

Gloucester's Near Miss: The Crash of Vickers Varsity G-APAZ

by John Putley

Introduction

Forty-four years ago a twin-engined Vickers Varsity crashed in the suburbs of Gloucester, killing the two pilots onboard. The fact that it only claimed two lives was something of a miracle as the aircraft narrowly missed coming down on a city school. This famous incident made headline news all around the world thanks to photographs showing the wrecked aircraft sitting on top of a house.

Background

Originally numbered WF415, G-APAZ was a Varsity T.10 training aircraft built by Vickers-Armstrong for the RAF in June 1952. It flew with RAF Training Command until 1954 when it was placed into reserve.¹ In March 1957, it was transferred to the Ministry of Supply and sent to the Royal College of Aeronautics at Cranwell. After undergoing modifications to 'civilianise' its airframe it was handed over to Smith's Aircraft Instruments of Cheltenham. At the time, Smith's were developing a new autopilot and automatic landing system for the RAF and the company required a modern aircraft to test the avionics. The Ministry offered Smith's semi-permanent loan of WF415 and the company agreed, taking charge on 1st May 1957, when WF415 was issued with a Special Category Certificate of Airworthiness (Sub-division (g) Research & Experimental) and a civil registration, G-APAZ. The Varsity joined Smith's Aviation Division Flying Unit² at Staverton soon afterwards and quickly became the stalwart of the autoland development programme, to the point that by October 1958 it had made over 700 'hands-off' landings under automatic control. Its time with Smith's was not without incident however and the worst mishap occurred on 19 September 1961 when the undercarriage was accidentally retracted whilst the aircraft was on the ground, causing serious damage to the fuselage.³

The last flight of G-APAZ

At 0945 on Wednesday 27 March 1963, in fair weather and a light southerly breeze,⁴ G-APAZ took off from Staverton's Runway 22⁵ with Smith's pilots Kelston Thomas and Russell Palmer at the controls. The flight was the last of a conversion course that Thomas was taking to qualify him to fly the Varsity as pilot-in-command. The purpose was to test his ability to fly and land the aircraft on one engine and to do this he was to make a single-engined landing at Pershore (Throckmorton) aerodrome and a single-engined overshoot at Staverton. Both men were expert pilots with almost ten thousand hours flying time between them. Palmer (aged 39) had learnt to fly in WW2 and had flown Lancaster bombers over Germany. He later became an RAF test pilot and instructor and also held the Guild of Air Pilots and Navigators Master Pilot award. Thomas (aged 27) had also learnt with the RAF and had flown jet fighters and heavy transport aircraft before he joined Smith's as a test pilot in March 1962.

At 1000 the Varsity was nearing Pershore when Thomas and Palmer shut down the starboard engine. At 1010, the Varsity made a successful landing on Runway 21 at Pershore and ten minutes later, after restarting the engine, it took off and headed back to Staverton. A little later⁶ Thomas radioed Staverton tower to ask for permission to make a single-engined overshoot. The air traffic controller, William Johnson (Staverton's Senior Controller), gave permission and shortly afterwards, the pilots shut down the port engine. A few minutes later, G-APAZ crossed the threshold of Runway 22 at an altitude of 78m (200ft) with its port engine stopped and its undercarriage and flaps lowered. As the Varsity flew straight and level down the runway, its wheels and flaps were raised and it began climbing away. All was normal until G-APAZ passed west of Chosen Hill, when it suddenly began to turn to starboard. This was unusual as aircraft normally turned to port at this point to avoid both Robinswood Hill and flying over Gloucester at low altitude. As the Varsity passed over Barnwood at about 230m (700ft), it straightened up its turn but then its starboard engine appeared to lose power, its engine noise ceased and the aircraft began to lose height rapidly. Moments later Thomas made a final radio transmission: "*Mayday. Total engine failure. Going down on outskirts of Gloucester*".⁷

By this time, the Varsity was passing over Tredworth, flying roughly parallel to the railway along the line of Hatherley Road but losing height all the time. It passed over Linden Road at an altitude of less than 30m (150ft) after which it flew over the grounds of Ribston Hall High School for Girls, passing about 100m (300ft) east of the school buildings. It is likely that the two pilots were hoping to crash land in the playing fields of The Crypt School, which lay beyond Tuffley Avenue but a moment later the Varsity slammed into the gable end roof of No.189 Longmead on the north side of Tuffley Avenue. The impact was devastating, smashing the nose section and cockpit and killing both pilots instantly. The wings were wrenched off, with the port wing scything away to end up lying in the front garden and Tuffley Avenue (blocking it to traffic), while the starboard wing crashed between No.189 and the adjacent house. Brick, slate and wood debris scattered everywhere and when the dust settled, the aircraft ended up perched precariously on top of the building with its undamaged tail overhanging the rear (north) wall. Amazingly, there was no explosion or fire and this aided the miraculous escape of the three occupants of the house – 85-year old Florence Drury, Mrs Bertha Franklin (Mrs Drury’s home-help) and Mrs Edith Hitchins (Mrs Drury’s companion) – all of whom escaped unhurt with nothing but slight cuts and bruising.⁸ Mrs Hutchins was particularly lucky as she had been upstairs in a bedroom when the aircraft struck. The women were helped from the house by Mrs T Drury (Mrs Drury’s daughter-in-law who lived next door) and also by two RAF officers, Wing Commander R Stevenson and Squadron Leader Malloy. These two men had seen the Varsity as it had passed the RAF Offices on Eastern Avenue (now the trading estate next to the Fire Station) and realising that it was going to crash, they had given chase in a car. After helping the women, the RAF men went up into the wreck to try to help the pilots but they soon realised that there was nothing they could do, so given the precarious state of their surroundings they clambered back down to await more assistance.



Fig 1. G-APAZ rests on top of Longmead, No.189 Tuffley Avenue.
Note the complete destruction of the nose and cockpit area.

(Courtesy Gloucestershire Constabulary)

The first person to actually alert the authorities to the crash was scaffolder John Mansfield, who had been working on the roof of the *Bon Marché* in King’s Square. Mansfield (an ex-member of the Parachute Regiment) saw the Varsity losing height and realising it was going to crash, he climbed down the scaffolding and alerted a police motorcyclist. William Johnson in Staverton tower made the first ‘999’ call and he was able to provide an accurate location, thanks to another of Smith’s pilots, Keith Dougan. Dougan had taken off in Smith’s

Miles Gemini, G-AKHY, a few moments after the Varsity had completed its overshoot. Dougan had heard Thomas’ Mayday and flew straight to the scene, radioing back the precise position. As a result, the first fire engine (under the charge of Sub-Officer L Jones) reached Tuffley Avenue at 1042; only a minute or so after the crash had taken place. With aviation fuel pouring out from the wreck, the firemen immediately

began spraying the area with foam, while two off-duty police officers, PCs Curley and Williams, who arrived at the same time and went round adjacent houses to ensure that no one used any naked lights.

Sub-Officer Jones and his colleague, Fireman M Moon, then went up into the wreck and, helped by the RAF officers who undid the seat harness, recovered the body of Palmer who was still in his seat. Thomas had fallen free and lay on the house's front bedroom floor. The bodies were lowered to the ground on stretchers and both men were pronounced dead by a passing GP, Dr Neill. Gradually, more Police began to arrive, as did numerous onlookers and it wasn't until soldiers of the Royal Corps of Signals at Robinswood Barracks



Fig 2. The crash site viewed from the Memorial Gardens.

This view makes Mrs Hutchins escape seem all the more miraculous. Note the damage to next-door's roof – but also the intact cold frame in the garden.

(Courtesy Gloucestershire Constabulary)

arrived that the police were able to establish a cordon and keep the crowd back. One official visitor was the Gloucester City Surveyor, Mr Pollan, who subsequently contacted Netheridge Pumping Station to warn them that aviation fuel was being washed down the sewers.⁹ The fire brigade then secured the fuselage with ropes (passing them through the house) as the breeze had increased causing the Varsity to rock to and fro. Overnight police and soldiers stood guard to deter souvenir hunters and also guard the Varsity's classified autoland avionics.

Recovery and Investigation

The next morning, an RAF salvage team from No.71 Maintenance Unit (MU) at Aston Down arrived to start the recovery operation. They were joined by a crane and recovery vehicles (including two 'Queen Mary' low-loader transporters) from No.7 MU at Quedgeley and also by a team from RAF Bicester. Before they started work, the Air Ministry's Accident Investigation Branch (AIB) inspectors visited the crash site. The Ministry had been alerted to the crash soon after it had occurred by Air Traffic Controller Johnson¹⁰ and the duty inspector, Mr R C Warren and an assistant had travelled to Gloucester overnight. They undertook a survey of the crash site, concentrating on the Varsity's cockpit and its instruments. After they left, the RAF teams began work and the first piece of wreckage to be removed was the port wing (not the starboard wing as reported in *The Citizen*), which was craned onto a transporter around 1000 and taken away to temporary storage at Staverton. This was followed by the starboard engine, which had been wrenched free from its mounting and had ended up in the front garden. The starboard wing could not be moved because of the fear that the wall it was leaning against would collapse. Later that morning the City Coroner, Brian Wellington of Wellington & Clifford, solicitors, opened and adjourned an inquest into the deaths of the two pilots at the firm's offices at 57 Westgate Street.

By mid-afternoon, the only remaining wreckage was the starboard wing and the fuselage. The RAF had nothing that could lift the latter in-situ, so the Air Ministry turned to civilian contractors and the only firm

with a suitable crane was G. W. Sparrow & Son Ltd of Bath (which by coincidence had a branch in Gloucester at Monkmeadow Dock). The crane was an American Lorain crane which, with an 80m (240ft) long jib on a 9.7m (32ft) long, 12-wheel chassis, was the largest motorised-crane in Europe and capable of lifting 70-tons. This monster left Bath with a three-man crew and a police escort early on Thursday morning and reached Gloucester in the late morning. In the meantime, Mr D Moon of Sparrow's Gloucester branch went to Tuffley Avenue to plan the operation. The only suitable lifting position was the Memorial Gardens of Rest that lay behind Longmead to the east and on arrival, the crane was driven through the grounds of Ribston Hall School and manoeuvred into the gardens (the wall and school fence being demolished to allow it access). Once in position, two thick webbing slings were placed around the Varsity's fuselage and then attached to a large spar beam hanging from the crane's jib hook. Several guide ropes were also secured to the airframe to help control any yawing of the fuselage during the lift. By the time the crane began lifting, a large crowd of spectators had gathered to watch. The lift proceeded extremely slowly due to the danger of the house collapsing but despite some debris falling when the fuselage came off, it went smoothly. Three hours after it had begun, the Varsity's fuselage was finally lowered onto an RAF Queen Mary low-loader. The RAF salvage team had to remove the tailplane before the loader could move off but as this was not finished by nightfall, the Varsity remained in Tuffley under guard for another night.

By noon on Friday, the fuselage and tail section had been taken to Staverton and work to secure the end wall of the house allowed the recovery of the starboard wing. An Air Ministry insurance assessor also



Fig 3. The crash site viewed from Tuffley Avenue.

As fireman smother the area with foam, the damage sustained by both the house and the aircraft are clear from this angle.

(Courtesy Gloucestershire Constabulary)

visited the site and estimated that the salvage operation had caused £90 worth of damage.¹¹ Later in the day, the Coroner received post-mortem reports on the pilots from the Gloucester Pathologist. As the injuries were consistent with having been caused by the crash, the Coroner released the bodies for burial.¹² Although Russell Palmer lived in Up Hatherley, he was not buried in Gloucestershire. The reason was that after the crash, Daphne Palmer had gone to stay with her mother in Felixstowe and had subsequently decided to remain so she had requested that her husband's body be sent to Suffolk. The following day, 30 March 1963, Russell Palmer was buried in the churchyard at

St Peter & St Paul's Church in Felixstowe. Unfortunately it is not known where Kelston Thomas was buried or interred. The most likely place is the Arnos Vale Cemetery in Bristol, which was the nearest cemetery to his family home, but the burial registers are currently unavailable for legal reasons.

Air Ministry & Gloucester City Coroner Investigations

A day or so later, the Varsity's wreckage was sent to RAF Aston Down, where Air Ministry assessors began work to determine the cause of the crash. The first vital clue they found was that the engine idle cut-off actuators for both engines were in the closed position. These controlled the flow of fuel to the

engines and as the switches in the cockpit had been set to the 'OFF' positions (as noted by Inspector Warren at the crash site), it confirmed that the crash had not moved the switches and that the pilots had physically selected the 'OFF' positions.¹³ Both engines were later sent to Bristol Siddeley Engines Ltd where a full strip down inspection was performed. This concluded that no mechanical fault had caused the engines to fail and also revealed that neither engine had been under power at the time of impact.

On the afternoon of 2 April, the Air Investigation Branch convened a hearing at the New Inn in Northgate Street, Gloucester to collect statements. A total of 17 witnesses were heard including housewives, schoolteachers and pupils, engineers, policemen, RAF officers and others.¹⁴ Also present were legal representatives for Kelston Thomas' family (W C Davey Son & Jones, Cheltenham), Smith's (who also acted for Russell Palmer's family) and the Varsity's insurers (Cartwright, Taylor & Corps). Two weeks later, on 18 April, the Gloucester Coroner



Fig 4. The port engine and debris from the impact fill Longmead's front garden.

(Courtesy Gloucestershire Constabulary)

re-opened the official inquest at the Magistrate's Courthouse in front of a seven men jury. Since the adjournment, the Coroner had taken numerous statements from witnesses, but only 17¹⁵ were called to give evidence. With an eye to what might have occurred, the Coroner asked Keith Dougan and William Johnson how common single-engine overshoots at Staverton were. Dougan replied, "*This was a special occasion. It is not usual*",¹⁶ but Johnson contradicted this by saying that he didn't think overshoots on Runway 22 were unusual.¹⁷ This was not discussed further and the inquest ended the following day when the jury returned a verdict of accidental death on both of the pilots.

The Cause of the Crash

The report into the crash of G-APAZ was published by HMSO on 14 February 1964, though the Accident Investigation Branch had passed the finished report to the Air Ministry in November 1963. This resulted in the Air Ministry issuing two Civil Aviation Circulars or NOTAMS (Notices to Airmen) concerning safety when single-engine flying on twin-engine aircraft.¹⁸ The investigation had concluded that the cause of the crash was that the fuel to the starboard engine had been shut off. This occurred when the two pilots were in the process of trying to restart the stopped port engine and it appears that instead of switching the port engine idle cut-off switch to run, they moved the starboard switch to off by mistake. As soon as they had done this, the outcome was assured for as the fuel left in the fuel lines was used up – a process that took about two seconds - the engine simply died and, being at such a low altitude and with so little velocity, the pilots did not have enough time to try and determine the problem, rectify it and restart the engines. The report made it clear that there was no way of knowing which man had made the mistake. It also stated that the design of the engine panel instruments could be revised. The most crucial of the revisions was the removal of the cut-off switch finger guards, which although supposed to prevent

accidental operation of the switches, prevented easy viewing of the position of the switches. This contradicted an Air Ministry instruction of March 1957 that ordering the fitting of finger guards to new Varsitys because of a few incidents when the switches had been accidentally moved causing engines to stop.¹⁹

Conclusion

There can be no doubt that the Air Ministry's investigation reached the correct conclusion and that the crash of G-APAZ was caused by pilot error. In general, the Varsity was a fairly safe aircraft and of the 163 built, only 17 have been lost through accidents, with all except three being RAF training aircraft. Russell Palmer and Kelston Thomas were popular, well-respected members of the local aviation community and their deaths were a tragic loss and a great shock. The two men were also excellent pilots and if they not been then it is likely that the Varsity would have crashed earlier than it did – probably in the streets of Tredworth where the death toll would have been much greater. As dramatic as this incident was, it could so very easily have been far worse.

Acknowledgements

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References

¹ The operational movements and career history of WF415 can be found on Air Ministry Form 78.

² See Ellis, 1990 for an account of Smith's Aviation Division Flying Unit.

³ Civil Aviation Accident Report Airframe History and Technical Log (National Archives, AVIA101/335).

⁴ Civil Aviation Accident Report Branch Investigation No.EW/C/014 (National Archives AVIA 101/332).

⁵ Runway notation is in degrees, rounded up to the nearest 10° with the last zero removed.

⁶ The timing of events leading up to the crash are very vague and few times are given in any of the main sources.

⁷ Coroner's Inquest statement, Gloucestershire Archives CO6/1 March 1963.

⁸ *The Citizen*, City Final edition, 27 March 1963.

⁹ *Ibid*

¹⁰ *Op.cit* AVIA 101/332.

¹¹ *Op.cit* AVIA 101/335. This was as follows: £30 to the house's rear fence; £20 to the front fence and hedge; £20 to the pavement and £20 to the memorial gardens and Ribston Hall school fence.

¹² *Op.cit* Coroner's Inquest. Smith's had stated that burial was preferable.

¹³ *Op.cit* AVIA 101/332.

¹⁴ *Op.cit* AVIA 101/336. The witnesses were: C Kay (Smith's), K Dougan (Deputy Chief Pilot, Smith's), W Johnson (Staverton ATC), D Close (Pershore ATC), D Rigby (housewife, Churchdown). R Curly (Gloucestershire Constabulary), Wing Commander R Stevenson (RAF Innsworth), G Davy (Fireman), M Rodway (School Mistress, Ribston Hall), R Wright (School Mistress, Ribston Hall), H Symonds (Estate agent), F Holyhead (Garage attendant), T Daniell (scholar), F Lawrence (Fireman), D Holbrow (Insurance agent), J Menher (Traveller) and J West (Engineer).

¹⁵ *Op.cit* Coroner's Inquest. The witnesses were: D Brown (Smith's aero-engineer), Guildford Thomas (K Thomas' father), Charles Kay (Smith's Head of Aircraft Maintenance), Keith Dougan (Smith's Pilot), William Johnson (ATC Staverton), PC R Curley, PC G Tunnicliffe, John Mansfield (scaffolder), F Lawrence (off-duty Fireman), F Holyhead (garage attendant), J Meaker (Gloucester), R Hodges (Stroud), B Holbrow (Stroud), Sgt R Selway (Innsworth), Sub Officer L Jones (Fireman), Fireman M Moon (Fireman) and Dr E Davey (Pathologist).

¹⁶ *The Citizen*, 19 April 1963.

¹⁷ *Op.cit* Coroner's Inquest.

¹⁸ NOTAM No.53/1963 and NOTAM No.95/1963.

¹⁹ *Op.cit* AVIA 101/332. Air Ministry order AM A.999504/9/Air Eng.1g.