

1.00 INTRODUCTION

1.01 On Saturday, 19th May, 1984 at approximately 14.50 hours local time, Pat Molloy was seriously injured while attempting to land his hang glider at St. Mullin's, Co. Carlow, following a cross-country flight from Mt. Leinster in the first week of the 1984 Celtic Cup Competition.

INVESTIGATION INTO A HANG GLIDING ACCIDENT AT ST. MULLIN'S,  
CO. CARLOW, DURING THE 1984 CELTIC CUP, WHICH RESULTED IN  
THE SERIOUS INJURY OF PAT MOLLOY.

1.02 Name: Pat Molloy

Address: 6 Swan Place,  
Dunbrock,  
Dublin 4.

INFORMATION GATHERED AND REPORT COMPILED BY T.J. GEARY  
& I.W. KIRKER OF THE IRISH HANG GLIDING ASSOCIATION.

Weight: 115 lbs approximately.

1.03 Experience: Pat has over 10 years flying experience and is Ireland's top competition pilot being current Irish League Champion and having won the Irish Championships in 1980 and 1981.

1.04 Physical & Mental Condition:

Pat was in very good physical condition and spirits prior to his flight.

1.00      INTRODUCTION

1.01      On Saturday, 26th May, 1984 at approximately 14.50 hours local time, Pat Molloy was seriously injured while attempting to land his hang glider at St. Mullin's, Co. Carlow, following a cross country flight from Mt. Leinster in the first task of the 1984 Celtic Cup Competition.

2.00      PILOT

2.01      Name:              Pat Molloy

Address:            8 Swan Place,  
Donnybrook,  
Dublin 4.

Age:                    32 years.

Weight:                155 lbs approximately.

2.02      Experience:      Pat has six (6) years flying experience and is Ireland's top competition pilot being current Irish League Champion and having won the Irish Championships in 1980 and 1981.

2.03      Physical & Mental Condition:

Pat was in very good physical condition and spirit prior to his flight.

3.00

GLIDER

3.01

Manufacturer:

Airwave Gliders Limited,  
High Marsh,  
Cockleton Lane,  
Gurnard,  
Isle of Wight,  
PO31 8JE.

3.02

Conditions

3.02

Type:

Magic II 165.

3.03

Description:

5th Generation Glider.

4.00

FLYING EQUIPMENT

4.01

Harness:

Kirker cocoon harness with  
wind haven parachute.

Helmet:

Stadium Project 6.

Clothing:

Suitable for intended purpose.

5.00

SITE

5.01

Location:

The location of the accident is a  
field at St. Mullin's in Co. Carlow.  
Appendix I.

5.00     SITE     (Continued)

5.02     Description

The field is triangular in shape and placed in a slight hollow in the surrounding countryside. It slopes slightly upwards to the North and is surrounded on all three (3) sides by tarred roads. Appendix II.

5.03     Conditions

Conditions in the South East of Ireland varied with those recorded at Dublin Airport.

Appendix III. The winds were approximately ten (10) knots stronger and did not veer North Easterly until approximately 17.00 hours local time. Conditions at the time were extremely turbulent close to the ground and all pilots who landed within a mile of the scene reported very severe turbulence during landing.

6.00     THE ACCIDENT

6.01     Pat Molloy took off at approximately 12.30 p.m. from the mine stones at Mt. Leinster. He left the ridge and flew to the Blackstairs with a number of other fliers. He spent approximately 1½ hours on the Blackstairs ridge and feeling that he was unlikely to reach the goal at New Ross, flew in a Southerly direction towards some cut fields.

... / ...

6.00

THE ACCIDENT (Continued)

6.01 (Continued)

These produced no lift and he flew on downwind towards a field which he then elected to land in. On turning into wind at approximately 60 feet above ground level, he experienced a strong head wind and was turned around further than he had planned. Pat reckons he still would have made his planned field but rather than risk the overhead wires in front of it, he changed his mind and elected to land in the field into which he subsequently crashed. At this point Pat lost all control of the glider and it dropped vertically into the corner of the triangular field.

6.02 Eye Witnesses

There were two (2) main witnesses at the time of the accident.

These are: (A) Mr. Ned Gladney  
(B) Mr. Simon Purcell

Their locations at the time of the accident as marked in Appendix II.

The accounts of the accident as seen by them are set out in Appendix V.

... / ...

7.00

INJURIES

Neck broken and spinal column severely damaged at fourth vertebrae. Both wrists broken.

8.00

EXAMINATION OF GLIDER & EQUIPMENT

8.01 Condition of Glider prior to accident.

The Glider was in perfect condition having relatively few flying hours and being well maintained.

8.02 Damage report on Glider after accident.

(i) Right hand upright:

Broken inwards and slightly forwards. Bottom of upright bent and scored from bracket. Bottom bolt hole stretched and crazed.

(ii) Left hand upright:

Bent slightly forwards and inwards.

(iii) Right hand upright bottom bracket:

Badly buckled.

(iv) Left hand upright bottom bracket:

Slightly buckled.

... / ...

8.00      EXAMINATION OF GLIDER & EQUIPMENT (Continued)

8.02      Damage report on Glider after accident. (Continued)

(v)      Outer anti luffing cord:

Broken close to right hand side of sail.

(vi)      Top rigging wires:

Plastic coating slightly damaged.

Photographs of Glider damage - Appendix IV.

9.00      LIKELY CAUSE OF ACCIDENT

It seems most likely that Pat's accident was caused by him hitting a very severe rotor or wind shear at his final turning point when approaching his landing. As can be seen from the photographs and the diagram, Pat's turning point was down-wind from a church and school which must have caused severe turbulence.

When he turned at approximately 60 feet above the ground he faced a strong head wind and yet when he was released from the Glider by the witnesses, one of them remarked on the Glider being blown over from behind. This implies that the wind within that 60 feet must have varied from at least 20 miles per hour at 60 feet to probably 5 miles per hour at ground level - a difference of 25 miles per hour. In conditions such as these, it is virtually impossible for the Glider not to stall.

... / ...

9.00     LIKELY CAUSE OF ACCIDENT     (Continued)

When Pat turned into wind he lost all ground speed and, realising that he would not make his selected field, he elected to land in the triangular field. However, before he could do so, he fell vertically very quickly with absolutely no control over the Glider. He tried to recover by pulling on speed but with no effect. Just before impact he pushed the bottom bar fully forward and crashed in a fairly horizontal plane.

10.00     CONCLUSION & RECOMMENDATIONS

The only sure way to avoid similar accidents to Pat's happening in the future is to always err on the side of caution.

- (i)     When flying cross country always consider the terrain ahead.
- (ii)    When below 500 feet above ground level, always have a suitable landing field selected and do not proceed unless you are sure of making the next suitable one.
- (iii)   When below 300 feet, stay with your selected landing field, keeping a constant look out for obstacles as you approach the ground.
- (iv)    Give yourself as long a clear landing approach as possible and increase your speed close to the ground.

... / ...



APPENDIX I  
EXTRACT FROM  
CRASH INVESTIGATION  
REPORT NO. 100

10.00 CONCLUSION & RECOMMENDATIONS (Continued)

- LOCATION OF ACCIDENT
- 08 22 10 W
- (v) *Expect and prepare for turbulence if you are close to large obstacles.*
  - (vi) *Do not land directly down-wind of large obstacles.*
  - (vii) *If conditions are unstable or gusty, expect trouble close to the ground.*
  - (ix) *When landing in turbulent conditions, consider coming out of prone early to avoid injuries such as Pat's.*

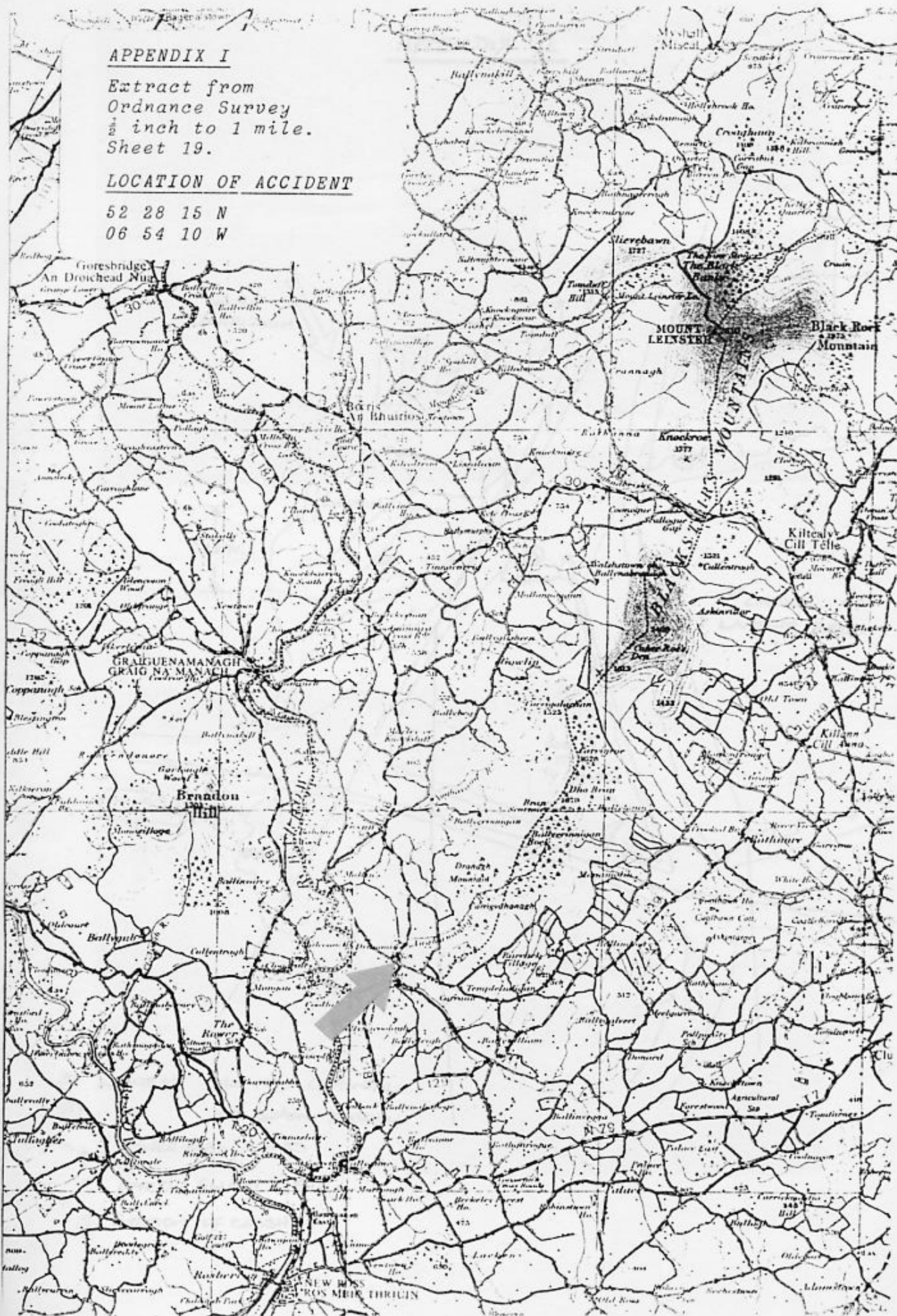
*Pat Molloy was Ireland's top competition flier. This was due mainly to the extremely professional approach he always took to his sport. He studied his proposed flights and the prevailing conditions in greater detail than anyone else and this was reflected in his consistent competition results. However, everyone is gripped with enthusiasm in competition and if Pat can be caught out with an accident incurring such a terrible injury, there must be a lesson there for all of us.*

APPENDIX I

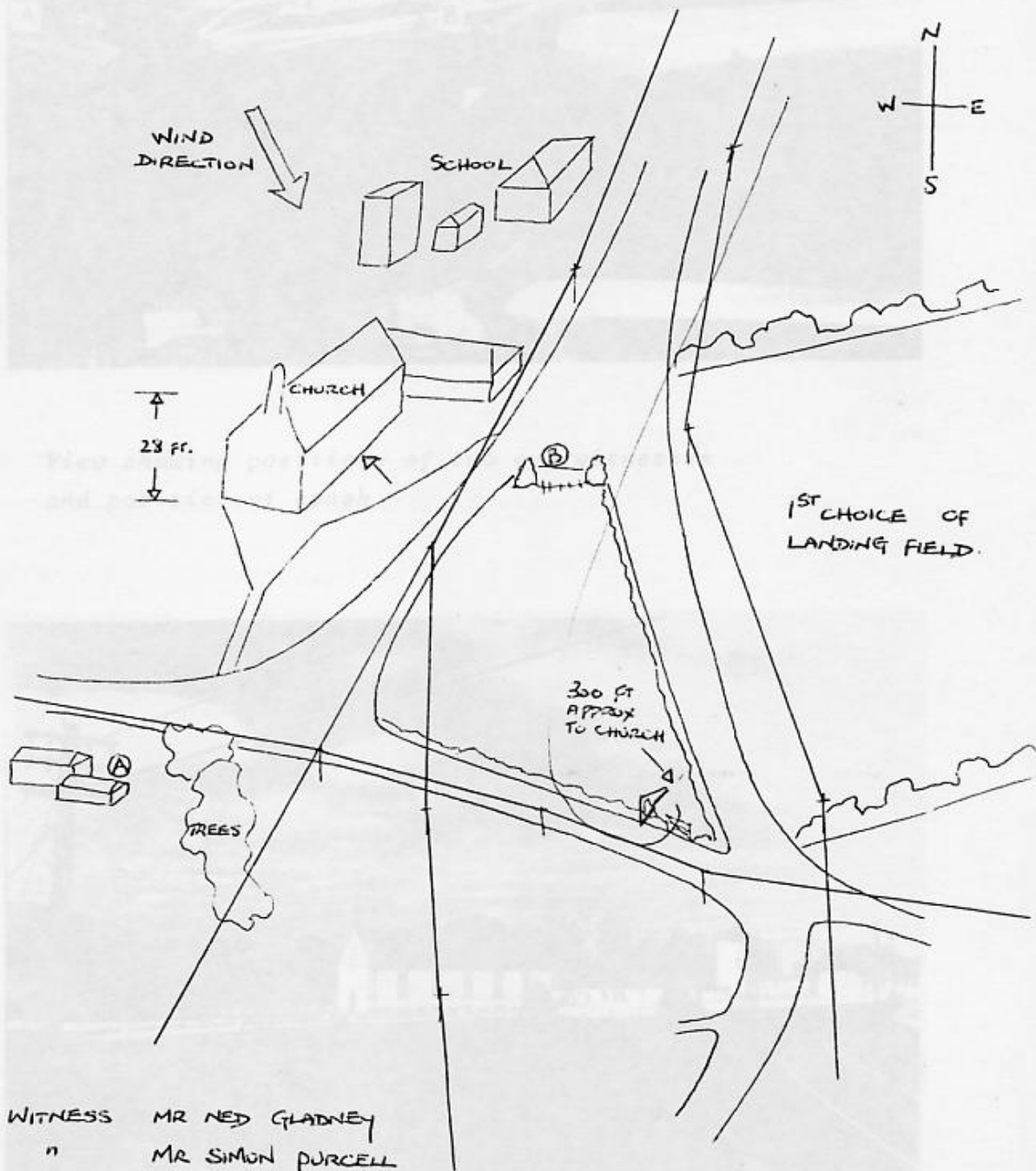
Extract from  
Ordnance Survey  
 $\frac{1}{2}$  inch to 1 mile.  
Sheet 19.

LOCATION OF ACCIDENT

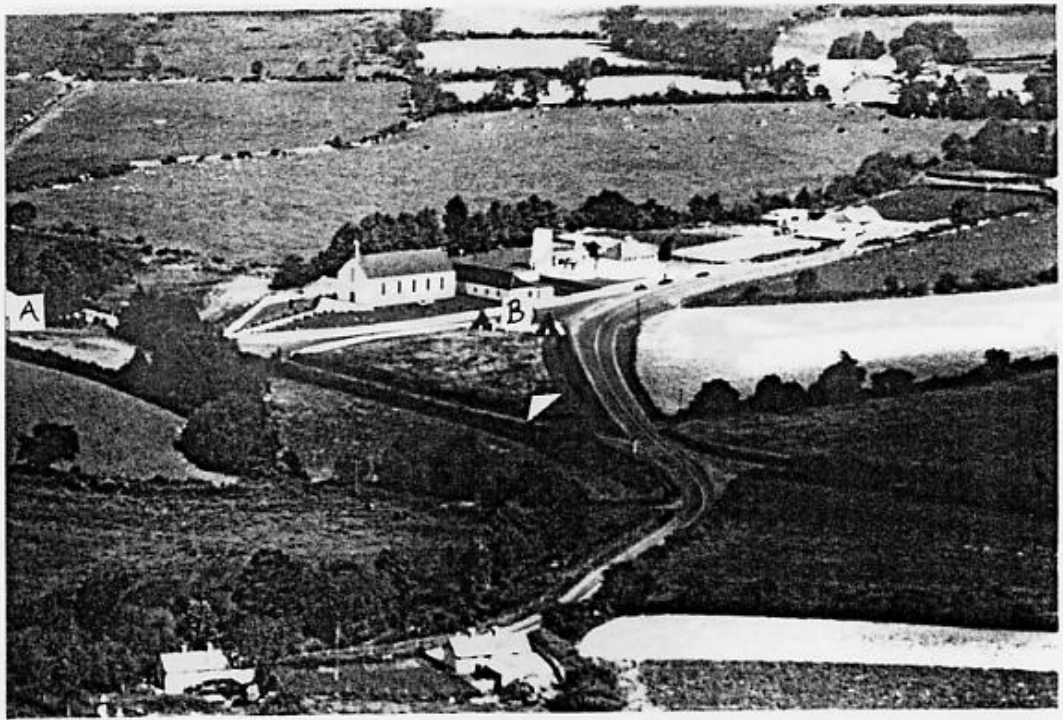
52 28 15 N  
06 54 10 W



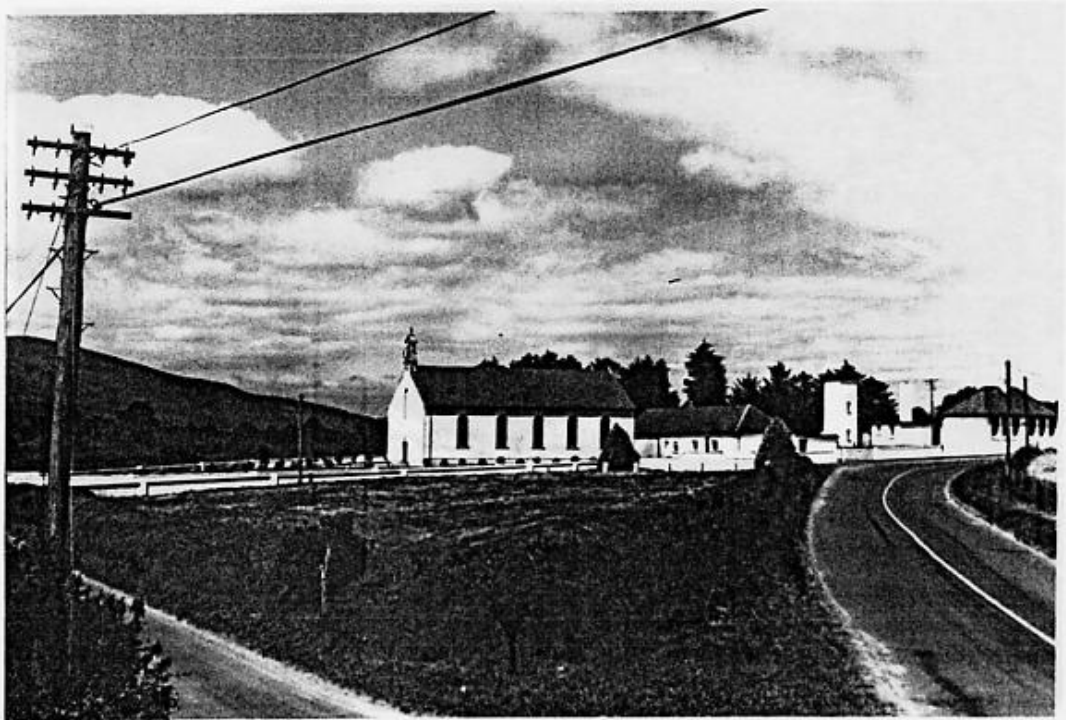
APPENDIX II



- Ⓐ WITNESS MR NED GLADNEY
- Ⓑ " MR SIMON PURCELL
- OVERHEAD WIRES.
- PAT'S FLIGHT PATH.
- △ POSITION OF CRASH.



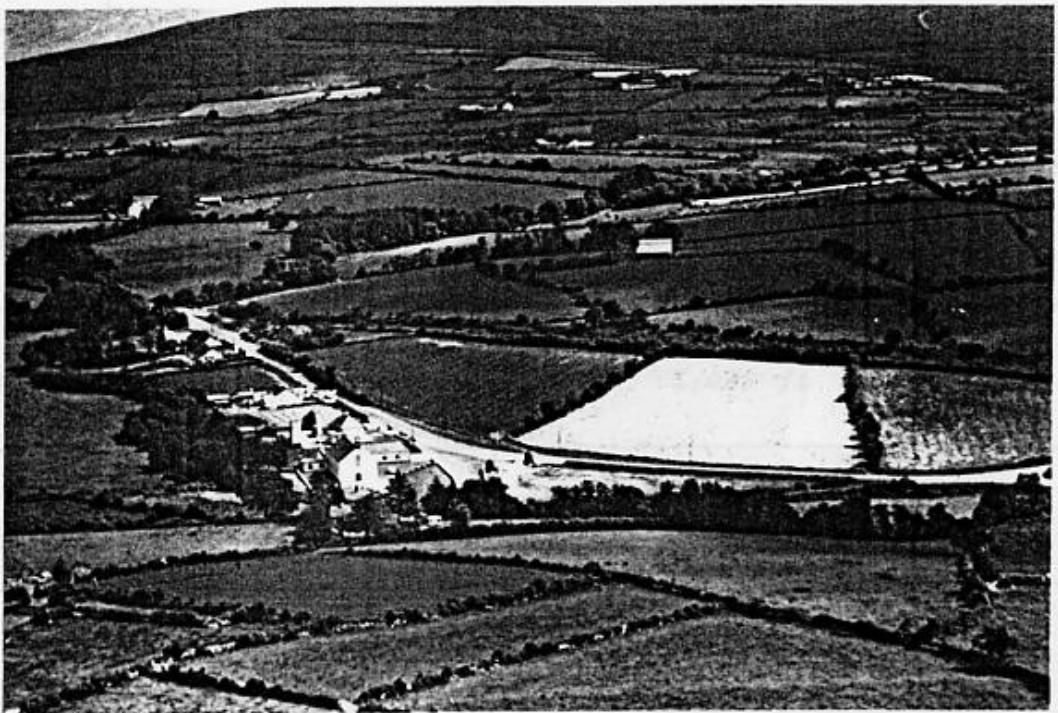
*View showing positions of two eye witnesses  
and position of crash.*



*View north towards end of Bartolomeo road  
View into wind showing large obstructions  
up-wind of field.*



*Down-wind approach towards field.*



*View north towards end of Blackstairs and showing proposed landing field.*

APPENDIX III

DUBLIN AIRPORT - SATURDAY 26TH MAY 1984

<b>LOCAL TIME</b>	<b>WIND DIRECTION</b>	<b>SURFACE SPEED</b>	<b>CLOUD AMOUNT &amp; TYPE &amp; BASE</b>	<b>VISIBILITY</b>
0900	360 <sup>o</sup>	14 Kts	2 Cu 2,000 ft 4 Sc 3,300 ft	30 Km
1000	360 <sup>o</sup>	14 Kts	2 Cu 2,200 ft 3 Sc 3,400 ft	45 Km
1100	360 <sup>o</sup>	13 Kts	5 Cu 2,700 ft 3 Sc 4,000 ft	55 Km
1200	360 <sup>o</sup>	14 Kts	1 Cu 2,500 ft 6 Sc 3,200 ft	55 Km
1300	360 <sup>o</sup>	13 Kts	1 Cu 2,500 ft 6 Sc 3,200 ft	55 Km
1400	010 <sup>o</sup>	11 Kts	6 Sc 3,000 ft	50 Km
1500	050 <sup>o</sup>	7 Kts	6 Sc 3,000 ft	50 Km

APPENDIX IV

*Glider damage.*

*Suggested point of impact -*

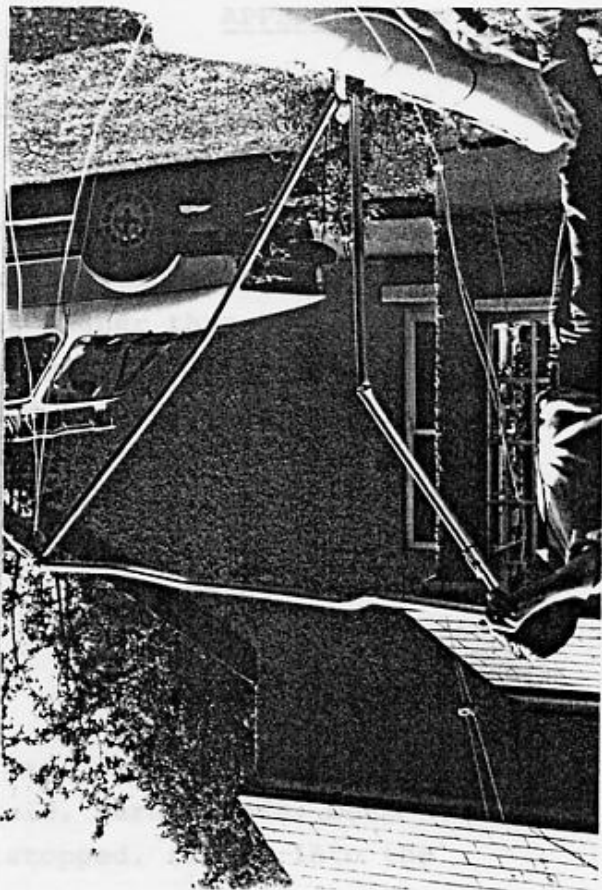
*Right corner of A frame*

*(i.e. in holder's hand).*

NB

*A frame folded inwards*

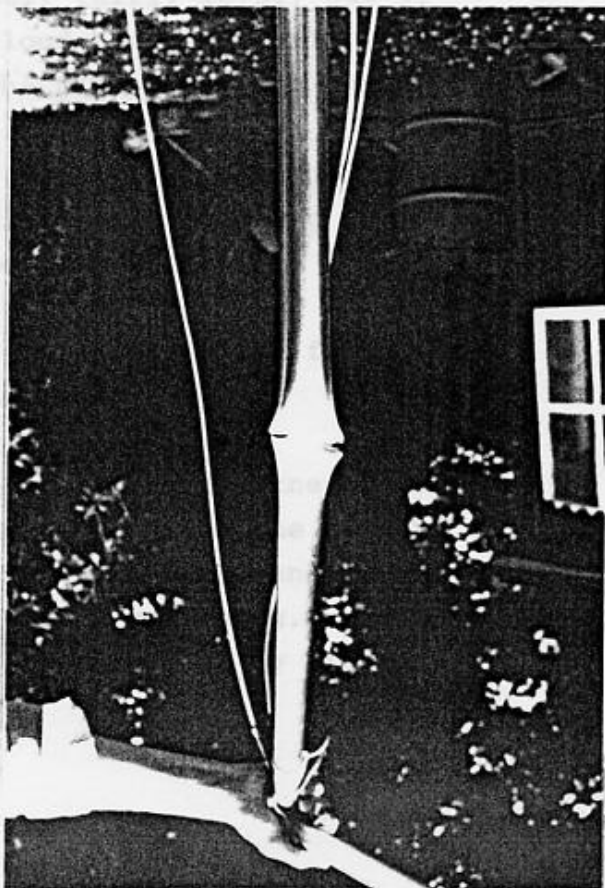
*and forwards.*



*Right upright broken  
inwards and forwards.*

NB

*Bottom right hand upright  
bracket badly buckled under  
impact.*



Account of sequence of events as seen by Mr. Ned Gladney:

He and Mr. Purcell adjusted the pilot's position sufficiently to enable him to breath. The pilot stated that he was at Ned Gladney was standing on the front steps of his porch when he saw 2 Gliders approaching down the road from the direction of Glin. One Glider was higher than the other and continued flying down the valley. The lower one, a blue and white Glider, he estimated to be approximately twice the height of the Church (i.e. 60'). Being unfamiliar with Hang Gliding, he ran inside to call his family. One of his youngest children, aged approximately 7 years, was outside the local shop and estimated the Glider to be at Church top height when it passed overhead. The pilot waved and shouted "Hallo".

When Ned Gladney re-emerged from his house the Glider had reached the end of the landing field, turned left, back towards the Church and instantly stopped, facing into the wind.

The Glider then dropped, apparently fairly level, out of vision. Immediately he heard a loud bang. At this stage all he could see was a part of the Glider at rest through the trees.

He started walking towards the field and realising something was wrong, ran to where the Glider was lying.

The Glider had come to rest near the apex of the field with the left wing protruding over the bank.

When he reached the pilot, he and the second witness, Mr. Simon Purcell, found the pilot crouched below the Glider. His head appeared bent downward into his chest and turned right. He was experiencing difficulty breathing. His left arm was under his body and his right arm down by his side with the hand facing upwards.



Account of sequence of events as seen by Mr. Simon Purcell

He and Mr. Purcell adjusted the pilot's position sufficiently to enable him to breath. The pilot stated that he was in some pain and unable to move. He asked to be released from the harness and put on his back. The pilot appeared lucid and explained to the witnesses how to release him.

Mr. Gladney suspecting serious injury, ran and asked his wife to call a doctor and ambulance.

His wife then looked after the pilot, constantly wetting his lips with a damp cloth.

Mr. Gladney described the conditions at the time as being blustery, but relatively calm in the landing field.

*Red Gladney*

One upright was broken. The pilot was hunched head downwards under the Glider, but still suspended by the harness.

On realizing that the pilot was unable to breath \*\*, he tried to lift him by the harness. This enabled the pilot to breath and the pilot then gave instructions on how to release him. (\*\* he stepped over the bottom bar which was forward of the pilot's head and approximately 12" off the ground).

Mr. Purcell commented that there was a tendency for the Glider to lift from the back and he was concerned, as was the pilot, lest the Glider should flip over.

When they released him and moved the Glider away, it immediately turned upside down from the back.

The pilot was experiencing pain in his neck area and was restricted in the shoulder area by the straps of the harness. Mr. Purcell stated the shoulder straps were biting into his shoulders. Both feet were firmly bedded in the bottom of the cocoon and could only be released with difficulty.

Account of sequence of events as seen by Mr. Simon Purcell:

Mr. Purcell was standing at the Grotto at the corner of the landing field. He looked up and saw a Glider passing very fast downward over the field. He estimated the height to be about twice the height of the Church. He heard a loud swishing noise from the sail as the Glider turned steeply left back into the wind at the far end of the field. The Glider nosed up and stopped. It immediately fell very quickly to the ground, apparently tail first.\*

Mr. Purcell is not familiar with Hang Gliding, but immediately felt something to be amiss and ran to the Glider. He reached it within less than one minute.

The Glider had come to rest near the corner of the field with neither the nose nor tail touching the ground, but being supported by the left wing on the bank.

One upright was broken. The pilot was hunched head downwards under the Glider, but still suspended by the harness.

On realising that the pilot was unable to breath \*\*, he tried to lift him by the harness. This enabled the pilot to breath and the pilot then gave instructions on how to release him. (\*\* he stepped over the bottom bar which was forward of the pilot's head and approximately 12" off the ground).

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Mr. Purcell and Mr. Gladney were assisted by a third man, described by Mr. Purcell as a vet, who cut the restricting straps of the harness.

The pilot requested to be turned on his back which the witnesses then did.

Both witnesses were aware of the implications of moving a person with back/neck injuries and handled the pilot with great care.

\* Mr. Purcell immediately after the accident was of the opinion that both wings swung upwards and met. Investigation has shown this not to have been the case but may have appeared so when the glider turned steeply.

Simon Purcell.

PS Ned Gladney and myself had Pat on his BACK before the vet cut the STRAPS. It was when we opened the (Swivole) in front that Pat asked to be put on his BACK SP