Touch down ------

Facts, opinions, pictures and fun

Number 61 January 2021

To contact me, or to join the newsletter mailing list, send an email to peter@peterscott.website

It's a new year so it's time for a change. I inherited the old newsletter name from Dave. I wanted something new and with a different play on words. As the unbelievably expert lander that you know me to be I thought digging myself in the ribs might show the right spirit for 2021. The newsletter will continue to change and expand its range. In 2020 you saw the start of the serialisation of Bob's book and contributions from several people. Remember I am always happy to help if you have something to say but are not sure how to say it. This might be something you are proud of, an aviation story, a picture, a clever technique, a joke or anything else. Don't forget that this newsletter also goes to the USA where Bill and Bunny might use your article in their newsletter.

However since writing the above things have changed. For reasons private to the club I have now resigned from the club committee. This will therefore be the last newsletter that I will publish as from January 1st I can't use the club's mailing list. Instead I will be updating my website at peterscott.website/flying and putting my new material there. I don't want you to miss out on Bob's great tales. As I won't now be publishing them in serial form I am happy to send you the whole book in pdf format so you can read it in digital form or print it. Bob has agreed to that for magazine/newsletter subscribers so let me know at peter@peterscott.website if you want it.

ALL THE BEST AND MERRY CHRISTMAS!

Table of Contents

Genius number seventeen: centre of gravity rings

Old-fashioned, self-adhesive, reinforcement rings for filing papers make excellent centre of gravity markers. You can sense their positions with your finger tips. They are easy to place accurately due to the hole but they look awful, especially on the top surface of low wing models. I was therefore pleased to find some transparent ones on eBay at £5.40 for four boxes. Here is a box with a ring stuck on and just visible.

https://www.ebay.co.uk/itm/1000-x-Vinyl-Ring-Reinforcers-for-Punched-Holes-Reinforcement-Washers-File/311751902567?ssPageName=STRK%3AMEBIDX%3AIT&var=610636382251&_trksid=p2057872.m2749.l2649

Bob's Tales:The explosive chicken

I was at Southend Airport one day. I happened to be in the restaurant and among many people that I knew there, I ran into the Chief Pilot of British Air Ferries. It was John Woodhouse who I'd known in Channel Airways. John called me over and said, "Come and have a cup of coffee." Whilst having our coffee he said, "What are you doing now?" I said, "I'm flying helicopters." He said, "They're bloody dangerous things. I'm looking for Handley Page Herald Captains. How about coming and joining us?"

I thought that sounded nice and safe after crop spraying so I took him up on that and gave my three months notice to BEAS Helicopters. During that time I went over and renewed my instrument rating on the Herald. I joined them at the end of my time with BEAS and ended up flying the Herald to Ostend and Rotterdam, the same old places I used to fly the DC3 and the DC4. I must say I found it quite nice to be back in the cockpit in shirt sleeves, puffing the pipe and an unlimited supply of coffee courtesy of a charming Air Hostess. I liked the Herald very much. It carried 52 passengers and although a bit noisy with two Rolls Royce Dart turbo props, was a very comfortable cockpit and easy to fly. There were only fifty ever built as the Fokker F27 Friendship cornered that part of the market back in the 60's. However, I later flew the F27 for some years out of Norwich but preferred the Herald. The Herald cruised at 180 knots true airspeed, slower by 20 knots than the F27 but was, in my opinion, a better aeroplane.

Two things I liked about the Herald. First the deicing system was hot air from the engines. It was used to warm the leading edge of the wings and tailplane and was therefore anti icing and could be on continuously whilst in icing conditions, unlike the pneumatic inflating boots on the F27. The second was that the emergency battery would supply sufficient power for ninety minutes against thirty minutes on the F27. If you were mid North Sea on a dark and dirty night and lost all electrical power, it was very comforting to be in the Herald with that extra sixty minutes to find somewhere to land.

I stayed on the Handley Page Heralds for a couple of years, then there was a bit of a recession and they took the Heralds away down to Gatwick, where the other part of the company was operating as British Island Airways. British Air Ferries sold off the scheduled services at Southend and that became Air UK. So I was now flying for Air UK and they now put in Embraer Bandeirante aircraft. They were single pilot aircraft and carried fourteen passengers to just keep the schedules going with the lower passenger figures and just keep things ticking over.

They were powered by two PT6 Turbo Prop engines. We had a PA, a Pilot's Assistant, who was somebody with a private pilot's licence who sat in the right-hand seat for take-off and landing. We used to let them fly the aeroplane if we were empty. During the flight they would go back and serve coffee and duty free goods to the passengers. I can remember one particular flight. This was way before all the security worries and bombs scares. I flew to Rotterdam and when got to there I told the PA how much fuel I wanted in each wing and left him to do that while I popped in to check the weather back at Southend and have a quick puff and stretch my legs.

When I got back all the passengers were on – mainly businessmen. The PA was by the aircraft and said, "I think we've got a problem here Skipper. There is a ticking sound coming from the baggage compartment at the rear of the aircraft." I walked to the back of the aircraft and we opened up the baggage area and there we could hear this ticking sound, Tick. Tick. Tick. Tick. I thought, "No it can't be a bomb." We had to get all of the passengers off, unloaded the baggage and I got them to identify their baggage. Bear in mind that this was way before all this worry about bombs on aircraft. Obviously now you wouldn't touch the stuff. Just get everybody off and leave it to the experts to deal with it.

One of the passengers – a businessman who had come through from Germany - said, "Oh gosh. I know what it is. I bought my young son a clockwork or electrically operated chicken toy. You switch it on and it goes 'chuck, chuck, chuck' and runs along on the table." We opened up his case and there it was ticking away. Having found out what the problem was we all got back on and flew back to Southend.

On every flight in those days the Captain had to put in a voyage report at the end of each flight for each sector. Because we were delayed I had to put in a reason for delay. I explained it all and put, "Clockwork chicken found. Not a bomb!" My Chief Pilot was an ex Fleet Air Arm pilot with a good sense of humour and having read my report decided to tell everyone who worked at Southend Airport, most of whom I knew, about my encounter with an Explosive Chicken. Later the next day I was walking out to the aircraft to do the afternoon Amsterdam flight and found a crowd of engineers, baggage loaders, customs officers and ground girls waiting for me. When they saw me they all started to strut around, flapping arms and making chicken noises. I had to take it on the chin and we all had a good laugh at my expense. Southend was the best airport I ever worked at as the people were all so friendly. Unfortunately I was soon to move on when the operation from there ceased and moved to Stansted.

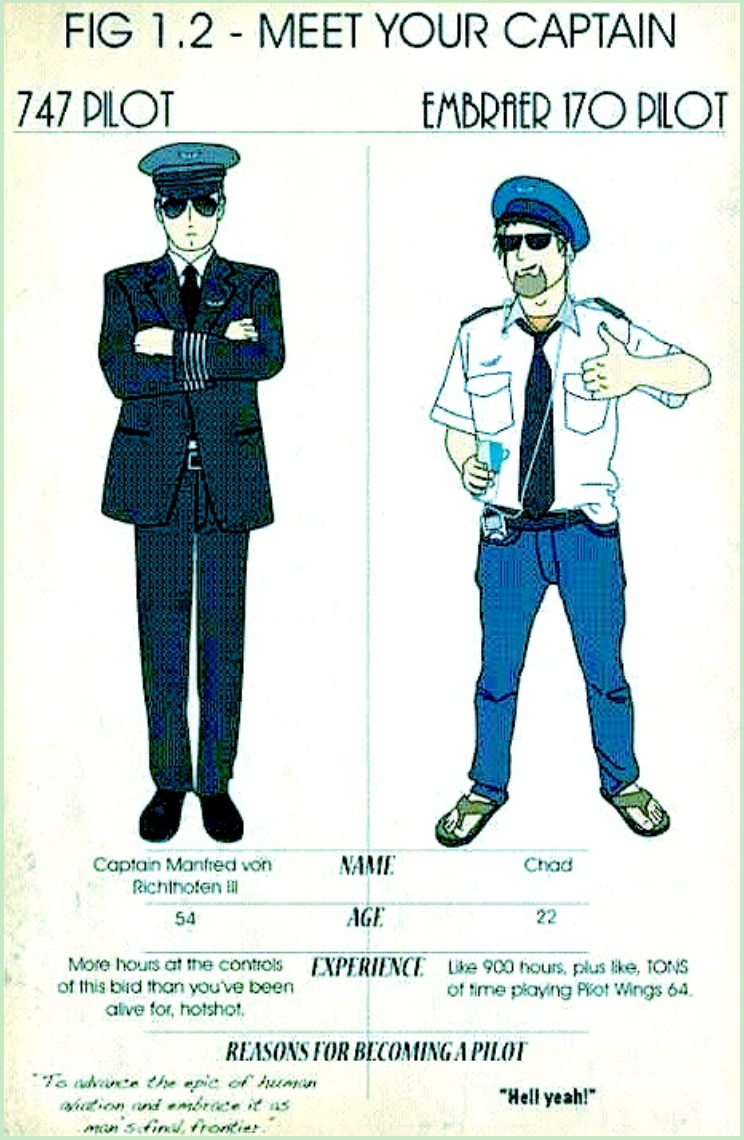
The aircraft that Bob flew

Handley Page Herald

Bandeirante

Bob’s view

And now how you recognise a Bandeirante pilot.



Jokes of the month

Turnip prize

This is complementary to the previous item about the IgNobel Prizes. I am not one of those who thinks that all modern art is rubbish. The London galleries and the Sainsbury Centre contains some very fine work. However quite a lot is awful - clever, over-priced con tricks for the gullible. The absurdities of the genre have now been highlighted by the annual Turnip Prize [for my American readers this is a sendup of the Turner Prize]. My favourite is a baked bean tin on top of another and entitled ‘Trump Tower’. If you have not been around small children lately, they use the word trump to mean a fart. I wonder if anyone told The Donald about that.

There are many more on https://www.bbc.co.uk/news/uk-england-somerset-54959423

Royle family

And on the Royle Family. Jim stands up and says he is going out. ‘Get yer coat on Barbara.’ ‘Are you taking me out?’ ‘No. I’m turning the fire off.’

Techie corner: charging NiMHs

NiMHs are probably the most tricky batteries to look after. Charging is complicated and slow and they lose charge when not being used, at about 4% a day. Why do we use them then? The four and five cell receiver packs give 4.8 and 6 volts which are exactly right for receivers, retracts and servos. They are compact for their

capacity and do not risk high voltages ruining equipment as is the case with 2S lipos.

Why are they tricky?
After a recommendation from Mike W I had just bought some eneloop 4.8V packs. The label says to charge at 200mA for 16 hours. How long? As I want two in the model this means using two chargers or charging for up to 32 hours. And this has to be done just before a flying session to avoid charge losses. I thought I would find out more.

NiMHs must be charged carefully. It turns out that there are two safe modes of charging, at C/10 and 1C. That is ‘safe’ in the sense of getting long life out of them. They don’t catch fire like lipos. Alternatively if you are really organised you could do it all manually by fully discharging then doing a timed charge at a certain current.

Mode 1: Low current
This can be done, with care, using a general-purpose charger in NiMH setting. You charge at C/10. For my 2Ah batteries this gives the 200mA on the label. There is a potential problem. If you do not disconnect the battery at full charge, oxygen is generated in the cells. There is a catalyst in the cell that destroys this but it generates heat. So you have to be around to disconnect when the battery gets warm. For up to sixteen hours?

Mode 2: -deltaV
When a NiMH cell gets near to full charge its voltage drops by10mV, called ‘minus deltaV’. It is safe to charge at much higher rates if the charger is designed for NiMHs and is specified with some combination of the words ‘peak’, ‘delta’, ΔV or ‘-deltaV’. This means that its software can detect the voltage drop and switch to a low current to do the remaining charging. It then switches off.

I bought a mains-powered Radient Recoil charger for the surprisingly low price of £13. This charges at 2A, which for my batteries is 1C. This current means that it is not suitable for NiHMs with a capacity lower than 1Ah. There are indicators to show the various charge stages: Stand by, Charging, DV mode, Charged, Error. DV is the -deltaV final stage. As you see it has, for no obvious reason, a Deans connector so I had to make an adaptor for the JR connectors on the batteries.

Of course it might be that your general-purpose charger also has DV detection in its NiMH settings, but you will need to check this in the manual. At least you now know what to look for. A scan of the list of chargers in Hobby King only came up with the Imax B6AC V2 and SkyRC B6 nano as having DV sensing. My iSDT chargers also have it when you select NiMHs.

Top tip: reversing a clamp

I needed a clamp that would squeeze outwards inside a hole rather than squeeze inwards. I tried a wooden wedge unsuccessfully and then light dawned. I remembered that my bar clamps have a hole at the other end. Was that so I could put one jaw on the other end? And guess what? Yes it was. So I unscrewed the holding screw

and jaw. I pushed the jaw onto the other end and re-fitted the screw as you see in the pictures. And it worked. No doubt you all know this already but maybe not.

Normal

Reversed

More jokes of the month

Heard on the Moth Radio Hour on Radio4 Extra. It was about dad jokes.

“What do you get if you cross an elephant and a rhino? Ell If I Know.”

It’s all about lift

This was going to be in three parts but here’s the whole lot in one go. I apologise for any omitted spaces but it doesn’t spoil the sense.

Chris Bryant, chris@palanquin.plus.com
From RCSD-2018-02 with thanks

If you read this piece, please bear in mind that it is based partly on my experiences in the United Kingdom. Where you are it could be different. Our knowledge of lift systems is growing all the time and it could be you that breaks new ground. Understanding the atmosphere is the key to all of this. The descriptions of the various types of lift that you may encounter are here deliberately simplified. The interaction between them is fascinating and it would take a book to fill in the complete picture. The curious are recommended to read the literature that exists on the subject. More is being discovered all the time.

Part one: Hill lift

What would Leonardo, Cayley, Lillienthal and Chanute have done without hills? Toil to the top with your aerial contraption and hurl yourself off confident that you will reach the bottom again in one piece. [Cayley made his groom fly his contraption]. It must have taken some blind faith to do that. If you did not know what you were dealing with in meteorological terms it becomes even more remarkable. Wind flows over the surface of the earth in a mass and when it meets an obstruction like a hill it either goes round it or over it. How come the choice? It all depends on what is going on in the airmass near the hill. Most of the time the air rises up to

getover the hill (Illustration 1) increasing its rate of flow compared to the rest of the air mass.

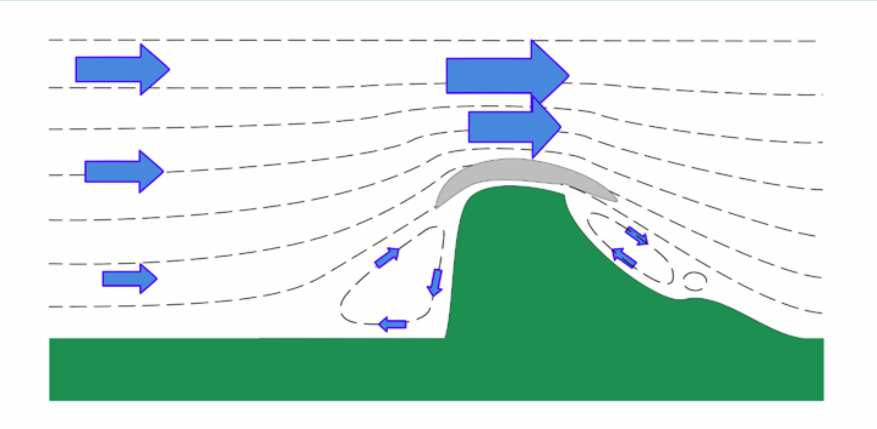


Illustration 1: Cliff and back face rollers with orographic cap cloud

However, if it meets a hill steep enough then some of the air may flow down the face from the cliff edge, out at the bottom in the opposite direction to the main flow and back round towards the top of the face again some distance before theface, forming a rolling pillow of air up to clifftop height. Not good for soarers, as you may imagine. We need something less dramatic. Alternatively, the hill may not work because there may be a strong inversion lurking in the atmosphere that will put a lid on upward movement cause air to flow around individual peaks.(Illustration 2) Most of the hills I have seen that are used for soaring are around the 45-degree angle for slope. This gives a cliff top wind velocity about twice what it is at the bottom of the hill and the line of maximum lift lies along a plane sticking out from the hill top again at 45 degrees up into the atmosphere but into the wind. (Illustration 3)

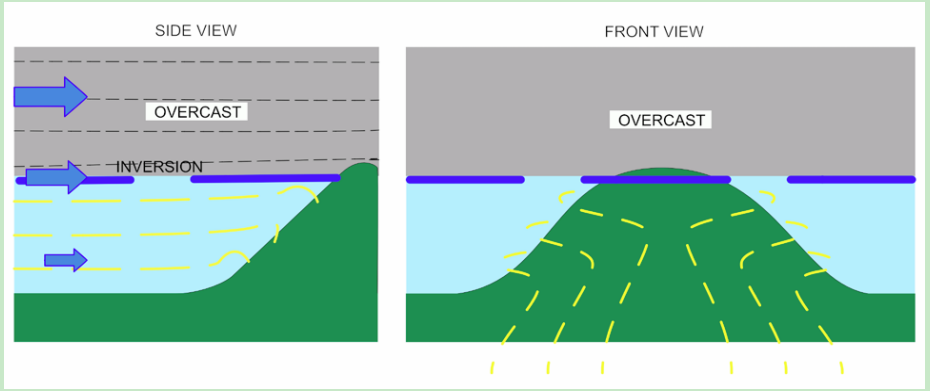


Illustration 2: Rising air limited by inversion seeks alternative route

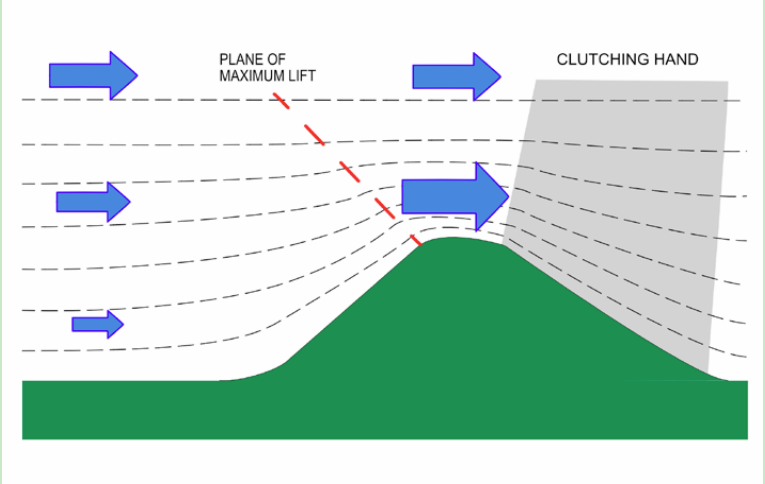


Illustration 3: Plane of maximum lift

Now pushing air up in this way can force it temporarily above its condensation level. If so, you will see a cloud capping the peak of the hill that stays there despite the wind blowing through it. Thisis called orographic cloud and it can appear and disappear with great rapidity. There may or may not be a gap between it and the hill big enough in which to fly a model but that gap can close in seconds. Besides which, orographic clouds are usually rough to fly in.

Once the wind has climbed the hill, then it tries to recover its lost energy by diving back down again so as to catch up with the rest of the airmass. Even if the top of the hill is flat there maybe a curl over where it tries to do that. If there is a drop on the downwind side as well then the curl over can be vicious. Strong sink – the clutching hand they call it – which can snatch a fullsize glider out of the air in a trice. On the other hand there maybe another rolling pillow just behind the soaring edge which has the air flowing back the other way at ground level. Tricky stuff. I have seen windsocks at different heights but in the same place pointing in opposite directions on the top of a hill. Of course, it all depends on the strength of the wind, its direction relative to the face and how wet the air mass is. Local knowledge is king as to how far off the perpendicular the wind can be to the face before it becomes unsoarable. An up to date grasp of the weather forecast can be vital. The stronger the wind, the more turbulence will be generated by the irregularities of its surface; the more curl over and rollers you will find. If there are hills upwind of your chosen site, then there may be occasions when sinking air from waves may kill off the lift. Similarly, collapsing thermals can stop the hill from working for a while. (Illustration 4)

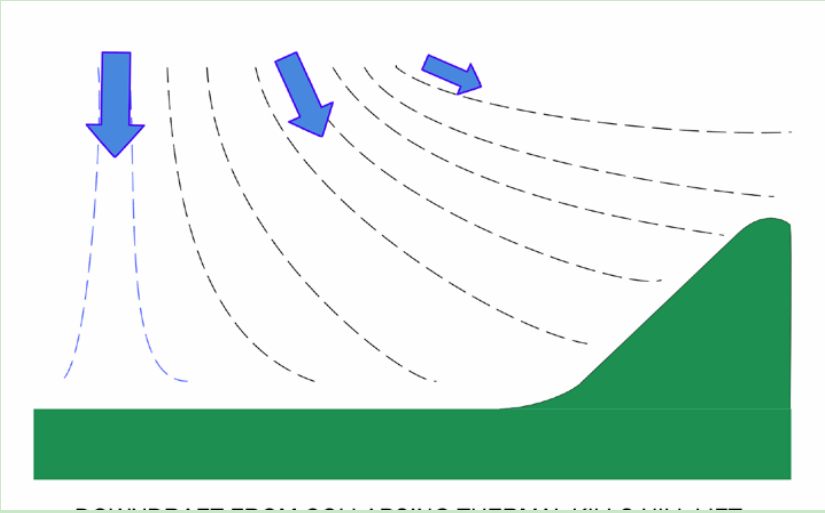


Illustration 4: Downdraft from collapsing thermal kills hill lift

Part two: Valleys and waves

So far, we have looked at lift generated by the general motion of the air mass over hills. There are, however, other ways that hills can generate lift when there is no overall wind present.Think of a mountain valley descending from a peak down to the plains. It has two steep sides and a narrow floor. When there is little or no upper wind to speak of there can be lift within such a valley that undergoes a daily cycle. Let the sun shine obliquely on this valley and one side of it will be heated by sunshine and the other perhaps not. Add to that the temperature and density differences between peak and plain and flows can start that will provide lift close to the valley wall. (Illustration 5)

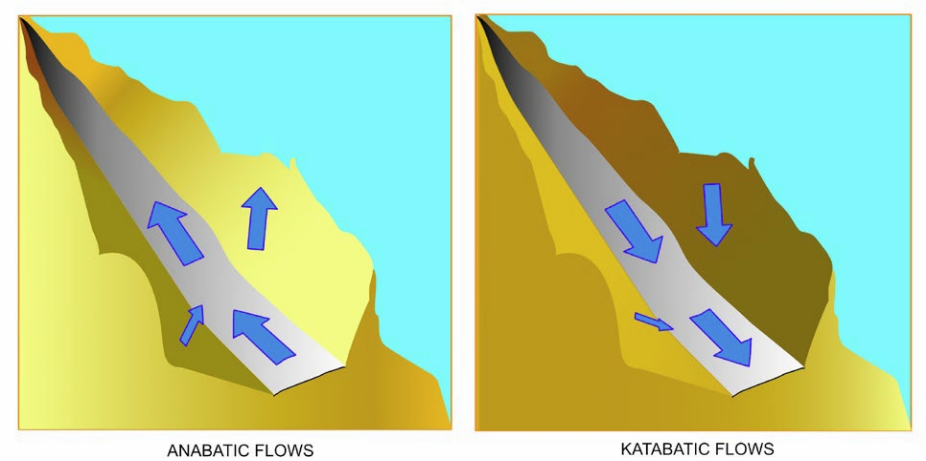


Illustration 5: Anabatic and katabatic flows

This can be aided by diurnal ebb and flow on the valley floor in the morning and evening. Thus air can flow down the valley floor at night, reversing in direction afterdawn. This, in turn, affects the lifting and sinking flows on the valley walls. These wall flows occupy a narrow band close to the wall perhaps a couple of hundred feet thick. Called anabatic (upgoing, morningand daytime) and katabatic (downflowing, evening and night time) flows, theyare well known in the European Alps, particularly to the birds that live there.

Wave lift

This is a subject in development for aviation in general, let alone models, but the gains for the soarer in all of us are immense. Airbus is currently supporting the Perlan Project which is exploring wave lift in the upper atmosphere. The special pressurised Perlan glider is seeking to break world records for height achieved with the ultimate goal to reach 90,000 feet. OK, what has this got to do with you or me. Well, plenty as it turns out. Illustration 6). Wave lift takes place when a more stable layer of air lies between two less resilient and resistive layers.

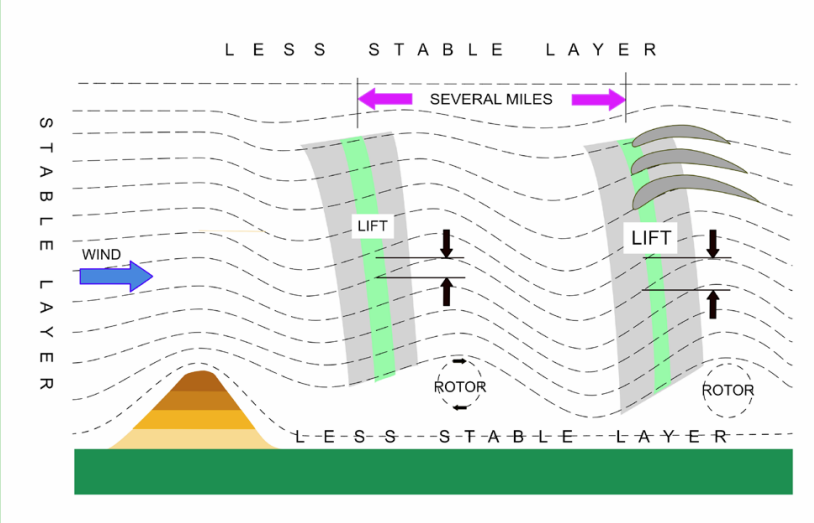


Illustration 6: Standing wave system

The stable layer oscillates vertically in a series of peaks and troughs spaced at regular intervals down the wind direction,forming a set of standing waves that are geographically fixed in relation to the hill that forms them. The air mass bounces up and down as it blows through them much like a car with shot dampers.The trigger for this sinusoidal action is upwind of the peaks and troughs and can either be an obstacle like a hill or mountain which is, of course, anchored to the earth, or can be something in the atmosphere like a thermal or wind shear that acts like a hill as it moves up through the air mass. If it causes upward or downward motion over a sufficient area it promotes resonance.

Mountain wave is much easier to use than atmospheric wave. The latter is fleeting and fickle and can last only minutes. You have to be in the right place at the right time to use it and it usually occurs

too far up in the atmosphere to be of use for modellers. However, mountain wave can reach down to levels we can access and even if we can't it can exert a major influence over other sources of lift that we will use, like hill and thermal lift.Thus wave systems can be geographically fixed in position or mobile in the moving atmosphere. In the mountain case the extent of this activityis huge; it can occur at ground level and reach far up into the stratosphere. (Illustration 7)

Illustration 7 Looking north in a westerly flow at the gap between two banks of wave cloud. Sinking air on the left and rising air on the right. About three miles between peaks.
Aboyne, Scotland, 1990.

The wavelength from peak to peak is usually measured in miles. The breadth of a wave system can be a few hundred yards or many miles across. The essential ingredients are wind and hills: no wind – no wave. Systems have been seen to persist for hours on end, although they can change wavelength suddenly and without warning. Where wave from one source adjoins another they may be out of sync and mutually destructive. The lift band often moves forward into the wind with height and gets stronger in the second wave as the resonance really gets going. On rare occasions satellite pictures of the UK have shown lenticular wave cloud systems persisting over much of the country. Lenticular clouds are indicators of wave activity. They are lens-like in section and conform to the shape of the peaks in the system.

Many lenticulars can form one on top of another until the whole looks like a stack of pancakes. New Zealand is called the "Land Of The Long White Cloud" because of the spectacular lenticular stacks that form downwind of the central mountain ranges.
Full-size gliders have been using mountain wave since the 1950s, when the performance of gliders was good enough to stay in the wave and actually rise. Before that they sank so fast at the flying speeds necessary to keep up with the wave that they simply dived out of it.The problem is that the strength of the lift is roughly proportional to the strength of the wind: the stronger the wind the stronger the wave is likely to be. Though not always. There are plenty of windy days without wave. Perhaps the wind is in the wrong direction or the atmosphere is not right.

When it is right – and you can find an entry point – the result is usually spectacular. I know; I've been there in a full-size glider in Scotland. From the ground roll to topping out at 24,000 feet took 36 minutes. At times the rate of climb was over 1100 feet per minute. The wind speed at height was between 30 and 40 knots so I just stooged up and down the front of an enormous cloud at about 50 knots and did not go anywhere. And yes, I did take an oxygen bottle with me.

How do you use wave? By flying up and down the up going air in the system. You are looking for the rising part of the curve and you soar it as you would a hill. The first problem is to find it. If you have the luck to fly on a day when lenticulars are visible then you need

to get underneath their leading edge and high enough to contact the bottom of the wave. Thermals can be going off underneath a wave system early on in a day but eventually, either the wave will overpower the thermal activity or the thermals will break up the wave. (Illustration 8)

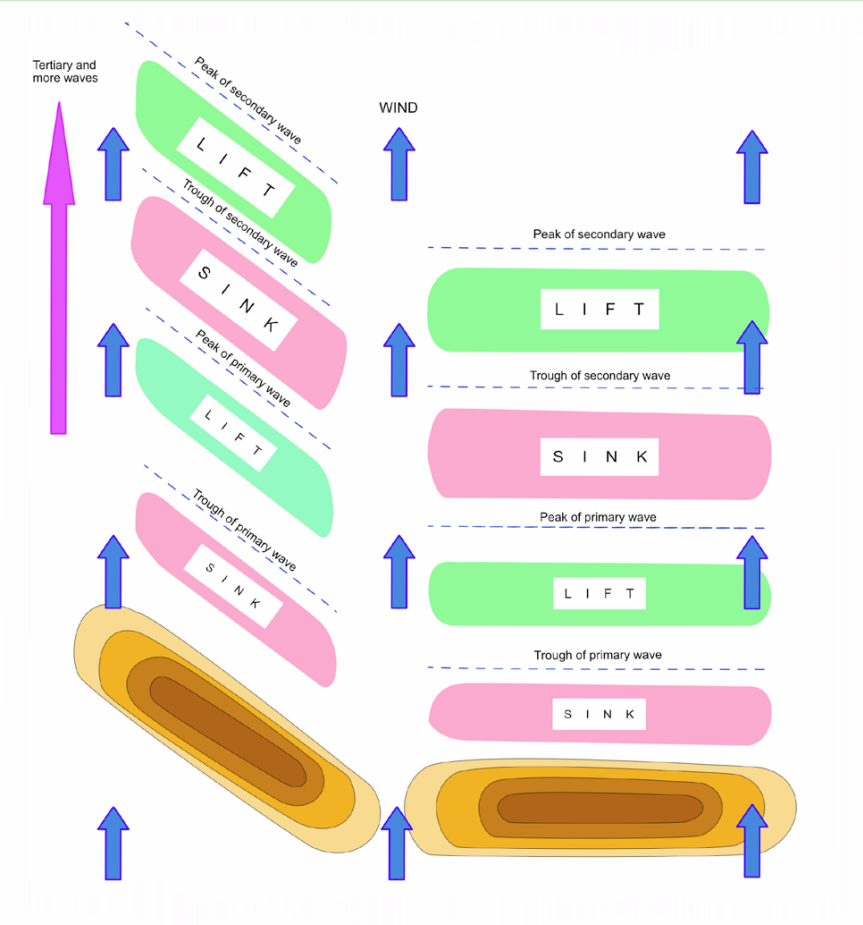


Illustration 8: Map of wave system

If the wave wins then nothing for it but to go as high as possible on tow. In the case of that Scottish wave I was talking about just now, I was lucky, I only needed 2,500 feet to reach it, but on occasion the wave can come right down to ground level. In that case it may not go very high by full-size standards but that will be more than enough for a model. Sometimes the best time of day to look for wave is as soon as it is light, before the thermals start.

What are the signs? Everybody else's models are going up over a wide area. The air is smooth. There are no discernable cores and there may or not be clouds around. If there are then they may look different to other clouds in the area. Wave lift only produces lenticular clouds under a fairly narrow set of circumstances. If there is wave then the clouds will be staying put over the landscape. Yes, they will appear to be moving along in the wind but, in fact, the wind is blowing through them and they do not move. Mostly they just look like a collapsed thermal, all woolly and confused. If you see a stationary woolly mass below the main cloud mass watch out. It could be a rotor cloud which is the roughest and meanest thing in the sky. Rotors are created underneath the wave system and below the peak of the wave. Air is dragged up to altitude by the massive system overhead and then pushed back down by the descending part of the sine curve. In the course of this roughly circular journey, the air can pass above its condensation level, releasing lots of energy. Then it goes back down below it and more energy is involved, hence the rotor cloud.

Of course, you may not get any cloud at all but, either way, you will get sorely roughed up if you enter the rotor. Again, I know just how rough. I had to use full control deflection in all directions to stay behind my tug in Scotland. Any worse and I would have had to pull off and return to the field. I was the rat and the rotor was the dog. Trouble is, that a rotor is a sure fire sign of wave. You just have to use it to climb up or be towed up into the wave proper. Pilots know

when this happens as it is usually quite eerily smooth. If you close your eyes there is no sensation of motion. You might as well be on the ground. The only clue is the sound of the air passing over the airframe – a faint hiss. It's magical.

Where is it? Some miles downwind of a sizable hill or mountain. If the lump takes the form of a ridge then you fly up and down but parallel to it. If the ridge is at an angle to the wind direction then so will be the corresponding area of lift. Now here comes one of the hardest things to adapt to when you start trying to fly in wave. With thermals you go with the wind: with wave you fly through the wind in order to stay on the right geographic track.

This can produce some odd situations. Take the example in my illustration. (Illustration 9) Flying along our invisible ridge but into the wind you will have to fly fast to stay in position. Turn round the other way and you creep along as slow as is safe in order toprolong your time in the lift band, time is height gained, remember, all the while maintaining your position over the ground. You will find yourself crabbing slowly over the ground at an odd angle. You might be flying backwards relative to the ground if the wind is strong enough. If the lift ends before you reach the end of your beat, try pushing forwards into the wind to regain it. If you don't fly fast enough you will fall into the clutches of the strong sink that accompanies these systems. Going forward is the only way.

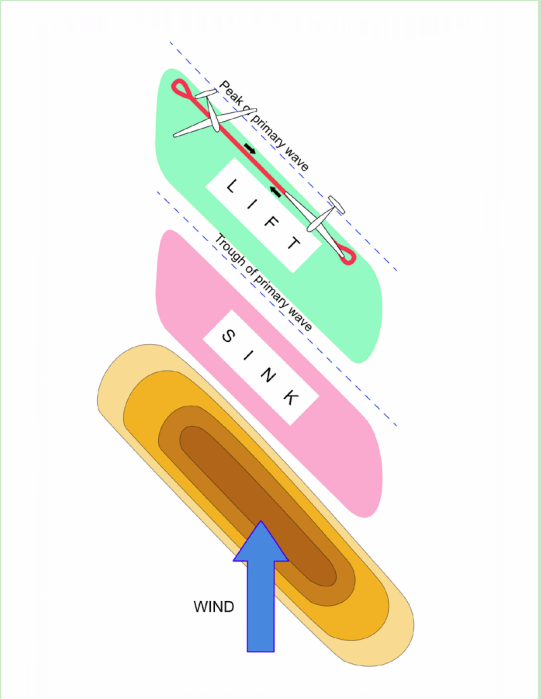


Illustration 9: Optimum flight path

Wave can occur at any time. It may be present in an overcast or going up through layers of cloud. It can be there under a blue sky. The lift band may move forward with increasing height. Certainly, it can be very confusing to work out what is going on at times if wave is present. It can kill thermals and hill lift. Above all, it can be incredibly beautiful. Finally, flying in wave clouds is not a good idea as, full-size or model, you may ice up. Frozen controls are frightening.

The other thing that happens is that the wave system can change wavelength in a few seconds and without any warning. If you are

soaring a hill and this happens you may find yourself in cloud, in strong sink and just off the hill. The only safe thing to do is turn directly into the wind and fly away from the face, always supposing that you can still see the model or the hill face!

Part three: Sea breeze fronts

This is something we get occasionally in the UK on hot summer afternoons and are enormous fun. Because we are an island, nowhere is far from the sea. In the anti-cyclonic conditions necessary for sunny weather, there is little wind day or night and air can flow from the land to the sea overnight. This is because the sea retains its heat better than the land and tends to be warmer than the land at night.

Conversely, after a good morning soaking in sunshine, the land gets to be warmer than the sea and air can flow inland, slowly pushing up the already very warm air it finds there into a low level front that is usually soarable. What is more, you can often see it because cloud may form on its slopes. So if it is a hot day, not far from the sea, the thermals have been dismal or non-existent and it is getting to be mid afternoon, look towards the sea for signs of low light cloud in a line roughly parallel to the distant shore. Look again in five minutes time and if the low cloud has got nearer you may be in for a nice surprise. Sometimes these sea breeze fronts are faintly visible on radar because they can suck up lots of insects which can attract flocks of birds.

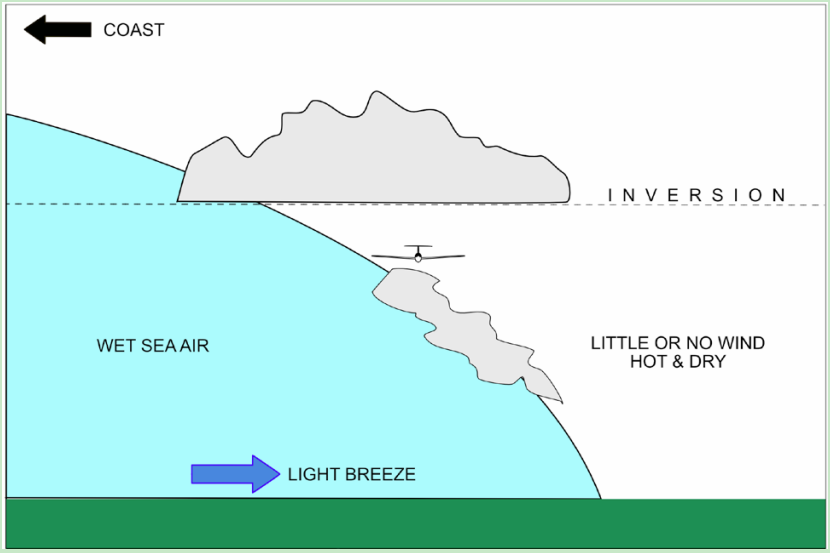


Illustration 10: Sea breeze front

Sometimes you can see the slope if you look at it at a fine angle because it may be rather dusty. Most of the ones I have seen never went higher than a few thousand feet and moved forward in pulses. They can be several miles long, however. Because the air in them is wet, there are no thermals on the seaward side. (Illustration 10) Once the front has passed your position the air is dead. Sea breeze fronts have been known to persist late into the evening long after all other activity has ended. By then they can be over a hundred miles inland.You soar one of these as if it was a hill, cruising up and down in moderate lift. Of course, nothing is for ever. While you cruise away from your home site on this seemingly endless magic carpet, climbing gently until the lift runs out, when you turn round to come back, the sea breeze may have disappeared, either through exhaustion or by moving on in a pulse that takes it much further inland. They usually move quite slowly averaging a few miles per hour.

Air mass changes

The United Kingdom is one of the most difficult places in the world to forecast weather for. The air it receives can be classified as coming from one of six different directions: Maritime Arctic, Maritime Temperate or Oceanic, Maritime Tropical, Continental Arctic, Continental Temperate and Continental Tropical. If you are lucky and fair weather persists for more than a few days, the chances are an anti-cyclone is somewhere nearby. Now anti-cyclones are typified by light winds and a rate of propagation that slows down as time goes by and that can mean a stagnant airmass and no thermals. Indeed, it can mean a persistent overcast, haze and increased pollution in the major cities. What you need then is a change of airmass. Knowing when this is going to happen is the worst headache most weather forecasters face, because it can come from any of the six directions I listed earlier and anti-cyclones don't give many clues.

When you are getting desperate for a bit of aerial fun you try anything. I remember hiring a glider for a week at my club and sitting out most of it on the ground in a flat, depressing week of anti-cyclonic gloom. The forecasters had been saying that the weather would break every day and got it repeatedly wrong. Nothing happened.

On the last day, they forecast a change of airmass at about noon and I decided to believe them. I readied the glider and took it to the launch point and waited. Somebody said there were birds circling just north of the airfield and I took a winch launch.

The air was lumpy and broken and, despite some puffs of lift there was just not enough there to keep me up, so I landed back at the launch point and waited some more. I don't remember what got me to the second launch but this time there was just enough lift to stay up and I got to about 1500 feet and gingerly set off north more out of instinct than anything else. The lift persisted in rough patches lacking the structure of a normal thermal. So, I drifted away from the airfield at a marginal height to get back but the lift got a little better – and so did the visibility.

I began to see that I was probably in some sort of cloudless front and that the fresher, newer air was mixing with last week's stale stuff all around me. I was in a front and gentle climbs were possible. I worked out that the front lay roughly north south and that west was the direction to go. I could see some 25 miles away a massive cumulus going up and I started to edge towards it. If it did not work when I reached it then a field landing would be a certainty. But the glider shook itself, the visibility got even better and so did the lift so that, after half an hour I arrived at the big cumulus and went roaring up to cloudbase. I think I was surfing a hill of air that had a very gentle slope at the top of which was the cumulus.

The whole flight only lasted about 1.5 hours but it was one of the most satisfying I ever had. I had proved that you could soar a front and reach soarable conditions on the other side. Survival. The key to it was keeping up to date with the forecast and deciding to have a go.