

No. 18

Gulf Aviation Company Ltd., De Havilland Heron, G-APJS,
accident on Mount Scifarello, Italy, on 19 February 1958. Report
released by the Ministry of Defence-Aviation, Republic of Italy

Circumstances

The aircraft was on a ferry flight from Athens, Greece to Ciampino Airport, Rome - it was being transferred from Bahrein to England to be checked and to undergo certain modifications. It had departed Athens at 1407Z on an IFR flight plan and later reported that it expected to fly over Caraffa at 1730 and requested clearance to fly at a lower level. This clearance was not granted since the flight level requested was below the safety minimum for that route segment. There were no further contacts with the aircraft. It crashed between 1735 and 1808Z on the southeast slope of Mount Scifarello at a height of approximately 1 730 metres (5 675 ft). The 3 crew aboard were killed, and the aircraft was destroyed.

Investigation and Evidence

The Certificate of Airworthiness of the aircraft was valid until 9 March 1958, and the Certificate of Maintenance for the aircraft, valid at the time of the accident, had been issued on 17 February 1958 at Bahrein. The aircraft was equipped with HF and VHF transmitter/receivers as well as ADF and fan marker receivers.

The captain held a valid Airline Transport Pilot's licence, and he had completed a total of 2 294 hours flying on Dove and Heron aircraft.

Weather

A depression centred over Lazio-Tyrrhenian at 1200Z. Associated with it were two frontal systems very close to each other, very active and accompanied

by a sharp lapse rate, observable at all levels, and by considerable cooling.

This system spread to central and southern Italy at 1800Z. The first cold front (further to the south and over Ionia at 1800Z) gave very unstable conditions.

The second front (over the Lower Tyrrhenian, Lucania-Puglie, at 1800Z) caused precipitation, mostly snow.

The movement of both systems was southeast up to the Central Mediterranean and thereafter eastward.

In the frontal area and behind the cold front from Tunisia-Naples-Foggia, observations at 1800Z indicated:

- scattered rain; forward visibility approximately 10 km; surface wind ahead of the front around S-W 20/30 kts; behind the front between N-W and N 20/30 kts with local increases. The mountain stations reported snowfalls (Monte Scuro-Potenza-Trevico-Guarcino and Guadagnolo).

- The Caraffa Station reported wind 280° at 35 kts; past weather: light rain.

Visibility 4.5 km.

- The Monte Scuro Station reported visibility 0.
- Capo Palinuro Station reported cumulonimbus.

- At 2100Z scattered thunderstorms were reported (Monte Scuro-Potenza Capodichino) and wind changing to N-W during passage of cold front.

Analysis of the general weather picture over Ionia and Greece showed increased cloudiness with intermittent rain, horizontal visibility 5-10 km.

Analysis of thermodynamic soundings and of the two active frontal systems, with considerable and extensive cloudiness, indicated the possibility of moderate to severe icing, particularly between 1 500 - 3 500 metres.

In view of the presence of convective cloud (cumulonimbus), icing above 3 500 metres was also a possibility.

The chart of isotachs, the analysis of soundings and the presence of maximum velocity winds indicated the existence of a layer of moderate to severe turbulence between 3 000 and 10 000 metres.

Besides kinematic turbulence, there was also a layer of turbulence below 3 000 metres, caused by the particular terrain features of the region.

Analysis of upper air charts indicated a jet stream from Tunisia to Sicily and Albania. The maximum wind velocities determined by rawin observations were 136 - 140 kt over the southernmost Italian regions.

Wreckage

The wreckage was found on the SE slope of Mount Scifarello (1 767 m) 26 metres below the top of the mountain. The aircraft had apparently struck the steep slope at an altitude of 1 730 metres in a slightly nose-up attitude when on a northerly heading and the wreckage was scattered over the slope above the point of impact.

* ICAO Note The report indicates that between 1608 and 1648 the position of the aircraft was plotted by radar, which showed it to be some distance north of, and diverging from the Advisory Route (ADR 528). This information was apparently not available to ACC or the aircraft prior to the accident.

Examination of the wreckage revealed the following significant evidence:

There was no evidence of lightning strikes or structural failure before impact and no trace of fire.

There was no anti-icing equipment on the leading edges of the wings.

The control for carburettor air was selected to supply warm air and the pitot heater was switched on.

The hands of a watch indicated the probable time of impact as 1808 hours.

Reconstruction of the flight

The aircraft passed the following position reports:

- a) To Athens:-
1429 hours over Corinth
estimating Araxos at 1500
- b) To Rome ACC
1700 - departed Athens 1406
estimating Ciampino 1900
FIR Boundary 1600 at 8 500
ft estimating Catanzaro
(Caraffa NDB) 1710

1725 - estimating Caraffa
NDB 1730 request descent to
6 500 ft to which Rome ACC
replied -
"Unable to approve 6 500
below limit maintain 8 500
ft call Catanzaro"

This was the last radio contact with the aircraft. No D/F stations received or intercepted calls from the aircraft. *

These messages from the aircraft indicated that the pilot was having difficulty in holding to the estimated time of overflight, in finding reporting point G8A, probably due to the actual wind being stronger than those forecast;

and also in maintaining flight level possibly due to icing. It is also possible that ice formation on the antennae may have interfered with the reception of MF bearing signals.

The cruising speed of the aircraft was assumed to be 140 kt TAS as indicated in the flight plan and this was later reduced to approximately 130 kt. The wind force was also taken as 45 kt from 240° - the average between the forecast wind at Athens and as later deduced from meteorological information.

Beyond Araxos the flight was most likely conducted not along the line joining Araxos and point B (airway G8 and ADR 528) but along the line joining Araxos and point A. (See Figure 14) This latter path corresponds to the radar scans and the times transmitted by the aircraft.

It very likely arrived in the area of point A at approximately 1721, the pilot possibly mistaking the lights along the coast for those in area B.

This would explain the message at 1725Z estimating overflight of Caraffa at 1730Z.

The pilot, believing he was over B, intended to fly over Caraffa at 1730Z and then fly to D, over the sea, and thereafter to turn towards airway A-13 on a heading of 320°. Presumably he mistook his position abeam of Caraffa at C for over Caraffa, and then flew towards E thinking it was D.

From this last point E, the aircraft turned approximately 320° (parallel to A-13) arriving at the point of impact at approximately 1808Z.

Probable Cause

The accident was caused by a navigational error.

The following were contributing causes:

- a) the weather conditions encountered were worse than those forecast;
- b) the pilot had difficulty in receiving MF bearings;
- c) there was no anti-icing equipment on the wing surfaces.

