R E P O R T

Investigation into the fatal accident of Trevor Wilde on 9th May 1982 at Knockroe, Borris, Co. Carlow.

R Hudson.

18.6.82.

1.00 INTRODUCTION:

1.01 On 9th May, 1982 a fatal accident occured at Knockroe, Borris, Co. Carlow. The Irish Hang Gliding Association undertook an investigation into the cause of the accident. Those involved were:
Tom Hudson - President, Irish Aviation Council
John Rossiter - Safety Officer for the Irish Hang Gliding Association
Noel Broderick and Ian Kibble-White. Committee Members - I.H.G.A.

2.00 PILOT:

2.01 Name: Trevor Wilde

Address: 43 Carysfort Road,
Dalkey,
Co. Dublin

Age: 34 - Married, one child

2.02 Experience:

Had been flying for 8 years, was considered to be one of the more experienced pilots in the Association.

2.03 Physical and Mental Condition:

It has been established from those who were with him prior to the accident that he appeared to be in good physical condition and good spirit.

3.00 MACHINE:

3.01 Manufacturer: Southdown Sailwings Limited
82 Goldstone Villas,
Hove,
Sussex

3.02 Type: Lightning 175

3.03 Description: 5th Generation Competition Machine

4.00 FLYING EQUIPMENT:

4.01 Harness: Hi-Way - Stirrup Type

4.02 Helmet: Suitable for intended purpose .

4.03 Clothing: Suitable for intended purpose.

5.00 SITE:

5.01 Location:

South face of Knockroe, Borris, Co. Carlow

5.02 Description:

The take-off was 1330ft above sea level - the surface of the hill was rocky, with heather - slope approximately 1 in 3
Impact point - 50 yards above and right of take-off point.

5.03 Conditions:

Conditions were judged too windy to take off from top of Mount Leinster, hence choice of Knockroe.
Visibility - good
Wind Direction appeared to be South Westerly (240°)
Wind Speed - 15 mph but varying from 5 - 22mph

Subsequent check with Met. Office as reported from Kilkenny at Mid-day 9/5/82

Wind at ground level - 15kts - 190°
at 2000' ASL 30kts - 220°
Temperature 13°C at 1200'
Cloud base 2200' ASL 3/8
4000' ASL 4/8

6.00 THE ACCIDENT

6.01 Trevor Wilde took off in a South westerly direction at approximately 2.40p.m. was seen to make one or two passes to gain height above take off.

The pilot carried out several whip stalls, and then made 2 360° turns to the right - these manoeuvres were carried out in lift(rising air). This is varified by the fact that the pilots variometer(VSI)was heard by those on the hill.

The Glider had drifted back towards the hill during these manoeuvres and the pilot was seen to straighten up and fly away from the hill.

It is not clear from witness report exactly what happened at this stage - due to the speed of the events that followed. The Glider tucked(or inverted very rapidly)once or possibly a second time. The suddeness of the inversion caused major structural damage, breaking both the outer unsupported sections of the leading edges.

The noise associated with this breaking was clearly heard by those on the hill. The Glider righted itself and the pilot was seen to be hanging limply in front of the control bar and facing the rear of the glider, and during the next few moments appeared to make no attempt to control the Glider. The Glider keeping nose to wind was oscillating from side to side, descending slowly.At approximately 50 - 70' above the ground the Glider slipped to the right - and impacted with the hill.

6.02 Eye Witnessess:

There were 12 people present in the area at the time of the accident.

We have statements from the following:

These were: (a) John Rossiter
(b) Tony Jones * not enclosed. content similar to Declan Doyle.
(c) Fredie Lahiff
(d) Declan Doyle

Their reports are set out in full in Appendix

7.00 CAUSE OF DEATH.

Death was due to shock and haemorrhage following multiple injuries to organs of chest and abdomen. The injuries would be consistent with a fall from a height.

SEE APPENDIX for full report.

8.00 EXAMINATION OF WRECKAGE

8.01 On the afternoon of 10th May, 1982 at the Kiltealy Garda Station

8.02 General Condition of Glider.

There was considerable structural damage consistent with that sustained as a result of the tucking manoeuvre and subsequent impact with the hill.

8.03 Known Condition of Glider prior to Accident

Sail - General condition good - several small tears, some patched.
Modification carried out to No 3 batton as approved by Manufacturer
Modification carried out to Luff lines as approved by Manufacturer.

Wires All in good condition

Air Frame - In good condition
Repairs had been carried out to LH and RH L/E as a result of prior crash landing.

New forward section of RH wing
Sleeved foreward section of LH wing

8.04 Report on Damage.

Both wings had been broken just outside the mid wing reinforcement.

Both had been broken downwards

All wires were undamaged, but the thimbles in the top lateral wires at the leading edge bolt positions were elongated

The keel was broken just in front of the rear reinforcement.

The left hand leading edge was bent and a rivet in a repaired section had sheared.

The left hand cross boom was bent and the cross boom plates were bent.

The left hand leading edge bolt was bent.

The top plates on the control bar were badly bent.

The right hand upright was bent.

The sail had several small rips

Both No. 8 battons were broken at the join, and the left hand No. 5 batton was bent.

The damage to the wings and the elongation of the thimbles is consistent with a tuck - a very fast and violent foreward roll

All other damage is impact damage, and would have occurred when the glider crashed.

9.00 Analysis of weather conditions

9.01 SEE APPENDIX

10.00 Possible cause of Accident.

10.01 The tuck action could have been caused by the pilot flying into violent air turblence, caused by the location of the flying site in relation to the Black Stair Mountains (See Met. analysis of site)

Given the conditions this seems the most probable outcome.

11.00 Recommendations/Suggestions.

11.01 Pilots should consider the advisability of wearing parachutes.

11.02 It is suggested that in certain wind strengths flying at a location having a major upwind obstruction can be hazardous.

Pilots should therefore exercise extreme caution when flying the the lee of mountains.

I went to Knockroe, Mount Leinster, County Carlow with some friends to fly hang gliders, we arrived at approximately 2.00pm. I carried my glider up to take off point, weather conditions looked to be OK. I started to rig my glider when someone said Trevor Wilde had taken off. I watched him for a few minutes and then went back to rigging my glider, a few minutes later I looked up and saw the nose of Trevor's glider pitched down, the glider then tucked very fast and then seemed to right itself and descend slowly, nose into wind. Suddenly about 50ft from the ground the glider turned towards the hill and impacted 50 yards behind me. Other pilots were at the glider when I arrived at it, Noel Brodrick asked me to go for an ambulance, I phoned for the ambulance from Kiltealy at 3.15pm, I also phoned for a helicopter. The ambulance followed me from Kiltealy to Knockroe When we arrived Trevor Wilde was pronounced dead by a local doctor. The remains were removed to Kilkenny County Hospital by Air Corps Helicopter.

The above is an accurate reconstruction to the best of my ability of the events of Sunday May 9th, 1982.

Signed: J Rossiter

John Rossiter
31 Clonard Drive
Dublin 14

May 18, 1982

On the 9th of May I observed Trevor Wilde take off and carry out various manoeuvres in the air, he seemed to be flying normally, he first of all did some wing overs just after take off, he then gained some height and did two 360° turns to the right drifting back towards the hill, he came out of the 360° turn and started to fly straight out away from the hill. I observed him to carry on flying in straight and level flight away from the hill, I then saw the glider suddenly tuck once and at the same time I heard a loud noise and I saw that both wings were broken, the glider righted itself immediately and was just falling slowly. At about 100ft from the hill the glider picked up speed and impacted into the hill.

Signed: _____

Fredie Lahiff

May 18, 1982

TO WHOM IT MAY CONCERN:

I was hang-gliding on the slopes of Knockroe Mountain, Borris, Co. Carlow on Sunday, May 9th 1982, with eleven other pilots. Conditions were bouyant but normal. Trevor Wilde was the first to rig and take-off, at approximately 14.30. I watched his flight for the first few minutes to gauge conditions which seemed to be perfect and then turned my attention back to rigging my own glider. I heard a shout (afterwards I found out it was from Fred Lahiff) and looked up. The glider was already out of control and damaged, approximately 300 ft. up and straight in front of me. It then seemed to right itself and began to oscillate gently towards the hill. Approximately 50 ft. from the ground it spun around and accelerated into the mountainside.

All pilots ran to assist. Trevor Wilde was unconcious but still alive. It was immediately decided to ring for an ambulance and doctor. Subsequently, because of the difficult terrain and the seriousness of the pilots injuries, it was decided to ring for an Air Corps helicopter. I went to ring for this and was informed that the helicopter would arrive at 16.00 hrs. When I returned to the mountainside Trevor Wilde was already dead and had been pronounced so by the local doctor. The helicopter arrived at 16.10 and removed the remains to Kilkenny County Hospital.

Another hang-glider pilot, Anthony Jones, and I went to Kilkenny and I identified the remains. We then both made short statements to the Garda in charge, Guard John Fenton.

The above is an accurate reconstruction, to the best of my ability, of the events of Sunday, May 9th 1982.

Signed: Declan Doyle

Declan Doyle.
Fintragh Mews,
Knapton Road,
Monkstown,
Co. Dublin.

10/5/1982

CORONERS ACT 1962

DEPOSITION

CORONER's DISTRICT : KILKENNY.

Inquest on body of : Trevor Wilde.

Place of Inquest :

The deponent : Kieran Cuddihy, Ardkeen Hospital. (Name of depone

says on oath

On Monday, May 10th, 1982, at St. Luke's Hospital, Kilkenny, I carried out a post mortem examination on the remains of Trevor Wilde, aged 35 years, married, of 43, Carysfort Rd., Dalkey, Co. Dublin.

Identification was made to me by Garda John Fenton of Kilkenny G.S.

Externally:

Abrasion of left upper forehead.
Cut over point of right elbow.
Compound fracture of left iliac crest of pelvis.

Internally:

Head : Apart from abrasion of forehead, no injuries of skull or brain.

Spine : Lateral fracture dislocation of spine with crushing of spinal cord at D12-L1.

Chest : All left ribs were fractured at junction with spine, causing extensive laceration of lung surface and large haemorrhage into left pleural space; 3rd and 4th ribs were also fractured to the front.
Right sided haemopneumothorax.

Abdomen: Rupturing of lateral and inferior surfaces of liver.
Complete rupture of spleen.
Retroperitoneal haemorrhage coming from area of fracture of left rim of pelvis.
Fracture of neck of left femur.

In my opinion, death was due to shock and haemorrhqge following multiple injuries to organs of chest and abdomen.
The injuries would be consistent with a fall from a height.

Taken before me this day o

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Mr. R. Hogan, Coroner.

Signed:

CORONER

Copy to Garda John Fenton, Kilkenny G.S.

Meterological Conditions on the Occasion of Fatal Accident to Hang Glider on the South Slope of Knockroe, Black Stair Mountains about 14.50 GMT on 9th May 1982.

A cold front close to the North West Coast was moving very slowly Eastwards (Fig 1). Layer type cloud with light rain in places extended inland over the Western half of the country. Over the Eastern half, including the location of the accident, convective type cloud with scattered showers predominated.

Reports from Synoptic Stations nearest Knockroe for 1400 GMT are tabulated as follows:-

	Wind Direction & Speed	Weather	Temp/Dew Pt. °C	Cloud Amt/Type/Ht of Base	
Kilkenny	190°16kts	Shower	13/07	6Cu2200	3Sc4000
Casement	190°16kts	Fair	15/07	2Cu3300	4Sc6000
Rosslare	240°16kts	Fair	12/07	2Cu2400	6Sc5000

The Wind Direction and Speed in the Free Atmosphere i.e. the "2000 ft" Wind was 220° 27 kts in the vicinity. It is reasonable to assume that this fairly closely represented the wind experienced at the level difficulties were first encountered by the Hang Glider, ie. 200-300 feet above the 1200 feet surface of the mountain slope.

The angle of the sun relative to the slope as well as the texture of the slope would have greatly increased the instability of the already unstable air mass in the vicinity of Knockroe.

This instability combined with the fairly strong wind flow was very favourable for the formation of Frictional Eddies (Fig 11). These turbulent Frictional

/Eddies .....

Eddies forming on the side of the peak immediately upwind of Knockroe could be expected to drift downwind and add to the turbulence caused by the eddies generated on the windward slope at Knockroe.

The phenomenon of Rotor Streaming (Fig11la) can also be considered. This if present can generate severe turbulence to the lee of an obstruction. Taking into account the vertical profile of the atmosphere (Fig 111b) conditions were considered borderline for the formation of Rotor Streaming on this occasion.

Accounts which described the turbulence experienced as severe and unexpected lead to the conclusion that Rotor Streaming rather than Frictional Eddies was the main factor. This Rotor Streaming would have been generated by the mountain peak upwind of the accident.

It is suggested that carrying out Hang-Gliding activities at a location having a major upwind obstruction in such conditions of wind strength can be quite hazardous.

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G.A. McDonald
Meteorologist

8 June 1982

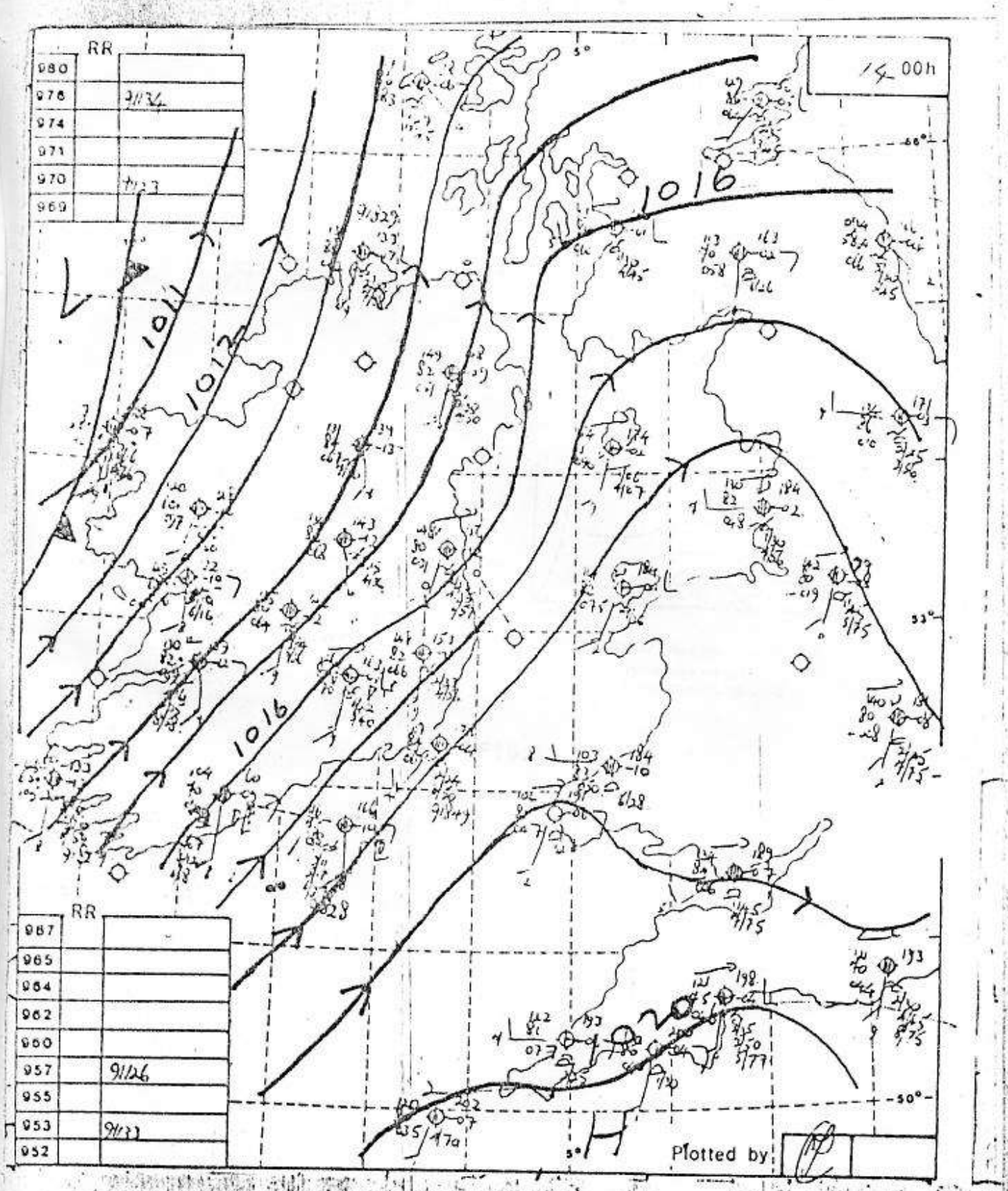
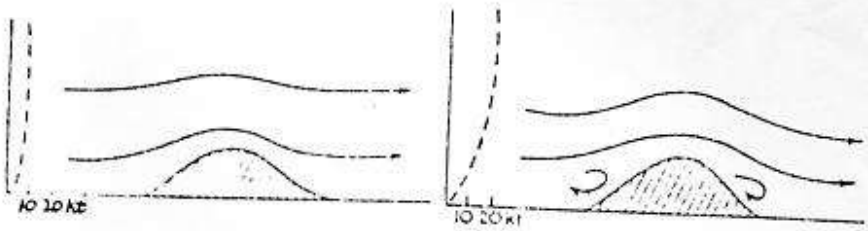


FIG.1 SYNOPTIC CHART 1400GMT 9TH MAY 1982.



Steady flow over a hill, without eddies
- - - - Vertical profile of wind

Steady flow over a hill, with stationary eddies
- - - - Vertical profile of wind

FIG.11