

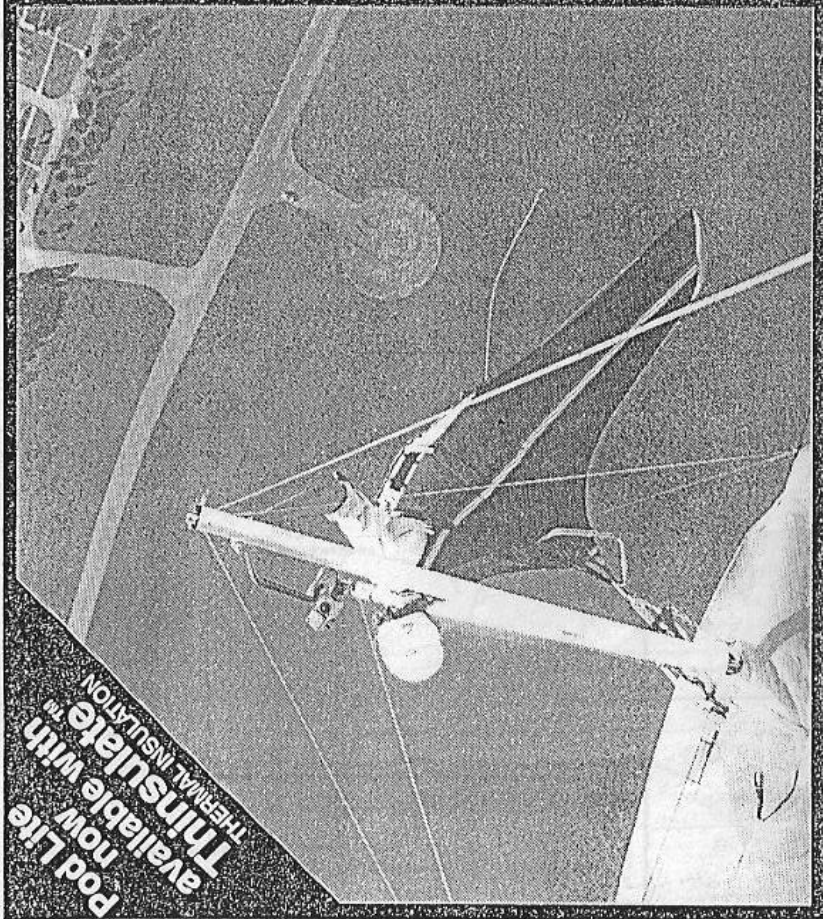
**MORE
AND MORE
PILOTS
ARE
SEEING
THE LITE**

*Are you?
lite*



For all your hang gliding needs,
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LATE APRIL 1988

XXXXXX
MAY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

“Calling all
club members...”

A.G.M

Devil's Dyke Cafe 7.30 pm



OK YOU HORRIBLE LOT! GET ALONG TO THE DYKE.

CHAIRMAN, JOHNNY CARR.

To Whingsack Ed. - please give to Joolier

Green class
at skool.

f. Have achieved at least 60% in a written test (set by the BPAC) covering flight theory meteorology, air law, navigation and accident procedure *
*These require an F instructor to be present.

EXCEPTIONS TO NEED FOR F1 PRIOR TO F2

- Existing BAFC wing instructors may act as if they already held the F1 pilot qualification.
- Existing BHGA F2 qualified pilots may complete a reduced training programme as follows:

They must be members of the BAFC but may carry out this training as temporary members until such time as they need annual membership to register for the F2 qualification. They must fly under the supervision of an F instructor a minimum of five 15 minute flights. They must be trained in and satisfy the F instructor as to their understanding and competence in launch crew duties, self-launching, stalling and equipment checks and BAFC accident procedure.

WHAT AN F2 PILOT CAN AND CANNOT DO

An F2 pilot can fly unsupervised (once in possession of a current BAFC membership card indicating the F2 qualification) but would be allocated to a club CCI. An F2 pilot can self-launch or train others to help launch the canopy. An F2 pilot, who has received the approval of his or her CCI, may supervise F1 pilots flying on sites designated by the CCI (usually only the club's own sites). This approval would be written in the pilot's log book for each site. An F2 pilot cannot instruct others, except for launch crew duties.

REMAINING AN F2 PILOT

An F2 pilot must keep a log book of his or her flights. Annual renewals will require the CCI's countersignature to confirm maintained experience and a check of personally owned equipment.

INSTRUCTOR QUALIFICATIONS

From scratch:

A trainee instructor (T1) can be examined for the foot launching (F) and wing canopy (W) endorsements on payment of the initial examination fee (currently £25). The T1 would normally be expected to have become a qualified F2 pilot first.

From Tow-Launched Wing instructor: An existing current tow-launched wing instructor may qualify for the foot launching endorsement in one of two ways:

- By gaining the F2 pilot qualification and applying for regrading to F instructor; the addition of the F instructor endorsement will normally be made automatically and will cost either the registration fee (currently £3) or nothing if applied for at the same time as the F2 qualification.
- By applying for and passing the foot launching instructor examination at the reduced fee of £15.

WHAT AN INSTRUCTOR CAN AND CANNOT DO

An F instructor can instruct foot launching to existing parascenders, to people new to the sport and to existing hang glider pilots. An F instructor can apply for F1 pilot and F2 pilot registration for students that he or she has trained. A non F2 F instructor can fly unsupervised as if the F2 qualification were held. An F instructor cannot operate or instruct unless a member of a recognised BAFC club, having current club membership of the BAFC and CCI.

Oi there Joolier yoo gerly,
When I's big I am gonna
be as keen as the Hawkpost an never go near a roof unless
the wind is blowin other than from N-S-W-E and points
in betwin. Then I'll be real cool an you can be my chick, OK.

My dad's bin flyin since John Noakes made
a 1:10 operational scale model of a BS2 out of a toilet roll
tube and 2 pairs of Vals knickers, but weely he wants
to be a instructor like Eddie Sick cos I heard him tell
your teacher that she could hold his upright any day an
how would she like to see wot a 2-up on his Ball feels like?
Mum sed he couldn't teach any one anyfink and sed he
stood more chance of getting "5 grand in a 10-up for
botty burp" pardon me.

Then he took our au pair up the Dike for
some "2-up ground handlin" an later when I found
them he was holdin her down or he would have lost her
over the back like Eddie an Ell's. Ho-Hum.

Dad sez if I writ to you in Whingsack could they
let Paul Ray know he's missed some of Dallas and can he
swop "Gus the Trucker Belivers His Load" and an Agatha
Christie called "Who choked Linda Luvlace" (I seen
vis one an' therer a lotta suspects)

Thats it fer now - just to tell you exist but
don't talk to me in the playground until you are big

Maverick

Age 7

P.S. My dad sez that Paul wood be 6'2" if he didn't own
a video and I fink he wone about him getting cold cos he sez Paul
should wear an OZEE all the time - BACK TO FRONT - I ask
you, grown-ups - Humph.

Discover SOUTH WALES

Weekend trips are now being arranged for April and May. Transport and accomodation is now being arranged for groups of 4 to 6 pilots.

Last year 6 trips were run and good flying was done on all of them. Give yourself some wider experience, and have a great time! Join a trip to South Wales.

See Paul Ray, or phone Bob Schooling on :-
Crawley (0293) 510267

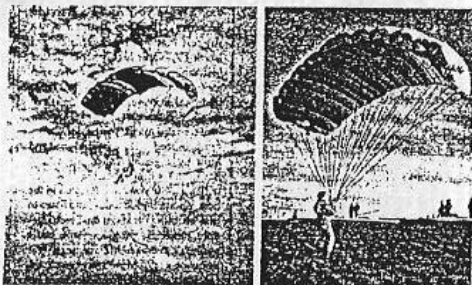
WORLD CHAMPIONSHIPS '88 IN AUSTRALIA: THE BUG IS WORLD CHAMPION!

Ricky DUNCAN unclips his Sky Systems BUG harness, seconds after becoming the new World Champion. Well done Ricky!

For the second time in a row, Sky Systems have clinched the Gold Medal in the Worlds, with J. Pendry winning in '85 in Australia.

AIRWAVE GLIDERS The CALYPSO, the high quality intermediate glider which is taking Europe by storm, is also available from stock. At last new pilots can have the joy and privilege of owning an AIRWAVE glider.

EMERGENCY PARACHUTE SYSTEMS



PARAPENTE PARAGLIDING



This is a new way of hang gliding which is lots of fun and what's more, it is much easier. Sky Sytems are the UK importers of the winning ITV parapentes.

SKY SYSTEMS SHOP AND MAIL ORDER

We stock and supply all hang gliding and parapente equipment, catering for the newcomer up to the World Champion. Come and see our stock of harnesses, instruments, accessories, clothing, helmets, books, posters, stickers etc. Use our mail and telephone order service and your credit card for instant despatch.

SKY SYSTEMS

Sky Systems Ltd, Knoll Workshops, Bellingham Crescent, Old Shoreham Road, Hove, Brighton, BN3 7GS, Great Britain.
Tel. Brighton (0273) 423650 (3 lines). Fax 423675.

ALL ABOUT FOOT LAUNCHING QUALIFICATIONS

The following notes are designed to help everyone in the sport to fulfill their desires and potential in foot launched parascending.

INTRODUCTION

There are three levels, or gradings, in foot launched parascending, but they are not all strictly in progressive order. They are the F1 and F2 pilot qualifications and the F instructor endorsement. In addition, the experience of hang glider pilots or of towed wing parascending instructors can count towards qualifications in foot launching. Therefore the reader must study carefully the requirements laid down and choose where to start.

PILOT QUALIFICATIONS

There are 2 grades of pilot in foot launched parascending F1 and F2. In each grade there are requirements to be met to achieve the grade and the flying activities which each grade permits. Before any training starts the prospective pilot must be in possession of BAPC individual membership. At this stage BAPC temporary membership will suffice. An unqualified student must always fly in the presence of an 'F' foot launch instructor.

BECOMING AN F1 PILOT

To qualify for F1 pilot the student must:

- Undergo a captive canopy training (equivalent to Exercise E)
- Complete at least 3 foot launched flights on each of two days to the satisfaction of duty F instructor.
- Be competent as a member of a launch crew.
- Show adequate canopy control in wind speeds of up to 16 m.p.h.
- Demonstrate a knowledge of stalling and its dangers, flight theory, meteorology, airmanship, equipment and the Mountain Code.

To register as an F1 pilot, the student must become an annual member of the BAPC and pay the registration fee (currently £3). The BAPC membership card will then display the member's F1 pilot qualifications.

WHAT AN F1 PILOT CAN AND CANNOT DO

An F1 pilot is not expected to be able to 'self-launch' a canopy (i.e. without wing tip holders). An F1 pilot can fly on sites where no F instructor is present, provided an F2 pilot with CCI approval (see below) is present, for the purpose of gaining the necessary flight experience towards qualifying as an F2 pilot. An F1 pilot is not permitted to fly unless an F instructor or approved F2 pilot is present and has agreed to the F1 pilot flying.

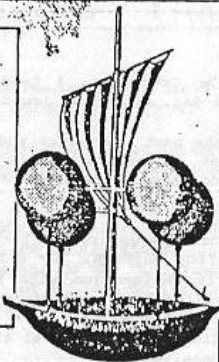
BECOMING AN F2 PILOT

To become an F2 pilot a student must first be an F1 pilot and therefore an annual member of the BPAC. There are two exceptions to this, detailed below. To qualify for F2 pilot an F1 pilot must:

- Complete at least a further 30 foot launched flights (all to be logged).
- Have flown from at least 5 sites.
- Complete a total logged flying time of 1 hour 15 minutes consisting of flights of at least 5 minutes duration each.
- Have carried out at least 3 low wind take-offs
- Be taught in and demonstrate self-launching, stalling and top, forced and stand-up landings.

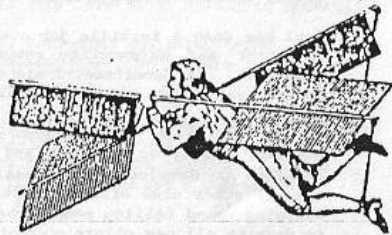
FOCUS ON FACT — The Birdmen 2

1670. FIRST RATIONAL DESIGN FOR A LIGHTER THAN-AIR MACHINE. BY FRANCESCO DE LANA, JESUIT FATHER AND PROFESSOR OF MATHEMATICS. TO BE SUPPORTED BY FOUR VACUUM BALLCONS, PROPELLED BY CARS AND SAIL.



182

1678. BESNIER OF SABLE, FRENCH LOCKSMITH, CONSTRUCTED A GLIDING MACHINE. WORKED BY HINGED FLAPS MOVED BY HANDS AND FEET. CLAIMED TO HAVE FLOWN FROM A WINDOW AND CROSSED A RIVER.

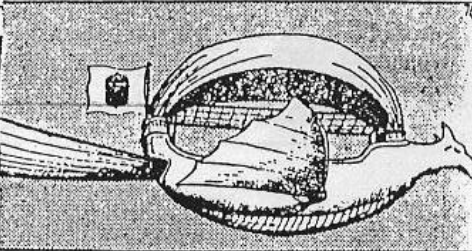


1680. G.A. BORELLI NEAPOLITAN SCIENTIST, SURVEYED ATTEMPTS TO DATE. CONCLUDED: "IT IS IMPOSSIBLE THAT MEN SHOULD BE ABLE TO FLY CRAFTILY BY THEIR OWN STRENGTH".



WINGS AND MUSCLE POWER FAILED. MECHANICAL POWER WAS NOT INVENTED. WHAT ELSE?

1709. IDEAS STILL ABOUNDED. IN PORTUGAL, JESUIT FATHER LAURENCO DE GUSMAO BUILT THE PASSAROLA. A FLYING SHIP PROPELLED AND SUPPORTED BY FLAPPING WINGS AND BILLOWING SAIL.



IT NEVER LEFT THE GROUND.

1742. PARIS. THE MARQUIS DE BACQUEVILLE STRAPPED WINGS TO ARMS AND LEGS. LEAPT FROM HIS HOUSE ON THE BEINE. FLOUNDERED ON TO A BARGE. AND BROKE HIS LEG.



TOWER JUMPERS BEGAN TO GIVE UP.

1766. LONDON. HENRY CAVENDISH, ENGLISH CHEMIST, DISCOVERED "INFLAMMABLE AIR" — HYDROGEN. LIGHTER THAN NORMAL AIR. RISING ABOVE IT.



A MEANS TO MAKE MAN AIRBORNE?

'BASIC' PROGRAM FOR XC

[TAKEN FROM WESSEX AIRMAIL]

As it seems to be the fashion lately to print computer programs for the calculation of XC distance, I would not like to be seen attempting to swim against the tide....

A significant number of our membership is involved in 'the business', so, for Basic buffs everywhere, even if you don't own an Astrad, here is a bit of mental exercise while you are waiting for that elusive post-Cold Frontal. It was sent down from the frozen North by Alan Smith, and is short and neat. What's more, I've tried it - and it works!

Here is a short program for the Astrad using Mallard Basic for calculating 1/C distances:

.....(Alan Smith)

```
10 3#='nanonknc-----nfnghnn;#-----nlananno-----
nnsntnu-----nwnxnyz-----scsdeta-----shsjkltfg--
sasnsospitla--srssststqt:svsxsyztv--"
20 PRINT"Take Off ";
30 60SUB 100;#:#:#0
40 PRINT"Landing ";
50 60SUB 100;1:#:#0
60 #=#(1-1)X(1-1);#=#(1-1)X(1-1)
70 3#=#(SQRT(#-1))/10;#=#(1-1)X(1-1)
80 PRINT"Distance ";#;" Ka or ";#;" Miles"
90 60TO 20
100 INPUT;"8 Figure Reference ";B#;PRINT"
110 IF LEN(B#)X8 THEN 60TO 100
120 4#=#LEFT$(B#,2)
130 4#=#VAL(MID$(B#,3,2));#=#VAL(RIGHT$(B#,3))
140 FOR #=1 TO 140 STEP 2
150 IF MID$(4#,1,2)#0# THEN 60TO 140
160 NEXT #
170 PRINT"No Ref. Found - Try Again";60TO 100
180 #=#(1-1)X(1-1)/2;#=#INT(4-1)/7;#=#(4-1)X(1-1)
190 3#=#1000X;#=#1000X;RETURN
```

Weather watch

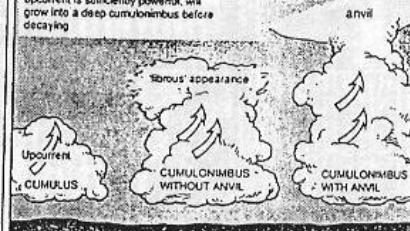
"The GUARDIAN"

Beware of anvils

Dick File
London Weather Centre

The life cycle of a cumulonimbus cloud

It starts as a humble cumulus, and if the upcurrent is sufficiently powerful, will grow into a deep cumulonimbus before decaying.



JUST as cumulus is a heaped cloud, so cumulonimbus is a heaped rain cloud ('nimbus' means rain).

In many ways the rain-bearing variety can be considered as a bigger, better-organised version of its little brother, the cumulus. The cumulonimbus may be 10 km across rather than a few hundred metres. Its top may extend to 10 km above ground rather than a kilometre or two. Its updraught may be racing at 20 metres a second instead of the 2 metres a second more typical of a small cumulus. Instead of a ball of cotton wool, it will resemble a huge cauliflower of sprouting towers and bulging turrets — in words of the song, an "ice cream castle in the air."

But there is one important structural difference in that the uppermost levels of the cumulonimbus have turned to ice and become fibrous in appearance. This icy section at the top may flatten out into an "anvil" shape when the cloud is fully developed. The base is usually dark, with rain (or hail or snow) falling from at least some portion of it. Ice or snow, how-

ever, will often melt before reaching the ground.

Cumulonimbus may be seen at any time of day but are most common inland during the afternoon in spring and summer. At these times convection is at its strongest and most organised.

Whenever you hear the words "heavy showers" or "hail" or "thunder" you should be aware that the forecaster is predicting cumulonimbus clouds. Sometimes they will be "embedded" or half hidden amongst other clouds. On other occasions they will be well sep-

arated and the anvil cloud may be visible many miles away. This is an almost certain indicator of a shower but it doesn't necessarily mean that you will get one. The lifetime of a cumulonimbus is usually less than one hour, so it may be a spent force by the time it arrives.

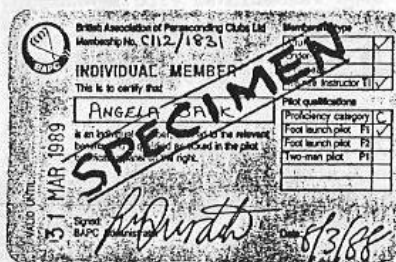
There are exceptions, though. The "Hampstead storm" of 14 August 1975 was an example of a cumulonimbus cloud which managed to keep regenerating itself over one small area of London. About 170mm of rain fell in three hours, causing severe floods.

PARAGLIDING: THAT'S IT! BY MARK FISHER.

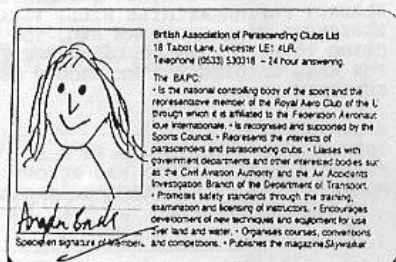
At the recent Committee meeting a local paragliding instructor, ALAN SCRASE, talked in general about our sport and their sport and about mixing in general.

It appears that they have agreed to end all confusion and scrap terms like parascending and parapente, in favour of PARAGLIDING. So no more jokes about parapunters...

Apparently all qualified pilots are members of the BAPC and are used to carrying their membership card at all times. If they cannot produce a card, they probably do not belong to the BAPC, and are therefore not insured. In this case they must not be allowed to fly our sites. If you see a paraglider pilot, ask to see his card. It looks like this:



FRONT



BACK

A blue card is for ordinary members and a white one for Instructors.

Pilots flying alone must be F2 rated. If they are only F1 rating, then their 3rd party insurance is not valid unless they are under the supervision of an Instructor.

The SHGC would like to do all it can to promote harmonious relations between the hang gliding and paragliding factions of our sport, and are creating a position on the Committee to represent the interest of the Paraglider pilots. It seems unlikely to be filled at present, but at least we are moving in the right direction by doing this.

Alan has provided an information sheet on footlaunched canopy ratings, and this is reproduced in this edition of WINGSOCK.

JUST WHEN YOU THOUGHT IT WAS SAFE TO BEND AN UPRIGHT.....

After a six month lay off from the Committee, I have returned as Safety Officer taking over from Paul Ray, effective immediately.

Paul has done a terrific job over the past two years and has been an important and hardworking component of an increasingly successful Committee. (A Committee, I might add, that is now regarded as one of, or THE best within the B.H.G.A.).

Having read March Wings, everyone must now understand the emphasis the S.H.G.C. places on coaching and safety matters. My role will be to continue to develop that emphasis in conjunction with Eddie Bilious and all other club officers. The real job of a safety officer is not charging round telling people when and when not to fly - it is helping to develop all new pilots understanding to such a level that they will make good and safe decisions for themselves.

The downside is handling accident investigations. If you have a mishap I DO NEED TO KNOW - so please send me your report for our files. Statistics are important for both us and the B.H.G.A.

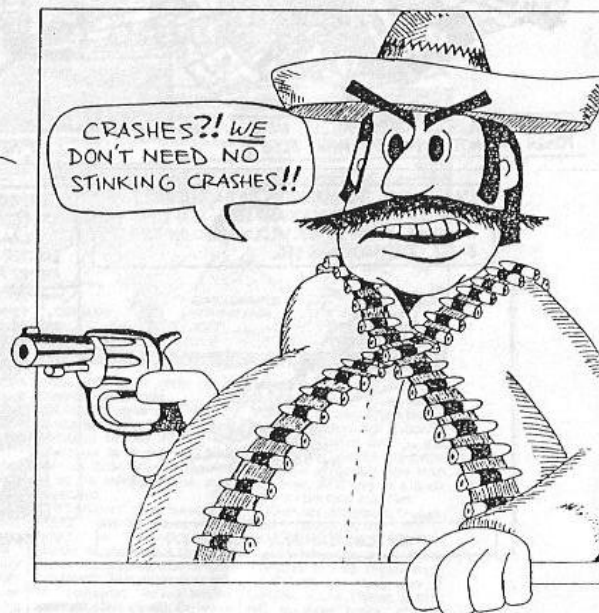
I will also require reports concerning anyother incidents with other air users.

FLY SAFE it cuts down on paperwork !!

Regards,

Simon.

(SIMON CATTLIN)



WANTED

ARTICLES

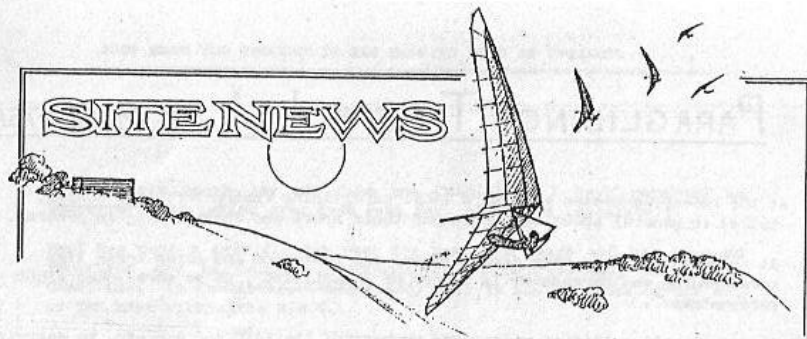
Cartoons

your views and
experiences

If you can not write or type,
Tell us, we will do the rest.

**GET YOUR NAME
IN PRINT**

We will draw your
Cartoon Ideas &
Technical diagrams



MILL HILL

PARAGLIDING , IT WOULD APPEAR THAT PARAGLIDERS ARE WITHIN THE BYE LAW WHICH BANS OVER 4 KILO AIRCRAFT.SOME SHGC PARAGLIDING PILOTS ARE ALREADY FLYING AT MILL HILL. PLEASE REMEMBER THAT THE CLUB HAS AN AGREEMENT WITH SHOREHAM ATC. YOU MUST PHONE SHOREHAM ATC IF YOU ARE GOING TO FLY. THIS COULD BE A CHANCE TO REGAIN MILL HILL AS A SITE FOR HANG GLIDING,BUT WE SHOULD NOT JEOPODISE THIS BY UPSETTING SHOREHAM ATC.

JOHN PENDRY.

JOHN HAS BROKEN HIS ARM IN A FORCED TOP LANDING IN THE ISLE OF WRIGHT. FLYING A MAGIC 4 JOHN WAS ROTORED INTO A HOLE WHILE TOP LANDING. HOWEVER JOHN IS NOW BACK ON THE MEND(COMPLETE WITH BIONIC BITS).

TOWING WEEKEND CHALLENGE

The Club Towing Weekend will take place at our new towing site at Woodbrooks Farm, South Chailey, on 28 to 30 May, (Bank Holiday Weekend). There will be some form of competition, and pilots from Dover & Folkestone and Sky Surfers Clubs will also be invited. There will be at least two winches, possibly three. It is hoped that two out of three days will be flyable, and a fee of £5* will be charged to cover camping, facilities, towing fees, etc.,. Some interesting tasks are planned for all levels of pilot, and those of you with no tow endorsement will have the opportunity of getting one at cost!!! (ie on the cheap)

There may also be the chance to try out some parascending, if this can be arranged. It will be helpful if you can arrange to share a car, so that there are not too many cars getting in the way.

Be there!!! [* £5 per day or £8 for 2 days]

ANY PROBLEMS, PHONE MICK PERRIN AT AIRTIME . (0273) 424001.



S H G C C O M M I T T E E 1 9 8 7 / 8 8

CHAIRMAN

Johnny Carr - 'Tillershaw', North Common Road, Wivelsfield Green, Sussex.
(0444 84) 217

TREASURER

Peter Day - 112 Cotswold Way, Tilehurst, Reading, Berks. (0734) 421481

SECRETARY

Joe Cattlin - Norfolk House, 13 Norfolk Rd, Thornton Heath, Surrey 01 653 5281

MEMBERSHIP

Mark Johns - 17 Blackthornes, Hurstpierpoint, W. Sussex. (0273) 834984

MEMBERSHIP ASSISTANT

vacant position

SITES OFFICERS

Martin Young - 9e Wilbury Road, Hove, East Sx BN3 3JJ (0273) 24648

Chris Bartram - 21 G&H Campbell Road, Brighton BN1 4QD. (0273) 682499

CLUB COACH

Eddie Bilous - FREEFLIGHT H/G SCHOOL, 274 Church New Road, Hove (0273) 411239

SAFETY OFFICER / ACCIDENT INVESTIGATOR

Simon Cattlin - 25 Rolfe Drive, Burgess Hill, W. Sussex. 04446 44062

AIRSPACE OFFICER

Kevin Pickering - 9 Oldlands Ave, Keymer, Hassocks, W. Sx. (079 18) 6319

COMPETITIONS

Andy Wood - 52 Noel Rise, Burgess Hill, Sx. (04446) 6636

PUBLIC RELATIONS

Martin Young - (see sites officer)

SOCIAL SECRETARY

Anne Carrington-Smith - 25 Balmoral Court, Nevill Rd, Hove (0273) 507582

TOWING CO-ORDINATOR

Mick Perrin - Truleigh Sands Farm Cottage, Edburton, Henfield, W Sx. (079 156) 235

WINDSOCK EDITORS

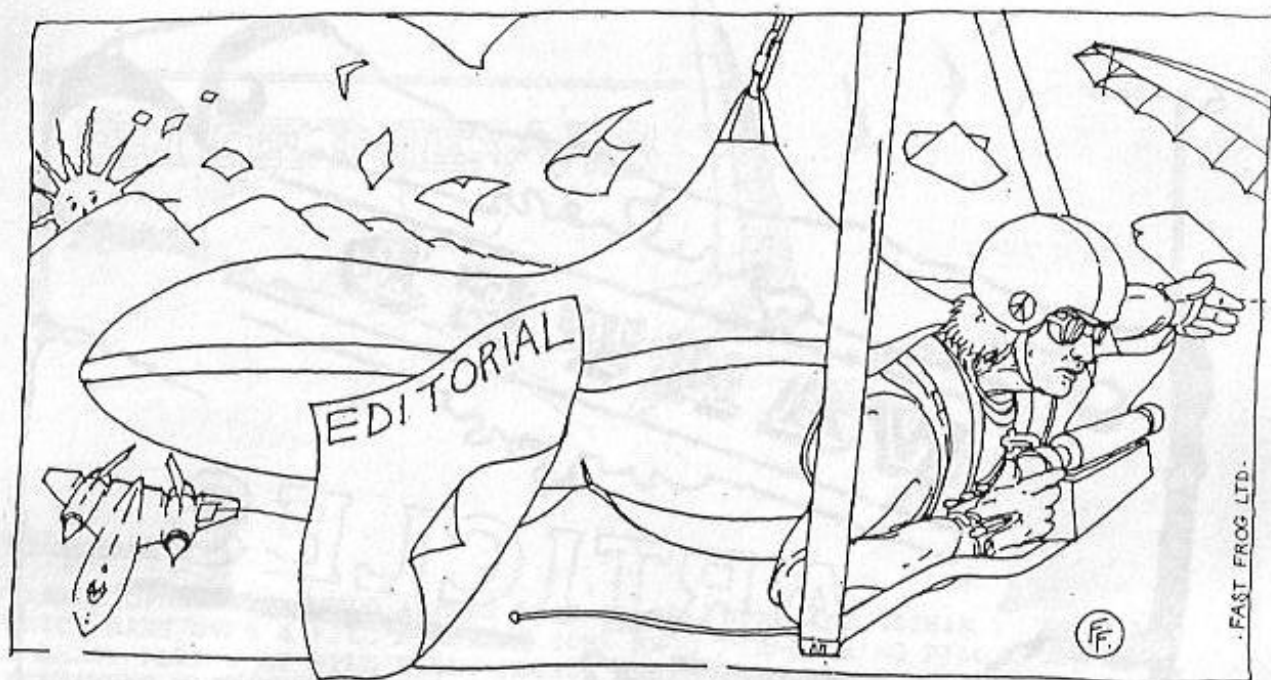
Mark Fisher - 66 Western Road, Hurstpierpoint, Sussex. (0273) 832478

Chris Bartram - (see sites officer)

CLUB SOLICITOR

Tony McLaren - Thomas Eggar & Son, 5 East Pallant, Chichester, Sx.

H - (0243) 786111 W - (0243) 773457



The merry month of May brings big thermals, XC conditions, sea breezes, and of course the SHGC AGM. This year it will be in the Dyke Cafe, starting about 7-30 in the evening. You will hear reports from the present Committee of their activities over the past year.... You will also have the chance to vote in the new Committee. A list of the positions is given in this Windsock, and remember, anyone can stand for any position. You will have to be nominated and seconded by other members, of course, but that should be no problem... Be a responsible member.. be there!

Other attractions to put in your diaries include: The Towing Weekend (late spring bank holiday weekend) at Chailey..... The Dyke to Beachy Head Challenge ... big cash prizes and a big help to the Chailey Heritage, a charity which helps physically handicapped children who will never be able to lead a normal life let alone go to Beachy Head on a hang glider.... If you dont feel able to compete in this event, at least sponsor someone who is.

Thanks to everyone who has contributed to the Windsock over the past year, and special thanks to Dave Goepel who patiently printed last month's issue when Chris was in Canada... Anybody want a couple of jobs on the Committee?? Humm...

See you at the AGM...

Mark Fisher

CONTRIBUTIONS: These are always welcome. Please write clearly, or if possible, type single spaced on A4. Please enclose SAE if any material is to be returned. Send to Mark Fisher (address at front of Windsock). If writing an article, a small photo of you would be useful.

Advertising: Members ads are free. All commercial ads are charged as follows: 1/6 page £12 per year; 1/3 page £22 per year; Full page £5 per issue, or £45 per year.

VIEWS EXPRESSED IN WINDSOCK ARE NOT NECESSARILY THOSE OF THE SHGC COMMITTEE OR THE EDITORS.

CLUB COACHES COURSE

- 14th AND 15th MAY - AIRTIME PREMISES

This course is being held for the Southern Club and the Dover & Folkestone Club and is open to any pilot (P1 or P2) with more than ten hours flying experience. Club Coaches take over from Observers under the new Pilot Rating scheme. (another of Bob Harrison's brainwaves).

If anyone is interested, please would they contact **EDDIE BILOUS**, who is helping to organise the course. His number is **0273-411239**.

Please do this as soon as possible, if you wish to attend.

CLUB A.G.M. - 14th MAY.

The SHCC Annual General Meeting is to be held on 14 MAY, probably in the Dyke Cafe as usual, but this will be confirmed. Please keep this date free and make every effort to attend. The old Committee will stand down after giving their reports and a new Committee will be elected.

All positions on the Committee are open to all members for nominations, so if you want a hand in the running of the Club, think about getting yourself put forward as a candidate.

PARAGLIDING:

From 'Windsock', the Southern's mag., I sense the beginnings of a hot controversy as the Club (albeit with great bravery and sportsmanship) opens the Devil's Dyke site to the Parapente fraternity. Already a letter has appeared condemning the move as 'slaply inviting disaster'.

Those who know the Dyke will probably nod their heads in mournful agreement. Like the N25, it is already operating beyond its natural capacity.

Have you read the article by Alastair Auld (Dover & Folkestone) in 'Wings' Feb. '83? He was there on the day of the recent air-air collision.

After cataloguing what he saw, he ends with, 'I don't

**BOB DEAR, EDITOR OF
WESSEX AIRMAIL, GIVES
HIS VIEW. ANY COMMENTS??**

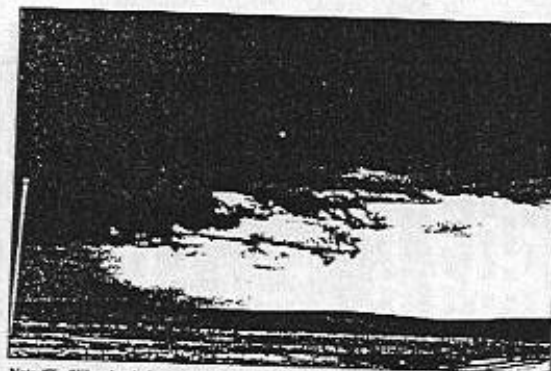
think I have ever before seen so many incidents during a single day's flying. Luckily no-one was seriously injured. In the end I was almost glad to get into the car to drive home."

Will the addition of Parapente tip the precarious balance towards disaster? Statistically speaking, it must. And it may send its ripples right across British hang-gliding.

observe its vertical growth near the top. Is it still growing? If so, the features near the top of the cloud would appear very white, well-defined and in motion. If the growth near the top of the cloud appears to be turning fuzzy and lacking definition, then the growth of the cloud may be near its peak. Always check for new growth in another quadrant of the cloud.

The base of a cumulus cloud closely illustrates the flow of air below the cloud. If the cloud base is flat and well-defined, thermal activity may be abundant below the cloud. If the bottom of the cloud begins to lose its distinct features and begins to appear uniformly fuzzy, especially in the center, then the moisture in the bottom of the cloud is no longer being supported by rising air. We can expect that the thermal activity underneath the base has diminished.

Finally, a few other features to watch for near cloud base include "tags" or cloud elements forming below the edges of the base as well as virga showers. Tags may appear as small filaments which are forming and rising near the edge of cloud base. They signify a very strong updraft which is often associated with a rapidly developing thunderstorm. Virga on the other hand appear as rain showers which are drying before reaching the ground. They very definitely signify sink-



Note "Tag"-like cloud elements forming under cloud base.

ing air. As for hang gliding, virga creates more problems at the surface than in the air. Virga can cause strong windy, gusty conditions from the surface up to a few hundred feet AGL. The gusty air is often very turbulent and can make your approach more than interesting.

Looking at the clouds and trying to figure

what the air is doing takes some degree of experience. Whenever you're outside, flying or not, take a moment to survey the sky and contemplate reasons for what you see. Refer back to this article to revive your awareness of cloud structure, which will also help make your soaring forecasts more mercurious! ■

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CHRIS B.

Weather watch FROM THE GRANIA

Why the sky is blue

Dick Pile, London Weather Centre

THE blueness of the sky must have puzzled people for centuries. Now we know that light from the sun can be "split" into many different colours.

When the atmosphere is cloudless and we look directly upwards from Britain during the daytime, most of the light from the sun is passing overhead with little hindrance. However, some of the blue light is scattered by the molecules of the atmosphere and reaches the observer. If the atmosphere is very polluted then more of the other colours will reach the observer, who may remark on how "milky white" the sky looks today. Thus the blueness of the cloud-free sky is an indication of a clean airstream.

A visit to the mountains of Scotland or Ireland in a westerly or northerly airstream will provide perhaps the cleanest air possible. The source of the airstream, Greenland and Iceland, are non-industrialised so the sky should look very blue.

At high altitudes, especially above 15,000ft, where half the atmosphere is below you, the sky may even begin to have a suggestion of purple or black.



Photographs from the Himalayas may emphasise this effect, as will those from aircraft.

One of the lesser-known weather sayings is "the deeper the blue, the deeper the convection." This can work quite well in winter and spring. The clean northwesterly airstreams which bring the deep blue skies are also cold throughout a considerable depth, therefore deep convection clouds will develop if enough heat can be found at the surface. While this may work on a March or April afternoon, it can also fall down in summer when huge convective

clouds bring thunderstorms up from the south, preceded by pale, blue, hazy skies and light easterly winds.

It is noticeable that the haziest, milkiest skies often occur with easterly winds. Pollution will make the air progressively dirtier over England and central Europe. Factories, cars and particularly power stations are the cause. When an easterly sets in, the air that arrives over Britain is nearly always polluted. In summer this easterly will bring very warm weather, the blueness of the air is often referred to as a heat-haze.

wood I'm practicing today!).

Clouds tell a story of the air. Their outline and shape around each side will often show us where air is rising and descending, give us wind direction above the ground, illustrate the dissipation of thermals below their bases and give us clues to determine if any given one will overdevelop. Clouds provide focal perspective as well as contrast to the boundless environment in which we fly. They are indeed our road map to the sky.

We know that clouds form from water vapor in the air. When the content of water vapor is high enough for the air to reach saturation, tiny moisture particles may form and accumulate into a visible cloud. Stratus clouds are generally widespread, are uniform in shape and grey in color, and often times are associated with overcast skies. Cumulus clouds are white, puffy, cauliflower-shaped clouds which have flat bases. They can grow into tall towers, and sometimes turn into thunderstorms.

STRATUS CLOUDS

The airflow around stratus clouds is generally more horizontal with less vertical motion relative to the air around them. Conditions can still be quite soarable while stratus are in the vicinity, although normally updrafts in or around stratus clouds are relatively weak. There are several things to be aware of while flying in the vicinity of stratus clouds. Sometimes they can contain imbedded cumulus development which is not easily detectable. Several features to watch for include the stratus cloud base, changes in the "feel" of the air from smooth to punchy, bullet thermal-type turbulence as well as a dramatic increase in the rate of climb. Most often, a stratus cloud base will lack definition and be uniformly dull grey. When imbedded cumulus are present, however, portions of the stratus base will become very flat with a smooth, plateau-like bottom; sometimes smaller cloud elements or lines are discernible in a darkening area of the cloud base. Any cloud base which is darkening indicates that a strong updraft or very strong thermal activity may be present.

CUMULUS CLOUDS

Cumulus clouds are a glider pilot's lure. An active thermal under a cumulus may serve to keep the cloud "fueled" with moisture giving it a billowy or puffy shape. As warm moist air rises inside the cloud and curls around near the sides, cool dry air is drawn in from the outside of the cloud which

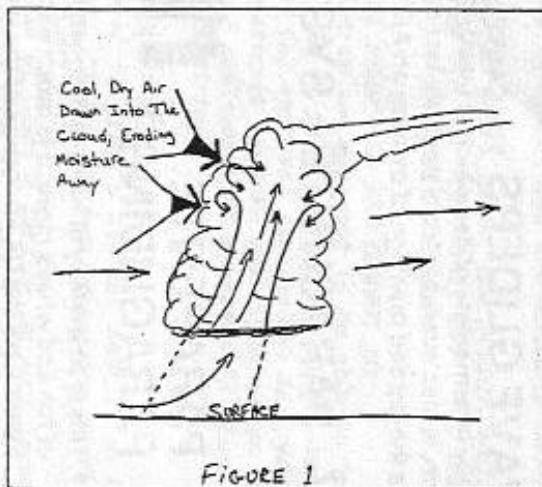


FIGURE 1

erodes moisture away from the sides. This process, called entrainment, is illustrated in figure 1 and is responsible for the puffy, cauliflower shape which is characteristic of cumulus clouds.

Cumulus clouds provide us with a lot of mentioned information. Their presence signifies vertical motion of the air above the surface. We can see the wind direction aloft by noting any tilt to the vertical development of the cloud. If surface winds are from a different direction than the winds aloft, we know that a shear zone exists somewhere between the surface and cloud base. Now the good stuff!

It is important to view the vertical depth of all the cumulus clouds in the vicinity. If they all appear equally shallow in height, there is a reasonable chance that the atmosphere becomes relatively stable somewhere near or above cloud top height. The key here is that they are all "equally" the same height. The stable layer above may serve as a cap, or lid on further vertical development. If a high pressure system is dominating the weather within the region, chances are that the stable layer is quite deep and will prevent overdevelopment of cumulus clouds. If the air aloft is not dominated by higher pressures, however, the stable layer may be quite shallow, serving only as a tem-

porary cap on cumulus growth. If temperatures at the surface get warm enough, these shallow layers of stable air are soon broken, giving birth to rapidly developing thunderstorms. Be aware of where highs and lows are located with respect to the area where you'll be flying!

Pick out a cumulus cloud close by and



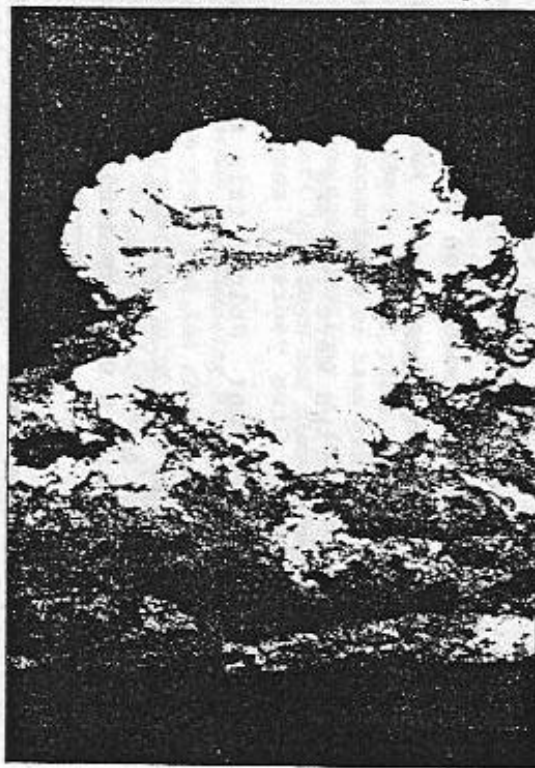
Small, fast growing cumulus tower builds straight up as winds aloft are calm.

CONT'D →

— CLOUDS — Are They Safe?

by Rick Jesuroga

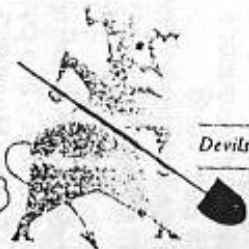
Explosive vertical development of a towering Cumulus. Note mushrooming top.



As a kid I grew up in a small town among the plush, green rolling hills of Connecticut. Dairy farms bordered by stone walls separated the green pastures from the wooded countryside. Our town airport had a grass strip runway, just barely long enough for those 1950's vintage tail draggers to get up enough speed and climb out, clearing the trees at either end. The airport was located only a few acres from my backyard. I remember endless summer days watching the sky, my eyes wandering from cloud to cloud as they would slowly pass, their shape always changing. The weather was extremely easy to understand back then: clouds were made of cotton and thunder was a very loud noise caused by a very large bowling ball rolling around up in the sky somewhere. I had everything all figured out.

Since then, however, I have boldly come to terms with science and the realities of weather. Thunder results from a stroke of lightning and cotton comes from inside a box. With regards to hang gliding much has been written about various types of weather phenomena which affect our sport. However, when it comes to cloud structure and associated weather, many of us are flying in the dark. When thermalling up high above launch, how do you know if the cumulus cloud above you will grow and rapidly overdevelop, creating strong conditions underneath? Some clouds may have good thermal activity below while others are producing sinking air and gust fronts at the surface; how can you tell which ones are safe? This article will discuss various types of cloud features to watch for and describe what they mean to you. And before we stroll along any further, you can rest assured that cloud physics is not within the scope of this article, although a few taken words regarding cloud development is mentioned (a new

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