



# When I Think Back...

by Neville Williams

## 'Smithy' and the Southern Cross -1 The vital supporting role of two-way radio

If the epic flights of (Sir) Charles Kingsford-Smith helped show the way for today's national and international airlines, they also served, with the co-operation of contemporary 'wireless' amateurs and enthusiasts, to demonstrate the dependence of all such services on two-way radio communication and direction finding. But let's turn back the clock to the period before wireless became airborne.

In so doing, I should perhaps acknowledge initial prompting and assistance in the preparation of this article by Aub Topp, **VK2AXT**, librarian of the NSW Division of the Wireless Institute of Australia. Having researched the subject for a number of **WIA** Sunday morning broadcasts, he lists the following references in amateur radio literature: *QST* for August 1928, p.21; *Break In* for July 1979, p.280; *Popular Radio & Aviation* for May 1929, p.10; and *Break In* for March 1972, p.55.

In respect to dates, details and continuity, my task was simplified when I came across a paperback biography entitled *SMITHY, the True Story*. Written in 1976 by Ward McNally, it was purportedly based on information supplied by Mrs Mary Tully, the former Lady Kingsford-Smith; Mr Graham Kingsford-Smith; and others who knew Smithy personally, including the late Sir Gordon Taylor.

For the illustrations, and extracts from the *Sydney Morning Herald* I am indebted mainly to the John Fairfax Group, Sydney, while the *Macquarie Book of Events* provided a handy cross-reference to people, times and places.

In actual fact, I needed little prompting to 'Think Back' on this particular subject, having been fascinated by aeroplanes from boyhood. Heaven alone knows how many toy biplanes I whittled from scrap wood, and how many hours I spent poring over the pages of the technically orientated *Modern Boy magazine*. I still remember their adventure serial, based on the exploits of an English school kid who had unlikely access to an ancient Farman biplane.

And I was delighted beyond measure when the authorities, whoever they were, carved an emergency landing strip out of the bush a few hundred metres from our family home, in **Bargo** on the NSW southern highlands. About 80-odd kilometres south-west of Sydney, it became a staging point for pleasure flights and trainee pilots and every kid in the district would race to the strip on their bikes for a closer look whenever a plane landed.

One even obliged by stalling above the town and executing a genuine upside-down crash landing, after not quite clearing the treetops!

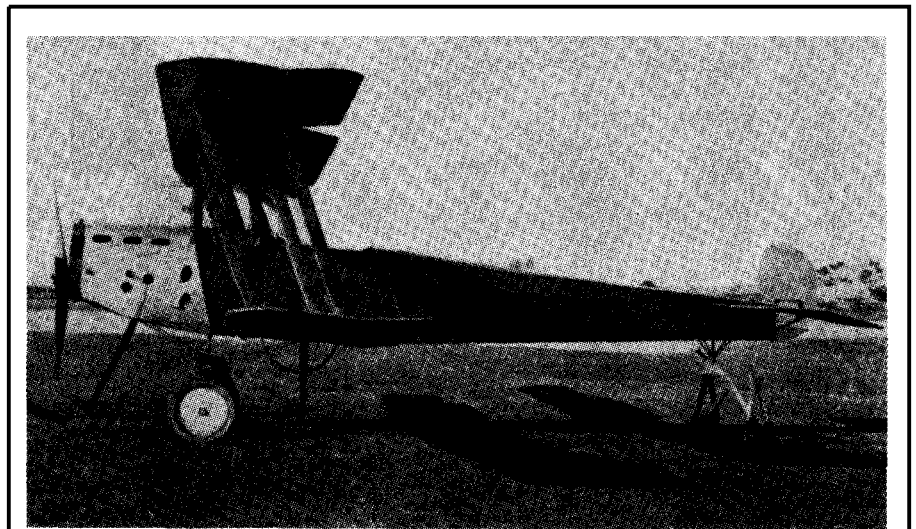
One of the visiting pilots turned out to be a distant cousin, and at his invitation,

our family met up with him a few weeks later at Sydney's Mascot aerodrome. There, my kid sister and I were strapped into the second cockpit of a traditional biplane, for an all-too-brief flip around the area.

Years later, I was the guest in an ancient twin-engined De **Haviland** DH-84 biplane on shark patrol, as it lumbered off the same 'drome and circled Sydney's major surf beaches.

When I mentioned this to **EA's** former amateur band correspondent, Pearce Healy, he warned me not to confuse the DH-84 with the DH 'Dragon **Rapide**', which had tapered **wingtips**, as compared with conventional square tips on the -84.

He knew, he said, because, as a long-



**Fig.1: One of the first planes ever to be assembled in Australia, by AA&E in Mascot: the Avro 504/Dyak with a water-cooled Sunbeam engine and duralumin-covered steel-frame wings. It was in biplanes like this that Smithy honed his skills.**

time employee of De Havilland in Bankstown NSW, he had been involved in producing the first-ever set of wings for locally made DH-84s!

### A grassy paddock...

As I recall Mascot aerodrome in the mid 1920's, it was just another grassy paddock, reached by an unsealed road and bordered by a post-and-wire perimeter fence and a pipe-and-wire vehicle gate. You left your Dodge or Hupmobile or T-model **Ford** on the grass fringe outside and wandered in to look around.

As I remember, there were no aircraft parking aprons, taxiways or sealed runways and no pretentious buildings — just a collection of fibro and corrugated iron structures that would not have been out of place on a rural property. The smaller ones were presumably private hangar/workshops. **With** hindsight, one of the larger ones could have been the Australian Aero Clubhouse; another, a factory where AA&E (the Australian Aircraft & Engineering Co Ltd) assembled and serviced Avro designed aircraft.

From *Sea, Land & Air* magazine (April 1, 1921) I gather that, by then, the above factory had been operational for about nine months, adopting what had formerly been a cow paddock as an aerodrome, with one side fringing a river on which it would have been possible to land seaplanes.

At the time the *Sea, Land & Air* article was prepared, using components imported from A.V. Roe & Co in the UK they had assembled two **Avro 504-K** biplanes with Le Rhone (110hp) engines, and two others with **Clerget** (130-hp) engines. They were also in the course of completing four Avro 504/Dyaks, differing from the others in the use of a Sunbeam 100hp water-cooled engine and steel-frame wings covered with thin duralumin sheets (Fig.1).

According to the author, AA&E had successfully fabricated some components including propellers from Australian materials and, for outback use, had devised a handyman repairable wood-based landing gear and an engine 'cranking' handle, similar to that fitted to cars, in the cockpit in front of the pilot. My mind boggles!

Mascot was still home for planes of this general ilk in the mid-1920's: ordinary 'moths' with a single pair of wing struts on either side of the fuselage, and 'big' ones with two sets of struts on either side.

There were no large planes in sight on the day our family chugged up to the gate in our old 501 Fiat. We looked up war ace 'Bunny' Hammond, whom we had met on



**Fig.2: At the end of World War I, Smithy was demobilised from the RFC as a Captain (Training), with a Military Cross earned over the battlefield of Europe. At the time of his death he was recognised as Air-Commodore.**

our local landing strip; but of the already notable Charles Kingsford-Smith there was no sign.

Perhaps it is appropriate to add, with hindsight, that I would have found little or no wireless equipment on the one-time cow paddock that was to become Sydney's principal airport — now con-

gested with electronics. Within the planes, communication was by hand signals, notes or speaking tube; communication with the outside world was non-existent — or at best, visual.

I recall an experimental night mail flight that was arranged about this same time to some destination south of Sydney.

## WHEN I THINK BACK

In the absence of electric power, and as the local garage proprietor, my uncle was commissioned to set up oil drum flares around the Bargo landing strip.

At a certain time on the appointed night, he had to light sufficient flares to identify the strip for the approaching plane. If the pilot gave any indication that he wished to land, the remaining flares were to be lit without delay!

But enough of my ramblings. Sufficient to say, that this was the world of aviation in which the redoubtable Kingsford-Smith grew up and gained his wings.

### Born unhyphenated

According to Ward McNally, the future aviator was born in Brisbane to Mr and Mrs William Smith in February, 1897. Their sixth son, he was baptised as Charles Edward Kingsford.

Five years later, the family moved to Canada, where they found themselves in a street with seven other families by the name of Smith.

To avoid confusion, they added their youngest son's christian name to the family surname — so that he became Charles Kingsford-Smith, a name retained throughout adult life.

When the family returned to Australia, 'Chill' ultimately attended Sydney Boys' Technical High School, representing his school in both football and tennis. On leaving school, he found work with the Colonial Sugar Refining Co as an apprentice electrician, becoming a reportedly speed-crazy motor cyclist at about the same time.

Prevented from joining the armed forces until his 18th birthday, he ultimately enlisted in the AIF and underwent training in Singleton, NSW. He was thereafter drafted to Egypt and Gallipoli — ending up, after evacuation from Gallipoli, as a motor cycle despatch rider in France. He was so obviously at home on a machine that he was selected to train as a pilot for the RFC (Britain's legendary Royal Flying Corps).

Writing home to his parents, he said, *inter alia*: "I have already discovered one thing about flying ... that my future, for whatever it may be worth, is bound up with it. Flying has a great future, just you wait and see."

After a period of service as a combat pilot, during which he was awarded the Military Cross by King George V in person, Flying Officer Charles Kingsford-Smith was appointed as a flight instructor. This was before his 20th birthday. Perhaps it was just as well.



**Fig.3: This montage was prepared by TAA in 1962, on the 34th anniversary of the trans-Pacific flight, to draw attention to the fact that the Australian Government airline had carried its 50,000th passenger. They, along with ANA and others had given practical expression to the dream of Smith, Anderson and Ulm.**

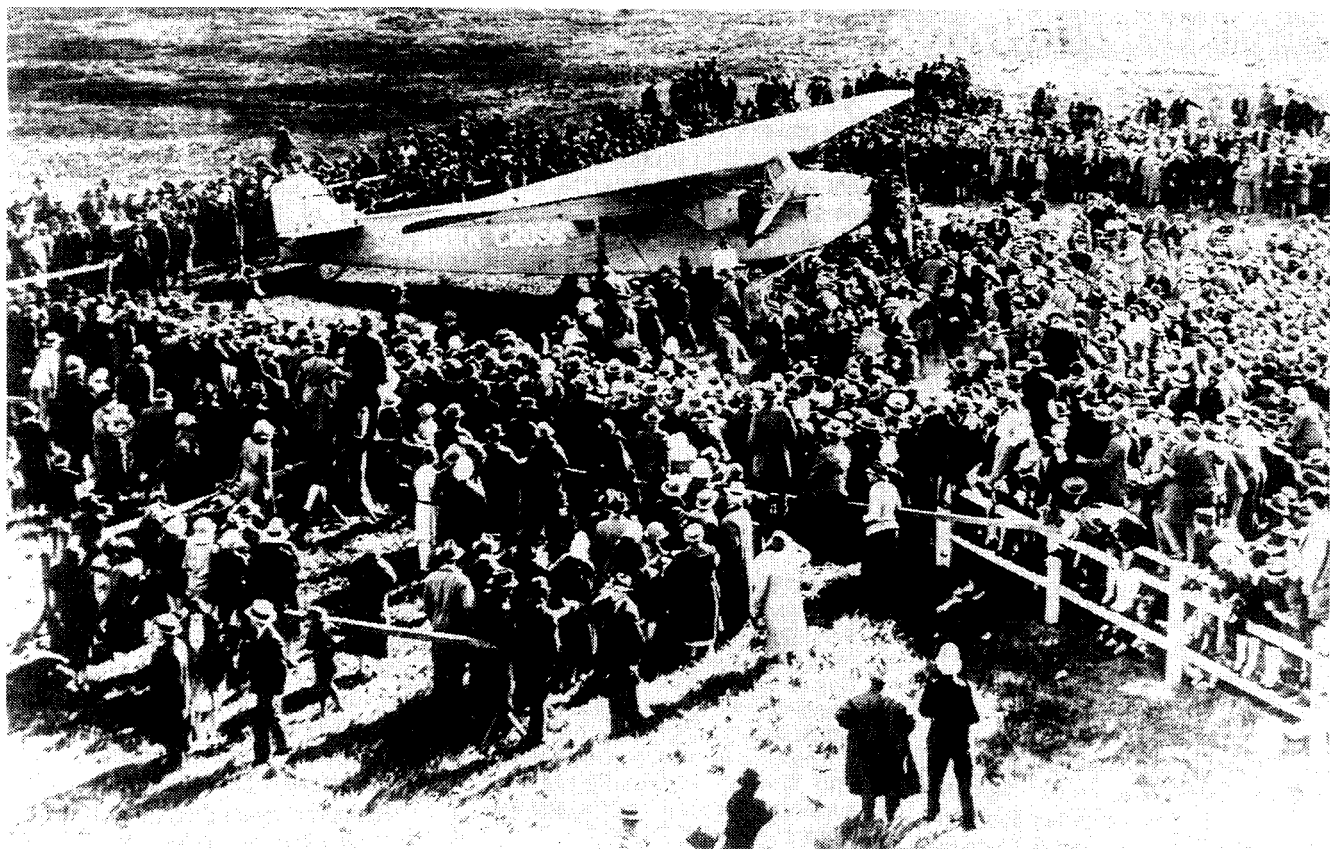
While he found the life of a combat pilot to be one of excitement and challenge, he professed to being sickened by the wholesale slaughter, particularly when he had been called upon to strafe enemy columns on the ground. Aerial combat, man to man, was one thing; seeing his machine gun bullets ripping into men on the ground was quite another. It haunted him.

At the end of 30 weeks, he was granted leave to revisit his homeland and, wearing the first heavily braided RFC uniform to

have been seen in Australia, attracted immediate attention. He soon tired, however, of being cast as a recruiting role model and became impatient to rejoin his unit in England.

Ironically, however, and perhaps with intent, he was despatched to Britain via the USA, which had just entered the war.

Once again he became the centre of attention; but having in mind the implications of America's welcome involvement, Kingsford-Smith went along with the recruiting rallies and even vowed to



*Fig.4: Welcome home! Arrival of the Southern Cross at the Eagle Farm aerodrome in Brisbane, at the end of its epic flight across the Pacific in 1928.*

return when the Kaiser had been put in his place.

Back in England, with the rank of Captain-instructor, his job was to test and lecture the graduating pilots at the various training centres — an assignment to which he was eminently suited.

### Back in Civvy St

In November 1918, it was all over. But just when Kingsford-Smith was to return to Australia, he linked up with two other Australian pilots, Rendle and Maddocks.

Between them they bought a couple of surplus DH6's and went into the charter flight business. It wasn't a success, however and the three friends decided that their best bet was to trade-in their DH6's on a twin-engine Blackburn Kangaroo — in order to go after the £10,000 prize being offered for the first British aircraft to fly from England to Australia in less than 30 days and before December 31, 1919.

Unfortunately, for reasons best known to himself, Australia's then Prime Minister Billy Hughes ruled out their nomination.

This left 'Smithy' with a deep resentment and a near obsessive determination to demonstrate pilot skills that Hughes

had so publicly questioned. It was the first of several set-backs which he was to receive at the hands of Australian politicians.

As it turned out, the prize went to two other military pilots, Ross and Keith Smith, with J.M. Bennett and W.H. Shiers, who covered the distance in a Vickers Vimy in 29 days, arriving in Darwin on December 10.

Three weeks later, Smithy was back in the USA, virtually broke and looking desperately for a flying job. The only one available was as a freelance stand-in and stunt pilot, principally for the Universal Studios in Hollywood.

It proved to be a scary job, even for an ex-fighter pilot and Smithy came uncomfortably close to death when he was required to climb out of the cockpit of an Avro biplane and dangle from the wing, hanging onto a strut.

Distinctly disillusioned, he was glad to exchange the job for a place in a 'flying circus' — especially when he saw a fellow stunt flyer incinerated nearby after a crash. Death on the battlefield was something one had to accept; death on a movie lot was something else.

The flying circus might have been a success, except that its promoter 'shot

through' with the takings. So it was that an even more disillusioned former RFC Captain found himself back in his homeland, with only two American dollars in his pocket — this time with a burning ambition, somehow, to establish Australia's first commercial airline.

But it wasn't to be, because on his arrival he found that an old friend from the RFC, Lionel Lee, had already established the 'Diggers' Aviation Co Pty Ltd'. Unwilling to set up in opposition, Smithy sought and was given a job with 'Diggers', barnstorming around country shows for whatever wages the enterprise could afford to pay.

Following a couple of minor mishaps they parted company and Smithy joined West Australian Airways, which had been founded in November 1921 and granted a mail contract servicing major centres north of Perth.

For Smithy, the new job fostered an affinity for 'outback' communities, and developed his skills at flying long distances 'against the clock'. It was also at WA Airways where he met Keith Anderson, a younger but highly skilled pilot, who shared his emerging ambitions to blaze new trails and establish new records in the process.

## Rocky road to fame

Sensing their enthusiasm, WA **pastoralist** Keith Mackay offered to back the two men for a trans-Pacific flight. But ironically Mackay was killed when a charter plane crashed on his way to Perth to get the project under way.

Smithy and Anderson reacted to the news by resigning from WA Airways and taking over a promising garage and cattle-trucking business based at Carnarvon in WA. The venture exposed them even further to the rough-and-tumble of outback living and saw Smithy married, if only briefly, to his first wife Thelma. They were a popular couple but incompatible and separated without recriminations.

(Five-odd years later, Smithy was to meet Mary Powell on a return voyage from Britain to Australia. She subsequently became his second and very supportive wife and, ultimately, Lady Kingsford-Smith.

She bore him a son, Charles junior, who was too young to have known his father in person. Some years after her husband's death, Lady Mary married a Canadian businessman Allen Tully, becoming a resident of the USA and Canada).

But, if Smithy's first marriage didn't prosper, the trucking business certainly did. When sold in November 1925, it yielded enough for the partners to make a down payment in Perth on two Bristol aircraft.

They promptly flew the two planes to Sydney, carrying three paying passengers between them — a venture which attracted a gratifying amount of media and public attention. The flyers were sufficiently encouraged to announce, on their own account, that the same team of Kingsford-Smith and Anderson were now planning to conquer the Pacific!

But fate took a hand when they met up with Charles Ulm, who immediately professed his wholehearted support for such a venture. While lacking the flying skills of the other two, as a man of about Smithy's age, he appeared to have a good head for planning and organisation. Very soon, the twosome became a threesome.

In short order, Ulm convinced Smithy that he and Anderson should capitalise on their epic trans-Australia flight with an attempt on the around-Australia record. At the time this stood at 22 days.

Anderson felt that they should press ahead with the trans-Pacific project, and expressed himself so strongly about this that it was Ulm who climbed into the Bristol with Smithy and slashed the

record to just over 10 days — a figure which Anderson failed to match in a belated attempt to regain his lost initiative.

NSW Premier Jack Lang was lavish in his praise of the trio but, when called upon to back their proposed transpacific flight with a government grant, came up with a meagre £1000. Even so, Smithy, Anderson and Ulm left on the *SS Tahiti* in July 1927, with the fervent hope that they would be returning by air.

By this time, Smithy appeared to have conceded control of their day-to-day business affairs to Ulm, with Anderson being none too happy about this intrusion.

### 'A Never-to-be-forgotten Experience'

'The genius of Kingsford-Smith is that he contacted the right people in San Francisco, which resulted in good radio arrangements for the *Southern Cross*, with elegant equipment, augmented by the talent of a keen, competent operator, James Warner.'

'The night before the take-off Smithy and Warner told San Francisco amateurs: "Just stick by us and we'll make it interesting for you":

The United States Navy, and commercial stations in the USA, Hawaii, Fiji, Australia and New Zealand kept watches for **KHAB**. However, news about the flight was eagerly sought by the news media from amateur sources, showing that official arrangements were not complete in themselves.'

'Numerous US amateurs contributed, including those in Hawaii. Co-ordination and leadership (of the amateur fraternity) at San Francisco was provided by **6CZR**. Others specially active included Australian **5HG** and Fanning Island **1AJ**.'

'Many New Zealand amateurs copied **KHAB**, including **1AN**, **1FQ**, **2BG**, **2GA** and **4AE**. Warner's commentary made reception a thrilling, never-to-be-forgotten experience.'

(By Tom Clarkson, **ZL2AZ**, in *Break-In* March 1972)

### PR disaster

In the USA, Smithy was offered sponsorship by a large oil company in the Dole air race between California and **Hawaii**. But this was turned down, because he considered the plane offered to him as 'sub-standard'.

Resenting his remarks, the oil company publicly denounced him — implying that he was a 'little Australian with a big line of patter who lacked what it takes in the real world of flying!'

Needless to say, the very public put-down did nothing to assist his quest for

backing for the Pacific flight. As it turned out, Smithy's assessment of the plane was validated when it crashed during the race, its pilot surviving by sheer good fortune.

To make matters worse, in an apparent effort to distance himself from the 'socialist' Lang, the new conservative premier of NSW, Thomas **Bavin**, disowned earlier NSW government support for the Pacific flight and called upon the trio to return by ship. His statement was widely reported in the Australian press and relayed to the USA.

Despite the setbacks, Smithy managed to get enough support to make a down payment on a tri-motor Fokker mono-plane, which had been used by the Arctic explorer, Hubert Wilkins. All it needed was a thorough overhaul and three new Wright Whirlwind motors!

These were ultimately donated by Melbourne's Sidney Myer but, as the three men worked tirelessly on the plane, the Australian press had a field day debating the planned flight. Sir Keith Smith, one of two brothers who had won the **England/Australia** race in 1919, strongly backed Smithy.

However, Australian aircraft designer L.J. **Wackett** described the project as 'madness' and deplored their choice of an aircraft with Germanic connotations as 'an insult to Australia's war dead'. Smithy, who had personally faced the Germans in the skies, dismissed **Wackett's** observations as 'crap!'

But the tensions and frustrations had taken their toll within the team, and after what Smithy later described as 'one hell of a blow-up', Anderson walked out and returned by ship to Australia.

With the plane finally restored and recommissioned, Smithy took aboard a huge load of fuel and came within four minutes of breaking the world record of 52 hours for sustained flight. The effort, including a gut-wrenching takeoff, restored his battered credibility and ultimately set the scene for the trans-Pacific flight.

At long last, with the support of American banker Andrew **Chaffey** and backed by millionaire shipbuilder Alan Hancock, Kingsford-Smith and Ulm set about preparing for the flight, enlisting two Americans as crew members: navigator Harry Lyons and radio operator James Warner.

Finally, emblazoned with the name *Southern Cross*, the Dutch-built **FVIIb-3m** Fokker took off from Oakland airfield in California on the morning of May 31, 1928, heading for Wheeler Field in Hawaii.



**Fig.5:** Photographed on their arrival at Mascot, Sydney, the men who made the first-ever crossing of the Pacific by air. From left: James Warner, Charles Ulm, Charles Kingsford-Smith and Harty Lyon.

## Radio equipment

For this venture, Smithy saw to it that his plane carried on-board radio equipment and an experienced operator. Over land, the pilot and/or navigator could have a reasonable expectation of checking topographical and other sightings against a map — and in the event of a forced landing, there was a reasonable chance of finding open space on which the plane could put down.

But over thousands of kilometres of featureless ocean in clouded and unfavourable weather conditions, it was all too easy for dead reckoning navigation to put them sufficiently off course to *miss* an island destination altogether.

Even in those early days — in radio terms — two-way communication plus the possibility of D/F (direction finding) fixes from ships and shore stations could provide invaluable assistance to the on-board navigator. In those days, most such communication was by means of Morse code and most of the communicators were either professionally trained ship/shore maritime operators, or self-trained amateur operators or enthusiasts. It was on these groups that the crew of the *Southern Cross* had to rely for support during the first ever trans-Pacific flight.

Described in amateur literature of the day as a keen, competent operator, 'Jim' Warner had spent the time leading up to the flight checking out the equipment and enlisting the San Francisco amateur fraternity to monitor transmissions from the plane. He sought also their co-operation in alerting amateurs across the Pacific, and in New Zealand and Australia. The *Southern Cross's* callsign for the flight was to be KHAB.

Transmissions on medium wave (600m, 500kHz) would serve mainly for communication with ships at sea and to provide possible assistance with navigation. The bulk of the traffic, directed to amateurs and to possible commercial stations, would be in the high frequency band around 33.5 metres (8.95MHz) — a frequency accessible at the time to amateur station operators.

For the most part, Warner said, traffic would be statements about the plane's progress and time and position information, which the amateurs were encouraged to keep progressive notes of — presumably in case the plane was forced down in the ocean.

Some of the messages would be 'addressed' to contracted newspaper interests in San Francisco and Sydney, being therefore copyright; many, how-

ever, would be prefixed with 'QST' (meaning 'calling all stations'), for unrestricted use by the recipients.

As described in *Break-In* magazine (June, 1928) and *QST* (August, 1928), the high frequency equipment was constructed by Ralph Heintz 6XBB of San Francisco, the transmitter being a tuned-grid tuned-plate oscillator built around a 50W tube. Power was to be supplied by two wind-driven AC generators, bolted to the outside of the fuselage.

A characteristic of the equipment was that a 250-500Hz generator ripple produced a continuous modulation of the carrier, the ripple frequency being affected both by the overall speed of the aircraft and by short-term turbulence in the slipstream.

Warner's practice was to 'screw down' the Morse key between messages, so that a recognisable signal would be available — indicating that the plane was still airborne and giving some clue to the attitude (climbing, diving, etc) and prevailing flying conditions.

The uninterrupted signal provided an incentive for continuous monitoring, and offered the further advantage that receivers could be kept properly tuned to the transmitter — thereby minimising the risk of a message being missed. In fact,

## WHEN I THINK BACK

**mis-interpreting** the generator ripple, quite a few non-technical listeners claimed that they had been monitoring the sound of the engines!

### In-flight problems

As to the journey itself, the first six hours of the run to Hawaii were **uneventful**. But then they encountered a strong headwind that threatened to exhaust their fuel supply. Fortunately, the headwind disappeared as darkness fell and, around midnight, the *Southern Cross* landed at Wheeler Field, to be greeted by a huge crowd which had been following its progress by radio.

Wheeler Field was too short to permit a take-off with a full load of fuel and, after a **checkover** with the help of the local US Military Command, the plane was flown to Barking Sands preparatory to its departure for Suva. It was to be an eventful leg.

Three hours after take-off, Warner discovered that one of the wind-driven generators had burned out — severely limiting his ability to receive signals. Since Warner had warned other amateurs that his workload and conditions generally might prevent him from engaging in two-way working, he was less disturbed than he might otherwise have been by the failure.

Instead, he concentrated on reporting the plane's progress and position, confident that amateurs and other stations around the Pacific area would be keeping watch. Shortly afterwards, a smear appeared on the windscreen which looked like escaping oil. But much to the relief of all aboard, it turned out to be a condensation effect.

Next they ran into a violent electrical storm and Smithy, at the controls, gave an unsought demonstration of the great pilot that he was. Some time later, they encountered a second storm and, this time, with Smithy trying to snatch a few minutes rest, it was **Ulm's** turn to copy Smithy's techniques in dodging the blackest clouds, while not losing track of the course they were supposed to be flying.

Three hours later, they had left the clouds behind and there was the celestial *Southern Cross*. They were in the southern hemisphere. Ulm recorded the fact in the logbook, and reached for a thermos of hot coffee — only to discover that the flasks had ruptured during all the buffeting, and that the coffee on board was cold and sour.

They couldn't even smoke, because a distinct smell of petrol suggested that a fuel leak had developed somewhere and a

match might well ignite more than a friendly cigarette!

### Suva to Australia

Thirty-three hours after leaving Barking Sands, the crew looked down on the Fijian Islands and at **3.30pm**, the plane touched down at Suva's Albert Park. There they were welcomed by a huge crowd and Sir Eyre Hudson, the British High Commissioner and Governor of Fiji.

Ironically, after 33 hours in an **unpressurised** plane and exposed to the **unattenuated** roar of the three Whirlwind motors, none of the crew could hear a word that was being said. Nor could they know that messages being flashed to newspapers around the world would be telling their readers that Smithy and his gallant crew had written their names indelibly into aviation history.

After resting and checking over the plane, it was flown to nearby **Naselai** Beach for re-fuelling and the takeoff for Brisbane.

After a night of rain, the like of which Smithy professed never having seen before, they flew into a **fine**, sunny dawn — crossing Australia's eastern seaboard adjacent to **Ballina** in northern NSW.

As they approached the coast after such a night, Warner had asked "Are there any direction finding beacons?" The answer was "No" — as the navigator, he was on his own!

There was never any risk of them not encountering the Australian coast but, after passing through a violent storm and a night of blinding rain, they still ended up over **100km** south of their intended course — a graphic indication of the uncertainties of trans-ocean air navigation at the time.

As it was, a short time later they set down on Brisbane's Eagle Farm airport, to be greeted by a massive crowd. As in Hawaii, everyone had been alerted to their pending arrival by local broadcast stations (**Fig.4**).

The *Southern Cross* had covered **11,767km** over the Pacific ocean, in an actual flying time of **83hrs** and **35mins**. Its Whirlwind motors had revolved about 34 million times 'without missing a beat'. Smithy had been at the controls for 52 hours and Ulm for 31.

Back in Sydney on the following day (**Fig.5**), they were met by another huge crowd at the Mascot airport and welcomed by Governor-General Lord Stonehaven and NSW Governor Sir Dudley de Chair. Premier Sir Thomas **Bavin**, who had sought in vain to frustrate the attempt, was discreetly absent.

Loud in their praise of Smithy's leader-

ship and ability, Lyon and Warner booked their passage home by ship.

Because it was the first and most vulnerable of Smithy's trans-ocean flights, the Pacific crossing was the one which most clearly evidenced their dependence on wireless communication — and the key role played by amateur operators on the occasion.

While many amateurs monitored the later flights, their participation appeared not to have been organised to anything like the same extent.

It was made abundantly clear, however, to the Australian and New Zealand Governments if not to others around the world, that aviation was no longer about two-seater biplanes flitting around the countryside at the whim of their owners. In no time flat it would involve mail and passenger airliners at least as big as the *Southern Cross*, flying to regular schedules interstate and overseas. They would need official communication facilities and navigation aids, similar to those being set up for shipping.

Writing in *QST* magazine, official organ of the American Amateur Radio Relay League, in August 1928, J. Walter **Frates** (**6CZB**, Oakland, California) pointed out that it was primarily the amateur fraternity that had maintained contact with the *Southern Cross* on its historic flight. In his article 'Following the Southern Cross to Brisbane' he says:

*When commercial and 'non-amateur' stations had either long since given up or were having difficulties on the Pacific coast (of USA), amateurs in San Francisco and Oakland were still listening to the steady drone of the transmitter and comfortably copying the signals, until **KHAB** reported itself beyond the Loyalty Islands and within a few hundred miles of Brisbane, where daylight intervened and the burden of communication was taken up by Australian and New Zealand amateurs, some of whom had been copying the signals since the first night out of **Oakland**. (See also panel)*

While Walter **Frates'** comments were intended to emphasise the role of amateur operators, by implication they also emphasised the technical limitations and the operational inflexibility of the professional monitoring stations at the time.

As pictured in the story of Sid Newman (*EA*, January 1991, p.50) the AWA shortwave transmitter at Pennant Hills, NSW was one commercial installation that helped to maintain contact with the Southern Cross.

*Pictures appearing in this article have been provided by the Feature Bureau of John Fairfax & Sons Limited.*

*(To be continued)*