

The accident that made Australian history - 70 years ago

(Written by Macarthur Job in October 2008)

Australia's system of air traffic control had its origins in a fatal accident to an airline DC-2 in 1938. With the 70th anniversary of that seminal event now imminent on 25th October, Macarthur Job looks at the circumstances of the disaster itself.

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Air travel was becoming the fashionable way to go for Australia's elite in the late 1930s. State-of-the art, all-metal airliners were replacing the plodding, fabric-skinned Avro 10 tri-motors and DH.84 Dragon biplanes that had pioneered inter-capital routes several years before. Slashing previous timetables, the new Douglas DC-2s, DC-3s and Lockheed 10s were changing the whole concept of going by air.

Speed was not the only gain. Past fatal accidents had fostered the belief that air travel was venturesome, to be undertaken only in extreme urgency or by the foolhardy. But the new aircraft seemed to have brought safety as well as comfort. For those to whom time was important, going by air was becoming the desirable option.

'The improvement in air services throughout the populated parts of Australia is astonishing,' one writer enthused. 'When the Civil Aviation Board's plan for ground aids is in full working order, it will be difficult to fault Australian aviation...'

The 'ground aids' were to be a chain of VHF radio ranges, enabling accurate air route navigation regardless of weather. In the meantime, ground stations equipped with M/F Bellini-Tosi radio direction finders, similar to those used for ships at sea, were available to give pilots bearings.

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Australian National Airways' DC-2, VH-UYC *Kyeema* (an aboriginal name meaning Dawn), was scheduled for a return service between Melbourne and Adelaide on the morning of Tuesday October 25th 1938.

The flight to Adelaide was uneventful. *Kyeema* was refuelled, and the 14 passengers booked to Melbourne boarded the aircraft. They included a prominent Member of Parliament on his way to Canberra, legal counsel returning to Sydney after appearing at a Royal Commission, and South Australian wine industry executives travelling to a meeting of the Viticultural Council. With its crew of four, the DC-2 took off at 10.55am, South Australian time.

Two hours later, a fuel merchant, stacking firewood in the bush a few miles north of the small town of Daylesford in central Victoria, watched the DC-2 as it droned its way towards Melbourne. High up in fine weather, it passed well north of its usual route.

Meanwhile, at Melbourne's Essendon airport, radio operator Bill Lauder-Cridge was busy monitoring aircraft letting down through the local overcast conditions. Though it was now early afternoon, cloud still hung low over the city. The wall clock showed 1.30pm when the call he was expecting crackled in his headphones.

'*Kyeema* calling Essendon. Passing Daylesford, altitude 7000 feet, course 110 degrees.'

He read *Kyeema* the latest weather observations: cloud at 1500 feet in the Melbourne area, extending to 4000 feet. The wind was a light southerly.

'Weather received OK,' the captain replied. 'We may require a bearing from you later. We're about to enter the overcast at 4000 feet.'

Another call came on the air, an Ansett Lockheed 10 reporting position en route from Hamilton in western Victoria, its strong signal jamming a further transmission from *Kyeema*.

Lauder-Cridge called the DC-2 again: 'Did you call for a bearing? I was working Ansett's Lockheed.'

'Yes, *Kyeema* replied. 'What is your barometer, please?'

'Barometer 29.88,' Lauder-Cridge responded. 'If you want a bearing, keep your transmitter on.'

The DC-2 acknowledged the call but its transmitter did not remain on. Apparently they didn't need a bearing after all. Then Lauder-Cridge was busy again. A Dragon Rapide, inbound from King Island in Bass Strait, approached below the overcast and landed normally. But there was still no sign of *Kyeema*. Puzzled, Lauder-Cridge called the DC-2 again: '*Kyeema* what is your position? Transmit while I take a bearing.'

Silence.

A minute later, the DC-3 *Kurana*, inbound from Sydney, called with a position report. 'Where is *Kyeema*,' its crew enquired.

Lauder-Cridge asked them to try calling the DC-2 themselves. Again there was no response.

Concern creased Lauder-Cridge's brow. *Kyeema* could not have been far out when it last transmitted. If anything was wrong, why hadn't they called for help? The radio officer telephoned the little wooden control tower on the opposite side of the airfield. 'We've lost contact with *Kyeema*,' he reported.

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Bob Logan had lived all his life on Mt Dandenong, a steep-sided, thickly forested 2500-foot outcrop 25 miles east of the city. But the fog today was as bad as he'd ever seen it. Rarely did it persist like this. With his mate Tom Murphy, he'd spent the morning clearing undergrowth from the side of Ridge Road. Now it was getting on for two o'clock, yet the tops of the tall trees were still invisible.

In the eerie quiet both men became aware of the distant whine of an aeroplane approaching from the west. It seemed to be getting louder. Who could be flying in these conditions?

The noise grew in intensity. It was a big one all right - and getting nearer. The engine noise became a roar. Gripped with apprehension, Logan waited, his mind knotted with fear. Suddenly the noise was overlaid by a loud metallic screeching; an instant later there was a sickening smash, then came a tremendous explosion that shook the ground beneath their feet.

Logan dropped his pick and began to run, Murphy hard on his heels. Crossing the road, they ran on through the fog towards the edge of the mountain, a strong smell of burning guiding them. Fifty yards ahead, just a little way down the steep slope on the western side, angry orange flames were leaping up into the tree canopy.

As they scrambled down the rock-strewn mountainside, an appalling sight met their eyes. Except for the tail, and wing sections sheared off by trees, the wreckage of a great aeroplane was burning fiercely, clouds of black oily smoke billowing into the fog. Looking out to the west, they could see where it had lopped off the treetops before shattering itself against the mountainside.

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News of the tragedy shocked the nation, airline pilots roundly condemning the Civil Aviation Board for its failure to commission the VHF radio range installed at Essendon 18 months before. It had been 'common talk' that it was only a matter of time before a crash of this sort occurred, they said. Several crews had experienced very close shaves.

'It is an astonishing thing that the beacons were not in use long ago', declared Mr J V Fairbairn, MP, a former World War 1 pilot who regularly flew his own twin-engine DH90 Dragonfly between Melbourne and Canberra. The president of the Royal Aero Club of New South Wales, another former wartime pilot, said he would no longer travel as an airline passenger without an adequate ground organisation. 'One might as well travel on railways without signals, or navigate perilous waters without lighthouses, charts or soundings' he told the press.

A highly embarrassed Minister for Defence (at that time responsible for civil aviation), declining to answer questions, announced a full inquiry would be held without delay.

But the uproar continued. 'The public will not be satisfied with investigation by those who are associated in any way with the responsible Department,' thundered the Melbourne *Herald*. 'The Inquiry should be made by a tribunal entirely independent and beyond any suspicion of bias.'

Mounting pressure forced Prime Minister Mr Lyons to appoint two independent members to the Air Accidents Investigation Committee - Colonel Edmund Herring, DSO, KC, an eminent barrister, and distinguished pilot, Captain P G Taylor, GC, MC. And the Committee would be vested with the status of the High Court.

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The Inquiry established that the weather was excellent for the greater part of *Kyeema's* trip. But in the Melbourne basin, the sky was overcast.

Letting down in cloud, the DC-2 passed to the north of Essendon, continuing on the same heading until it crashed into Mt Dandenong. The accident occurred for no other reason than the aircraft overshot Essendon and hit the mountain at the very time its crew were expecting to break out over the airfield.

But Mt Dandenong was 20 nautical miles beyond Essendon. How could an experienced crew make such a gross error? Analysis revealed a navigational discrepancy during the latter part of the trip. The DC-2 was due over Daylesford at 1.25pm. But the crew's 'passing Daylesford' report was not transmitted until seven minutes later. During that time the DC-2 would have travelled at least a further 20 miles.

The position report was probably given, not at Daylesford as the crew believed, but over Sunbury, nearly 20 nautical miles closer to Essendon. Glimpsed momentarily through a break in the cloud, Sunbury could be mistaken for Daylesford.

In fine weather for the greater part of the trip, the crew evidently did not keep an accurate navigation log and with no ETA for Daylesford to prompt them, apparently missed sighting the small town. (** See footnote) This set the stage for misidentifying their position when they encountered cloud several minutes later.

The last chance to save *Kyeema* was lost when its request for a bearing was jammed by another transmission less than five minutes before the crash. Using the direction finding system, it took a radio operator at least a minute and a half to give a pilot a bearing. If radio reception was poor and several aircraft were demanding bearings at once, it could take much longer.

It was for this reason that the new radio ranges, providing continuous navigational guidance without the intervention of a ground operator, were essential for the new generation of 'high speed' airliners now operating in all types of weather.

Investigating reasons for the appalling delay in commissioning the radio ranges, revealed a minefield of bureaucratic vacillation. Politicians and bureaucrats alike had consistently failed to understand that calibrating the beacons with an aircraft of similar performance to the airliners was essential before they could be placed in service.

The Civil Aviation Board had repeatedly attempted to induce the Government to buy a Lockheed 12 to calibrate the beacons. Twice refused approval to buy anything but an unsuitable British aeroplane of wooden construction, the Board tried again, pointing out that 'a suitable aircraft was considered most urgent.' The letter was returned, noted by the Minister, 'Defer for present, resurrect after election.'

Then began protracted negotiations to hire a Lockheed, first from Associated Airlines, and then from Guinea Airways. But at every step, the Civil Aviation Board's Finance Member objected to the hire costs being quoted.

In February 1938, the Board's Superintendent of Flying Operations wrote: 'The immediate acquisition of an aeroplane is imperative. The matter has now been under consideration for more than 12 months.' Ominously he concluded, 'It would be a matter

for concern, if during the coming winter, the delay in establishing the beacon system results in even one serious accident.'

Procrastination and argument continued to drag on for months. Only four days before the *Kyeema* tragedy, the Board's Finance Member 'noted Guinea Airways' reduced offer of £10 a hour.' But still he objected that quoted costs for 'repairs, maintenance and depreciation were definitely high.'

Overall, the *Kyeema* accident demonstrated that technological advances in aircraft performance were of doubtful value without corresponding progress in ground support systems. In contrast to the limitations of the unwieldy Bellini-Tosi radio direction finders, Essendon's new VHF radio range would have enabled *Kyeema* to simply follow its 'beam' until the signals indicated it was over the airfield. 'The safety of the public demands that (navigation) aids should be provided,' the Inquiry declared. And if there had been some system for checking *Kyeema's* progress, its erroneous Daylesford position would have been suspect.

The Inquiry's report was tabled in Parliament during December. Describing the accident as 'one of the most serious in the history of regular air transport', its recommendations were to have far-reaching consequences. The loss of *Kyeema* would in fact become a watershed in Australia's civil aviation development.

Out of it came immediate action to equip Australia's airways network with a chain of radio ranges giving pilots instant and accurate navigational information. The recommendation to establish a Flight Checking System heralded the birth of Australia's system of Air Traffic Control - one that in time would be regarded as the safest in the world.

Most significantly of all, the airline industry's importance to the nation was to be accorded the recognition it now merited. Replacing the old Civil Aviation Board as a subsidiary of the Department of Defence, a new Department of Civil Aviation was created. That Department, in the years to follow, would oversee the development of Australian aviation to a position of eminence and respect throughout the world, setting in place the foundations for a dependable and safe industry.

Australians today are justly proud of their airways system and take safe airline flights for granted. But any highly efficient system has within it the seeds of complacency. Forty years have now elapsed since the nation's last major airline disaster to a Vickers Viscount near Port Hedland in Western Australia. The period has been accident-free *because* of what previous costly experience showed to be necessary. The *Kyeema* story is witness to the truth that we forget the lessons of history at our peril.

*** Though unrecognised by the Inquiry at the time, a factor that could have contributed to the crew's misidentification of Kyeema's position was the altitude at which it had been cruising - 11,000 feet. Today, without the provision of supplementary oxygen, this would be illegal, because of the subtle nature of anoxia. For many years now, 10,000 feet has been the maximum cruising altitude at which civil aircraft, unpressurised or not equipped with a supplementary oxygen system, may fly. It is thus possible that Kyeema's crew were mildly affected by anoxia without realising it, effectively reducing their alertness.*