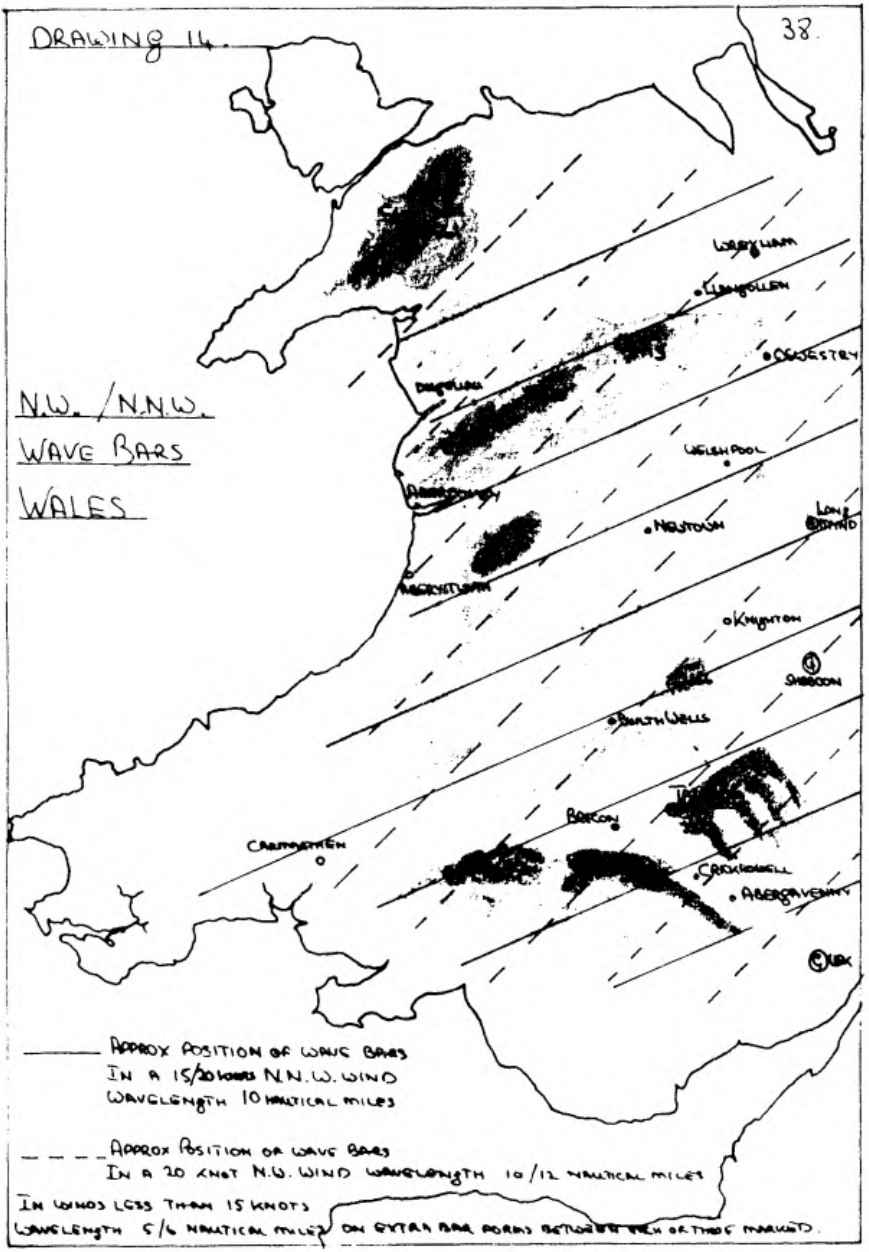
Waves need a smooth laminar airflow to sustain the oscillation. This airflow occurs in a stable layer in the airmass which is above the inversion, where the temperature remains constant and the wind speed increases, more than in other levels with height. The more stable the layer, the greater the amplification (see drawing 12. Temperature/Wind Speed diagram).

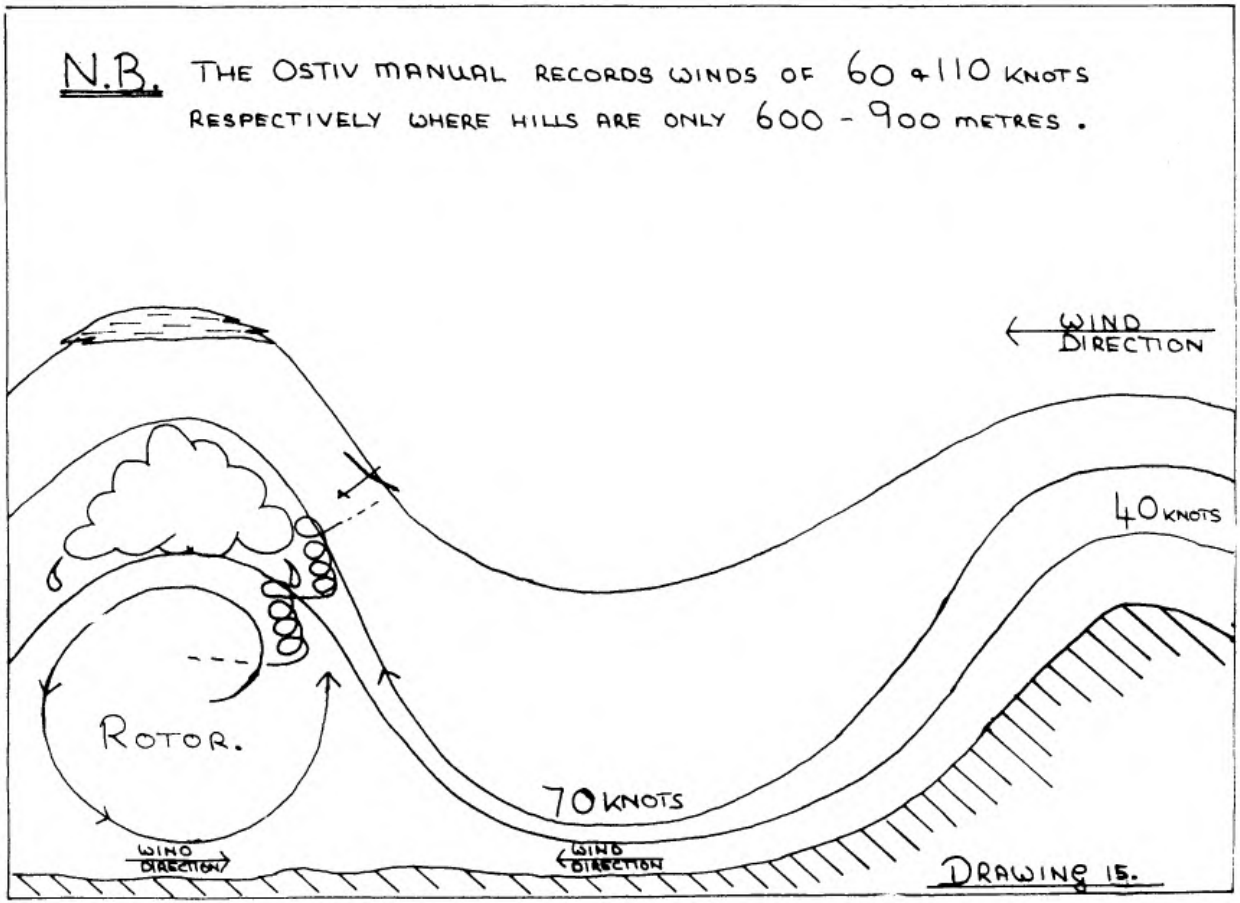
When all is said and done, often we experience wave when by all accounts it should not exist. However with the above information you can at least ask the met. man the right questions before racing down here!

ROTOR AND TURBULENCE LAYERS

Rotors are standing eddies that are in the main encountered in the lower unstable layer in the lee of mountains and underneath a wave. In a moist airmass they can be identified as a stationary roll of ragged cumuli form cloud. Cloudless rotors also exist when the atmosphere is too dry for condensation.

All rotors produce turbulent flying. In severe rotors the turbulence can be capable of destroying aircraft. In such conditions violent surface winds may occur just upwind of the axis of the rotor above (see drawing 15). A similar


DRAWING 14.
38.
N.W. / N.N.W.
WAVE BARS
WALES
LLANGOLLEN
CONGLETON
WELSH POOL
NEWTOWN
KNIGHTON
SHREWSBURY
BARMOUTH
CARMARTHEN
ABERGAVENNY
Approx position of wave bars in a 15/20 knots N.N.W. wind wavelength 10 nautical miles
Approx position of wave bars in a 20 knot N.W. wind wavelength 10/12 nautical miles
In winds less than 15 knots wavelength 5/6 nautical miles on extra bar forms between the other marked.


N.B. THE OSTIV MANUAL RECORDS WINDS OF 60 & 110 KNOTS RESPECTIVELY WHERE HILLS ARE ONLY 600 - 900 METRES.
WIND DIRECTION
40 KNOTS
ROTOR.
70 KNOTS
WIND DIRECTION
WIND DIRECTION
DRAWING 15.

drawing is shown in the OSTIV Meteorological Forecasting Handbook for Soaring Flight. The following points must be emphasised:

1. Incredible rates of climb can be achieved in rotor, occasionally we experience this.
2. With paragraph (1) in mind, it goes without saying that incredible sink can also occur.
3. Rotor flying requires a different technique. It is easy to overstress a glider in such conditions if you don't know what you are doing. It is also possible to find that you are forced to land with little control of events. Below a rotor cumulus the wind can be 180° to the main direction. Landing areas therefore need to be carefully appraised, depending on the position of the wave bar.

The section on the Cwmdu Valley (black run) should now have more significance! We put minimum height limits on these routes as unless you have a lot of experience of flying in rotor your reactions will be slow, and decisions sometimes wrong. If you have any doubts and would like to practice rotor flying, ask.

THERMALS IN MOUNTAINS

In general convection starts earlier in the mountains than flat areas, since they are well-drained and the east and south-east slopes get the warmth of the sun first. On good days we regularly see thermals bubble from 9 a.m. onwards, extending up the eastern mountain boundary of Wales. This is good news, since we can be rounding our first turning point; for example Llangollen; with 110 km under our belt, if not before most gliding clubs have got out of bed certainly in time to catch the start of the flat-site thermals at 11 a.m. The most efficient route is flying due north at least 10 miles west of Shobdon and Long Mynd. One problem about the early morning thermals is that the cloud base is low, and if routing is such as suggested, the mountains are high (averaging between 1,500′ and 2,166′). All this means that we have an advantage, as our day is longer on average. The same principal applies in the evening; as the sun sets the west and south-west slopes get the last rays of the sun, and thermals sometimes bubble out of the bowls until late.

Other points are also noticable. We generally get much higher cloud bases, for instance 4,000′ in flat country probably means we have 5,500′ to 6,000′ in Wales, 7,500′ is not unheard of. We also get the extremes; stronger thermals and stronger sink.

Wales provides a fantastic playground, but I am reminded of a quotation — "Aviation in itself is not inherently dangerous, but to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity, or neglect." Mountains do not tolerate fools, and you can easily come unstuck.

Talgarth is unique, a perfect setting strategically positioned in the mountains for long cross-country flights and possible 1,000 km attempts. With dual carriageway now to Abergavenny we are easy to reach — 2¾ hours from Lasham, Booker or Dunstable, 2½ hours from Bicester, Coventry and Hus Bos areas. All that remains is for you to get your forecast right, and come and enjoy some of the best flying in the U.K.

COURSES

Training

Since it started the Club has successfully trained pilots. The advantages the site offers to the ab-initio pilot are long periods of soaring time throughout a training period averaging between 30 minutes and one hour per session. The site dictates a much higher standard of flying before solo stage than other larger training sites. In the long term a pilot will benefit, however in the short term where he would possibly have gone solo elsewhere and developed the next stage of his flying to a certain extent by himself, he would still be flying with an instructor at Talgarth.

The Club needs local members, without them it would not be possible to function. We therefore limit ab-initio training to local members only.

Mountain Flying Introduction Course

The course is designed for pilots who are not qualified enough to fly at Talgarth, or who feel that they would be happier for whatever reason working under this framework. It is designed to get a pilot totally current, and to bring him to the flying standards required by the site, as well as laying a firm foundation to develop the Mountain Flying skills and knowledge taught.

Mountain Flying Advanced Course

Aimed at pilots of between 100 and 400 hours who wish to develop skills to a higher standard, or to equip pilots and instructors to either passenger-fly or instruct from the site. The course encompasses all aspects of Mountain Flying covered in this book; in addition advanced flying techniques, instrument flying, and finer points of dead reckoning navigation with reference to flying in wave and in or above cloud. A lot of emphasis will be placed on accurate flying under high workloads. This course will well equip a pilot for future Alpine-type flying.

MEMBERSHIP

The Club offers the following types of membership:
Full Membership
Country Membership
Weekly Membership
Day Membership

The Country membership, giving full rights, is for pilots living more than 50 nautical miles from the site, and who are fully paid up members of another Club.

Because of our planning permission restriction of 20 gliders, members' gliders take precedence. The site is becoming very popular for discerning pilots! Visitors and expeditions are welcome by prior booking.

VISITOR SUPERVISION

(Notes for instructors and site check pilots)

Site Briefing

The problems of briefing visiting pilots adequately as well as covering certain contingencies and reinforcing others has proved to be extremely difficult at Talgarth. I quote from an article written by Bill Scull on Hill Site Supervision: "Generally, it might be said that the onus is on the resident instructor to give a site briefing. He may brief the visitor on what concerns the day's operations, or he may give a more comprehensive briefing, in which he tells the visitor everything about the site relevant to all wind directions. The danger in the latter is that the briefing can be too thorough, particularly if there are ridges which are soarable in various wind directions. The result is that the instructor might give the visiting pilot so much information that he is saturated and consequently does not take in the very things which may be the most important. If the briefing is too long, the visitor will get bored, especially if it happens to be soarable at the time. Also, after having given quite a good briefing, the instructor may fail to summarise. The feeling that a comprehensive briefing is essential stems from the system we use."

This book has therefore been written to standardise briefings and to ensure that the visiting pilot can absorb details at his leisure prior to flying; as well as serve as a useful manual and record. Whilst it will take a lot of the workload off the duty instructor, it will remain for him to summarise. Bill Scull writes: "Summari-sing, it is important for the local instructor to realise that the difficulties of his site which have been forgotten by him will be the ones most critical to the visitor. The visitor must be briefed for the conditions that exist at the time and for all forseeable changes that may possibly occur during the flight itself. This briefing must be given as clearly as possible and summarised in a way that the pilot will remember."

The Check Flight

Bill writes: "There are a number of problems relating to the check flight which the site instructor may fail to deal with because he has forgotten two things. They are the difficulties of carrying out, particularly, launches in severe turbulence, and certain psychological problems. The psychological problems are considerable and include flying from a much smaller field than usual. The implications of this are that he may be unable to plan his circuit well because he tends to fly by fixed landmarks. If there are peculiarities or hazards about the site which tend to be avoided by reference to landmarks, then the instructor must make sure that the visitor knows these landmarks. Some of the many psychological problems for the flat-site pilot flying at a hill site may never be overcome. For example, flying at 400' above site and well beyond normal gliding range. Also operating at heights which are below normal circuit height. Both these may be overcome to some extent by making the pilot being checked go deliberately low to gain confidence on the hill and demonstrating how strong the lift is when low. Many pilots will fail to soar a hill which is working quite well because they are in the 'wrong' position, fail to get close enough or fly too fast."

Other points that particularly concern us when check riding pilots come to mind:

1) Does the pilot fly accurately under pressure, to be a reasonable risk in the event of a low cable break.
2) Is his field selection and his judgement of heights good. Bear in mind that a lot of pilots forget that by flying out into a valley they have more height and time in hand.
3) Does the pilot know his glider, and its capabilities, particularly the distance it can glide (see paragraph 2).
4) Does the pilot know the width of his glider, and is he capable of landing safely in close proximity to other gliders.

These questions and many more come to mind in site checking a pilot at Talgarth (see section on Site Check). The answers can only come after a rigorous site check, when the pilot is put under a high workload. There are a surprising number of pilots with a lot of hours who have not had a proper check flight in years, and in the main are most appreciative. Whatever standard and however good one is, a critical analysis of ones flying by another pilot should be welcomed.

A visistor to Talgarth may need several checks to cover the different changes and ridge routes, and to bring him to site standards.

"ON FLYING AT TALGARTH" by Chris Garton

The unique fascination that flying at Talgarth holds for me can perhaps be best shown by a description of a recent flight there, on a cold, windy Monday afternoon at the start of February — a time of year when many people's thoughts of gliding are confined to the prospects of a thermal soaring season still two months away.

There was just the three of us — John Bally with a Diamant, Dave Hodsman with a Kestral, and myself with a Ventus, plus Richard Marsden who had taken a couple of hours off to launch us. Launching was from the short downhill run across the strip, and in my case without the luxury of a wingtip holder. We released five miles downwind to glide to the Brecon Beacons, knowing that at the end of the day we might have problems getting back against the strong northerly, perhaps 30-35 knots at cloud base.

We rendezvoused on the first ridge, The Bryn, south-west of Llangorse before moving west to Pen-y-Fan, at 2,906' the highest and most spectacular point on the Beacons. You enter the bowl at Pen-y-Fan by flying fast along one of the spines that lead up to it from the lower ridges, starting several hundred feet below the top and ending up in a climbing turn over the peak. A most exhiliarating experience, and today was no exception.

After a few low passes for the benefit of the hikers in the snow, we set off westwards, via three or four intermediate ridges to the 'other' Black Mountain, Fan Foel, today a white snow-covered escarpment standing out above brown moorland, then along the lower slopes to the end of the range, some thirty miles from Talgarth and almost to Ammanford.

Then we turned and retraced our steps, timing our jumps from ridge to ridge to miss the worst of the snow showers now coming through. I managed to find a weak wave amongst the showers which lifted me slowly to 5,200' amsl to get me home comfortably. Dave and John pressed on eastwards along the Usk valley to the Blorenge hoping to work the eastern slopes of the Black Mountains and thence via Hay Bluff back to Talgarth, but were forced to retreat by heavy snow and lowering cloud north of Abergavenny, eventually finding the wave and following me home.

Back at Talgarth the Black Mountains proved to be producing good lift both the north-western and the north-eastern faces despite the oblique angle of the wind to the slopes. We had flown for three hours, but could have used the whole day.

To me the great attraction of Talgarth is that, unless you get the weather completely wrong, the variety of lift sources readily to hand means that your prospects for interesting and maybe exciting gliding are higher than almost anywhere else in the British Isles. There are hill and mountain ridges for nearly every wind direction with several different cross-country routes. Hill soaring tends to be looked down upon by flat-site pilots (and indeed, the hill soaring practiced at some clubs is not very inspiring) but in this area it takes on a whole new aspect.

Wave is a bonus — it can form in any wind direction given the right stability, and although it may not go to great heights as often as in Scotland, on the best days the whole of Wales is accessible, with fascinating further possibilities for the adventurous.

In the summer, thermal flying gives you chance to fly over areas you might not otherwise see (though with the caution that some areas of Wales are unlandable), and the possibility of combining use of the different types of lift in one flight. Sea breeze fronts are often not far away.

The other advantage is the attitude of the Club itself. Experienced pilots with their own gliders are positively welcomed, not just tolerated. You can fly year round not just at weekends, but, by prior arrangement, midweek too. Of course, the site is smaller than most pilots will be used to; rotor and wind gradient can be troublesome; some areas are unlandable and others seem to be covered with only the tiniest of fields. But none of this should be beyond the capabilities of the average pilot of moderate experience, given a degree of caution and awareness of own limitations sufficient to temper the spirit of adventure, though not to crush it.

If you want to expand the scope of your gliding, or simply to get more flying out of the year, or you are tired of kilometer counting and want something new, then Talgarth may be the place for you.

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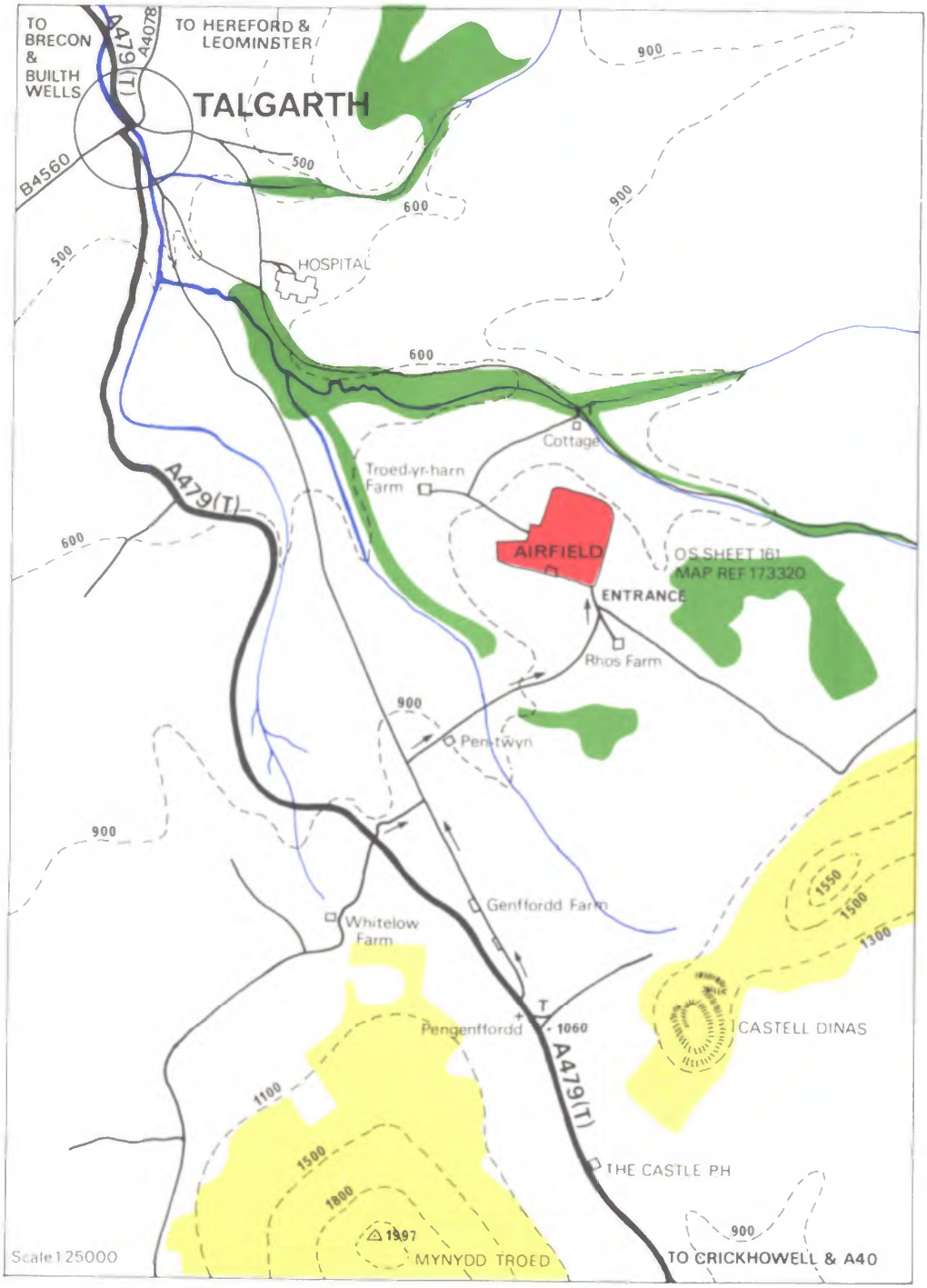
Aberdovey/Oswestry north-north-west wave bar, taken over the Dovey Estuary.

Photograph by author.


TO BRECON & BUILTH WELLS
A479(T)
A4078
TO HEREFORD & LEOMINSTER
TALGARTH
B4560
500
600
900
HOSPITAL
Cottage
Troed-yr-harn Farm
A479(T)
AIRFIELD
OS SHEET 161
MAP REF 173320
ENTRANCE
Rhos Farm
Pen-twyn
Whitelow Farm
Genffordd Farm
Pengenffordd
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CASTELL DINAS
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THE CASTLE PH
TO CRICKHOWELL & A40
Scale 1:25000