



When I Think Back...

by Neville Williams

Fred Thom and Tasma -1: Once a prominent manufacturer - now almost forgotten!

As long-time readers of this magazine will know, a considerable number of Australian radio manufacturers — large and small — emerged in the 1920's, prospered in the 30's, 40's and 50's, lost their way in the 60's and finally disappeared in the 70's. How it happened to the manufacturer of the once popular 'Tasma' brand receivers has been recalled by co-founder of the company, Fred Thom.

First a word of acknowledgment to Harry Gordon of **Murrurundi**, NSW, who alerted me to the existence of key source material. He says that, when chatting with a friend from the same town, Harold **Burraston**, Harry mentioned that he had once worked as a telegram boy for AWA Beam Wireless, transferring thereafter to the firm Thom & Smith. In later life, he had joined University Graham as Sales Manager, subsequently becoming Managing Director of that company.

Responding to this, Harold **Burraston** recalled that, amongst his papers, *he* had a document produced by the Telecommunication Society of Australia (TSA) which carried a virtual autobiography of Fred ('Freddie') Thom, a co-founder of Thom & Smith, who owned the '**Tasma**' brandname.

While outlining his own life story, he added, Fred Thom had mentioned a number of his contemporaries who are prominent figures in their own right in our electronic history. Published at least 10 years ago, the document was identified as '**F.W.P. Thom, Biographical Notes, Monograph No.9, Telecom Historical Society**'. As it turned out, I managed to obtain a copy through TSA.

The monogram *was/is* essentially a transcript of a taped interview conducted by Robert **Langevad**, at the time immediate past-president of the TSA, NSW Division. What follows is a complete rewrite, presenting the original and supplementary information in chronological order.

In a recent personal interview, Fred Thom himself told me that he was born in 1904. He'd had an unsettled childhood, he said, as his father — a civil engineer

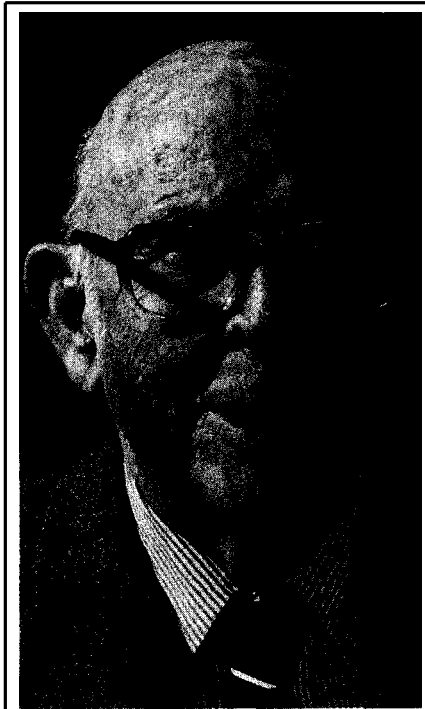


Fig.1: Fred Thom, in 1992. He's won some battles in his day, and lost quite a few others. But, chatting with him, one can only concede that, at age 88, he's won his own private war.

employed by the NSW **Government** Railways — moved from job to job all over the state, often into makeshift accommodation.

Now living in retirement on Sydney's North shore (Fig.!), he still has vivid memories of a colourful career, embracing wireless technology from the period immediately following the Great War (1914-18).

School 'drop-out'

Fred **Thom's** story, as told to Robert **Langevad**, has a familiar ring for that time frame: I quote:

My mother was widowed early and I had two infant sisters and an older one. There was no money, no pension, and things were pretty grim. I decided to drop out of high school and go to work.

So I looked up the (Sydney Morning) Herald, and the highest paying job I could see was: 'WANTED; boy, City Hatters — thirty shillings a week'. To a teenager in 1919, that sounded like a fortune.

Fred tells how he joined a queue of 10 other 'blokes', being interviewed by a stout, balding gentleman, who kept on saying no, no, no! Fred was next in line.

Watching them, Fred says he had enough ego at age 15 to feel that he was smarter than the 'pugs' who had missed out, and felt confident that he would get the job. He continues:

Then along came a lady with a small boy wearing thick glasses and a straw hat. She sailed past me to the manager's table and, using some sort of influence, prevailed on him to give the straw-hat kid the job.

So I learned my first lesson in the workplace: It isn't what you know; it's who you know!

Since it was still just after nine o'clock, Fred took another look at the *Herald* and came upon a small advert 'WANTED: office boy, Amalgamated Wireless, 97 Clarence St, Sydney'. He duly made his way there and asked about the job, which was offering only 15 shillings a week — but even that was better than nothing. In his own words:

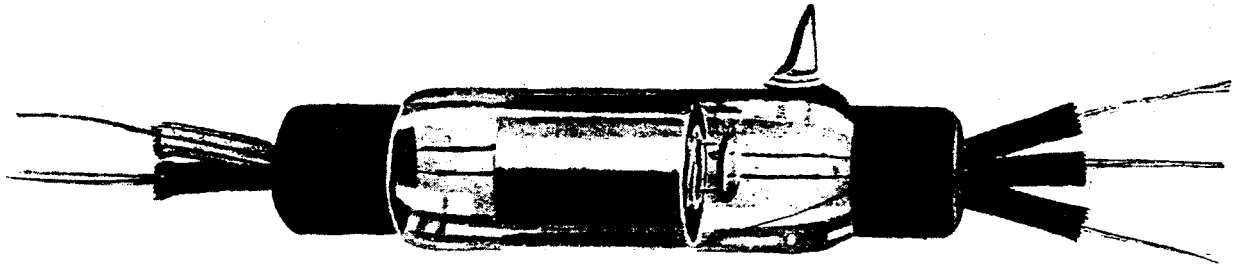


Fig.2: As pictured in 1923, this Australian made 'Expans-B' valve differs from the original version described by Fred Thom, in having a spiral grid and a cylindrical anode.

There were two of us there and the selection was left to two female secretaries, one deputising for the AWA Company Secretary J.F. Wilson and the other for 'Tiny' Larkins, the Company Accountant. Their names were Dulcie Clarke and Vera Evans.

They looked at us and one said to the other: "Which one do you like?" Vera said: "I like this one." Dulcie replied: "All right, we'll have him." So I was hired on the spot, at 15 shillings a week'.

Fred said he had only been there a couple of hours when they put him on the switchboard during the lunch break. It was a three-line board with about 15 extensions, and his stint as operator was preceded by a five-minute lesson.

At the end of three months, he asked for a rise and was granted 30 shillings a week — a 'magnificent sum' for an office boy in 1919.

AWA's first factory

More to the point, Fred had realised that AWA had an upstairs 'factory' at 97 Clarence St, called Australelectric. Here they manufactured telecommunications equipment, as distinct from telephone components. They were also involved in marine radio, which had been fundamental to AWA for some time. I quote:

Over the years, Australelectric had made all kinds of things from conduit fittings (of malleable cast iron) to Marconi-designed marine transmitters and receivers. In those days, remember, they were still using magnetic detectors, coherers and crystal detectors; also emergency transmitters with a straight induction coil and a spark gap tuned with a variometer.

A lot of the radio sets were just like a loose coupler and the transmitters used to have spark gaps and God knows what. Originally it was all spark and Morse, and no telephony.

Fred says that when telephony had appeared on the scene, Australelectric were quick to take advantage of it by manufacturing a marine receiver which was known as the P1. It was their first application

of the Armstrong regenerative principle, and was concentrated around a single valve, with or without an audio stage.

Either way, he said, it was far simpler than earlier valve receivers — which had a great row of valves, so bright that one could get away without extra light in the radio room. Described as an 'aperiodic' circuit, it amplified all incoming frequencies without discrimination.

According to Fred Thom, the P1 receiver had proved very successful and, at times, it had exhibited 'astronomical' range. It was in this period that AWA had achieved the first direct wireless reception from London, on a wavelength of 25,000 metres (12kHz) — well inside the present day audio band. The 'bloke' that actually made the contact was the late David G. Wyles, but as boss of the company, E.T. Fisk 'got all the kudos'.

Despite the fact that AWA did not manufacture telephone or cable equipment, they gained special support from

the Federal Government because of their involvement in wireless technology. This put AWA at odds with the British Post Office which, according to Fred Thom, "was sold on undersea cable". He added that "AWA fought the BPO to a standstill", and ultimately obliged them to evaluate beam wireless.

The 'bug' bites...

At the time, according to Fred, many bureaucrats doubted that wireless would ever amount to much; but he didn't go along with them. Intrigued by all the gadgetry AWA were making and selling upstairs, he decided that the smart thing would be to become an apprentice, even if it meant some hardship in the process.

As office boy, he was at least on the spot and had sufficient qualifications for further training. Australelectric already had three or four apprentices but, in due course, Fred joined their number, signing on for twopence an hour — a meagre eight shillings a week. He continues:

In those days, if you wanted to be an apprentice, your parents had to find the premium — a payment of 50 pounds to the teacher or employer, which would be returned at the conclusion of the training.

I didn't have to pay the premium, but I did have to work for twopence an hour. And after I'd paid train fares and twopence each way on the ferry to Circular Quay, there wasn't much left over.

If the ferry ran late, I would race up three flights of stairs to make up time. But, if I was even one minute late, I would have to wait at a sort of stable door for 15 minutes, before being permitted to start.

You see, our pay was docked for being late, and as a halfpenny was the smallest coin, I had to be docked for 15 minutes. Silly as it seems now, I had to wait for that many minutes to pass before being allowed to start'.

Fred recalled that life was not easy for apprentices in the 1920's for other reasons. As now, if you wanted to improve your status, you went to tech — but you paid your own way, and you did it in

The Importance of Being Ernest (Fisk)

"As a 15-year-old office boy', says Fred Thom "it was my job to post or deliver AWA's mail. One day I had to deliver an urgent document up-town and, as the envelope was unsealed, I opened it and was reading the contents when I came face to face with the big boss, Ernest Fisk.

That afternoon I was summoned to his office. Said he, in a quiet voice:

"Son, your job is to post or deliver mail."

"You are."

"You were reading a company document in the street, this morning?"

"Yes, sir."

"You mustn't do that. In future, if you want to read company correspondence, you must come up and do it in my office!"

Said Fred: 'He didn't even raise his voice, but got the message, loud and

A previously unpublished anecdote provided by the writer by Fred Thom during the preparation of the present artistes.

WHEN I THINK BACK

your own time after work, usually for three nights a week. On such days, he said, he would catch the train at 6.45am and not arrive back until 1020pm. In the evening he would dine royally on Sargent's pies.

"Nowadays, apprentices get full wages and the boss covers time off for tech."

His next observation also has a familiar ring:

And so I progressed, but only by making myself heard. I remember once going to the union and saying: "They're supposed to teach me a trade, but I've been on the turret lathe making screws for over six months, and I know how to make all the screws in the world—I want to try something else!"

So the ETU advised me to seek a transfer, and I was moved to the coil winding section—where I learned to wind 'all the coils in the world'! It was time for another shift so, when they started to make radio valves in Australia, I got a transfer to that section.

Locally made valves

That first AWA valve was designated the 'Expanse-B', a derivative of the de-Forest Audion. In conversation, Fred mentioned that a Miss Devaux, experienced in valve production in Britain, was despatched to Australia to help Australec get the project under way. (From other references, this would have occurred in 1920 or thereabouts.)

He recalls that the Expanse-B had a twin V-shaped filament, which was handy if one of them burned out — you could carry on with the other one. The grid was flat and shaped like the 'demisting' heater element on the rear window of a car, while a flat plate served as the anode. He remembers bringing out the filament wires through one end of the envelope, where they provided a ready means by which the valve could be 'hung' in the P1 receiver.

(There appear to have been other, later versions of the valve. Some pictures showing terminal connections rather than flying leads, others the use of a spiral grid and cylindrical anode — Fig.2).

The Expanse-B was classified as 'soft' valve, meaning that the internal vacuum was not very high. This was fortuitous for AWA, Fred says, because their vacuum pumps weren't all that good anyway!

He recalls that, while assembling some valves, one day, he somehow managed to get some mercury mixed up with the components, which others tried to remove without much success. So, for good or

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99 William Street

Fig.3: An advertisement for LPR Bean & Co, published in 'Australasian Wireless Review' for February 1923. It shows their trading address and features American Stromberg-Carlson headphones.

evil, at least one batch of AWA Expanse-B's would have made their debut as mercury vapour triodes!

Shortly after this, he was transferred to the AWA Patents Department. At that time, he says, the company had a strong affiliation with RCA, involving 'oodles of patents' which they used later to extract royalties from other local manufacturers'.

Fred enjoyed being in the Patents Dept, where he was paid to sit down and read all the main journals on behalf of the departmental head, Alan Longstaff. He particularly remembers *The Electrician* and *Wireless World*. His job was to select important articles and write a precis for staff reference.

From Patents, Fred made it into the lab — for what he rates as one of the most interesting periods of his life, rendered the more so because, at the time, AWA was doing its best to promote radio against an entrenched official dependence on cables.

The role of amateurs

To make things even more interesting, he recalls, amateurs like Charles Maclurcan were constantly stirring the pot. Son of the late Mrs Maclurcan who owned Sydney's famous Wentworth Hotel, Charles was a 'real radio boffin' and 'very good at it'.

As the amateurs were nudged off the medium frequencies, they moved ever higher, towards the then-VHF band — progressively demonstrating the potential of this portion of the spectrum. Maclurcan even succeeded in making Morse contact with England at a power level of 0.2 watt, by bouncing signals off the Heaviside layer.

"Mind you", says Fred Thom, "there was comparatively little electrical interference in those days (at the average amateur station site), with fewer cars and few high tension lines to cause buzz and fuzz".

At this point in his monogram, obviously prompted by thoughts of Maclurcan and the role of the amateur fraternity, Fred launched into a spontaneous word picture of the old AWA/Australalectric lab, when he worked there in the early 1920's. What follows is a paraphrase of Fred's own sentiments, as 'captured on the tape by Robert Langevad:

Fisk came across a lab digest of a QST article which described a parabolic reflector and said: "I've got to make up one of those". So we built up QST's parabolic reflector, along with a one-valve transmitter using a Marconi valve known as an LST. God, would that be a museum piece now!

The transmitter was contrived by Longstaff and a young physics graduate

called A.W. Young, along with Charles Tapp — who wasn't a graduate — and E.A. (Eric) Burbury, all of whom worked in the Australec lab at the time.

Most such people had been one-time radio operators. The way things were, you graduated from spark coils and this and that to other research. We had radio direction finders and all this *kind* of thing but, in outside electrical circles, even our most impressive gadgets tended to be dismissed as toys. REAL electrical engineering had to do with power generation, electric motors, traction and so on — not the kind of stuff we were on about!

Anyhow, we made up this parabolic reflector and, so help me, Fisk got to using it in directional radio demonstrations — to ring bells, switch on lamps, open proceedings and so on. What we had done was provide a graphic way of demonstrating what could be achieved with directional radio waves; in other words, 'beams'. It enabled more to be done with less power — in those days a revolutionary idea.

In a way, it was an extension of the work of Meisner — the bloke who is credited with inventing tuning. In the old days of the open spark gap, tuning (of sorts) was accomplished by varying the length of the aerial, but few *if* any understood the real principles involved. Meisner sorted it out and showed how deliberately tuning the transmitter and receiver (to the same frequency) would ensure vastly improved communication with much less interference.

Fred says that, at the time, Marconi had a yacht called 'Elettra', which spent much of its time in the Mediterranean. It had been fitted out with a short-wave transmitter and Marconi had a prearranged schedule with Fisk, who would listen for his signals at his home in Vaucluse, Sydney, using any available shortwave receiver.

Fred recalls him trying out the first superheterodyne receiver to come to hand. It used a valve oscillator, a 'Q' (untuned?) amplifier for the IF section, followed by two audio stages.

"It proved to have negative gain, and didn't damn well work!"

So they replaced it with an Armstrong regenerative version of the old P1, modifying this to work on the 90-metre wavelength being used at the time.

Shortwave experiments

At this point, I revert to Fred's verbal account of what followed, which differs *markedly* from the formalities of the published accounts:

A.W. Young did the calculations for a loop aerial, which we stuck on crossed

broom handles. To turn the aerial, we used a couple of loops of rope around it, like the steering mechanism of a steam roller.

We tuned the aerial using three little coils on an ebonite rod and moved them to get the coupling right with a 20" ebonite rod sharpened like a pencil. And so *help* me, we got Marconi coming through from the Elettra, on that one-valve regenerative set-up — and that was one helluva thing! As well, it was telephony for the first time, from 'Elettra' to Vaucluse direct.

This trumped the British Post Office, and that's the way it was done. But the set-up was hardly one to display to the press. Instead, Fisk posed for pictures in the main room, with headphones, seated



Fig.4: Fred Thom as pictured in the 'Who's Who In Radio' section of the 1935 edition of Mingay's 'Radio Trade Annual of Australia'. By then, Thom & Smith had been operating for about six years, and was located in Dowling Street, East Sydney.

in front of that bloody great 'Q amplifier' — while we're out the back (capturing the signals) with a one-valve set and a broomstick aerial!

What's more, we changed the size and tuning of the loop and the Elettra romped in on 30 metres. Fisk was delighted. This was the proof he needed that telephony was possible direct from Europe to Australia, by beam wireless. In due course, Billy Hughes made the Federal Government a majority partner in AWA, with responsibility for the whole marine set-up, and culminating in the Beam Wireless organisation, as an adjunct to the Post Office.

While Fred's recollections of events and situations remain quite graphic, he is unsure of the exact dates. My guess is that much of the above would have occurred in 1922, a year in which the Federal

Government was addressing itself to the problems of wireless communication, broadcasting and administration, for enactment during 1923.

A new career

As it turned out, Fred Thom left AWA in 1923 and joined L.P.R. Bean & Co — which, as he remembers, had premises at 86 Crown St, Sydney and in Newstead House in Castlereagh Street (See Fig.3.)

Apart from being Australian agents for Stromberg-Carlson (USA), L.P.R. Bean was engaged in the manufacture of switchboard indicators for the manual telephone exchanges of the day — plus ring and listening keys — and they had just started to make telephone lightning protectors to satisfy an order for 30,000 units — which was a breathtaking order for the period.

L.P.R. Bean & Co was said to be the first local company to manufacture telecommunications equipment, although some of the raw materials had to be imported. All processing, such as turning the cores, winding the coils, assembly and testing was done locally.

Fred Thom says that Leslie Percival Bean himself had been the youngest-ever trainee engineer in the Australian Post Office (APO), and to his discomfort was sometimes referred to as 'the boy engineer'. But, to give him his due, he was good at it and had an ambition to see more equipment manufactured in this country. Bean was fortunate in having as a partner another APO engineer named Norman S. Gilmour, who later founded Lekmek Radio and served as IRE President during 1938. Gilmour was well respected in the APO, having served in the Newcastle area and pioneered the installation of underground cables beyond the central business district of Sydney.

In the process, he had ensured that the manholes and conduits were made large enough to cater for future expansion — a consideration that might otherwise have been overlooked by the then APO management.

As importers, as well as manufacturers, L.P.R. Bean had access to handsets, bell boxes and a variety of other telephone hardware made in the US by Stromberg-Carlson. From this vantage point, both Bean and Gilmour — says Fred Thom — 'badgered' the Post Office to invite tenders for locally-made components.

In the second part of Fred Thom's story, we'll see how he and John E. Smith left L.P.R. Bean (by then Stromberg-Carlson Australia), to form their own company and manufacture the 'Tasma' range of receivers and other equipment.

(To be continued) ♦