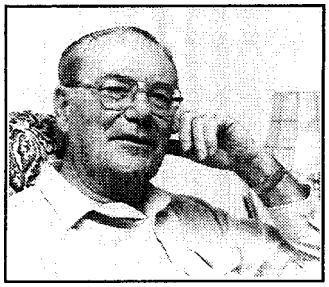


When I Think Back...

by Neville Williams

Harry Mauger - 1: Photographer, radio technician, amateur, soldier and recording engineer

Born in 1921 in the rural fringe of Melbourne, Harry Mauger's boyhood interests were bushwalking and things mechanical and electrical— including hobby 'wireless'. Turning down an art scholarship, he took an electrical course at Swinburn College and a radio course at RMIT, gaining initial work experience at Eclipse Radio. This led in a roundabout way to a rewarding career, in the recording and production of analog discs and tapes at all three of the Astor/Mercury/Philips Melbourne facilities.

How this story came to be written is a somewhat odd tale. Having compiled stories on Sydney's Thom & Smith and Stromberg-Carlson, my thoughts strayed to pioneering factories in other centres — such as Eclipse and Astor in Melbourne. There my ideas faltered, because I could not recall any personal contacts from Eclipse and only one from Astor — a disc recording engineer whom I used to consult on occasions when preparing the record review columns for this magazine.

His name, I recalled, was Harry Major, pronounced and presumably spelt that way. He was a few years my junior but would, by now, have been well and truly retired. Where he might be living and in what state of health, I thought might be difficult to establish.

Then, out of the blue, I received a letter from a Melbourne reader describing an historic multi-channel microwave link between Melbourne and Sydney, set up by the Armed Forces in September 1945. He hoped that I might remember him, having once shared the platform with him at a hifi presentation to the IREE.

He signed his name 'Harry Mauger', which I pronounced — mentally — as **'Morger'.**

I hesitated to reply in the negative but, try as I might, I could not recall ever having met a Harry **'Morger'.** So I put the letter aside, hoping for possible inspiration.

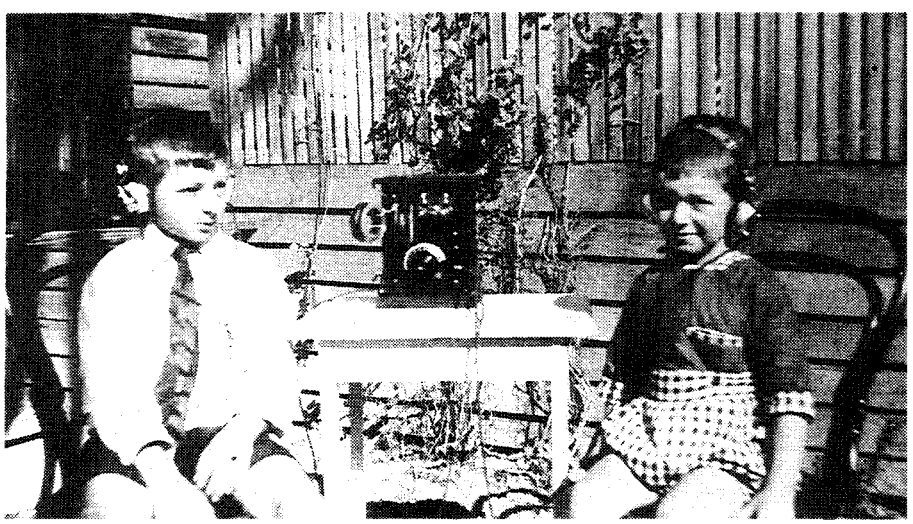


Fig.1: Harry Mauger In 'rompers' and his older brother (left) pose with headphones and a crystal wireless set constructed by their father. Both boys subsequently pursued a career in radio.

It had apparently been prompted by a mention in the January 1994 issue of carrier telephone systems. Correspondent 'Harry M' said that some people seemed to believe that, using a UHF radio link, the Channel 9 organisation had set up the first ever carrier telephone circuit between Sydney and Melbourne in 1956, to support their coverage of the Melbourne Olympics.

In fact, he said, the two cities had been directly linked by an eight (voice) channel, pulse modulated 10cm (4500MHz) UHF system in 1945, just before the end of the war. It had been set up by the 1st Multichannel Wireless Section of the Australian Army Signals, using then-new equipment known as the '10 Set'.

Very advanced for its time, technical details of the equipment were initially shrouded in tight secrecy, although subsequently publicised in *Wireless World* for June and September 1946. The '10-Set' had reportedly carried crucial cross-Channel communications for D-day, offering much greater security than other radio links (a) because of the narrow transmission beam and (b) because there would be little risk of the enemy being able to decode the very complex modulation at short notice.

A different 'Major'?

Interesting as it might have been, the letter offered no other clue to the iden-

tity of the writer, and it remained in the `too hard' basket until April when, for some reason, Astor again came to mind. Then suddenly something clicked and I recalled — vaguely — that Harry `Major' had spelt his name in an odd way... Harry Mauger, of course!

When I duly rang and apologised for my memory lapse, it was to uncover a bonus: not only had Harry been a prominent and very helpful recording engineer for Astor — that would be a story in itself. He had also 'learned the ropes' pre-war at the Eclipse factory, which had susequently been taken over by Astor. (So *that's* what happened to them!)

While an article on Eclipse remains at best 'a possibility', I now have two contacts, the other being Graeme Mackenzie of Brighton, Vic. However, I would certainly like to hear from other old-timers who worked at Eclipse, especially if they could help with photos, magazine clippings, advertisements or brochures that could serve to illustrate a future article. The information can be posted to me via the Editor at the *EA* office. In the meantime, let's hear from Harry Mauger — pronounced 'Major':

Harry says he was born in Box Hill, an eastern suburb of Melbourne, in May 1921. His boyhood was spent mostly at nearby Blackburn, 'when it was mainly bush and orchards'. Sometimes with his father, but often alone, he would spend endless hours wandering through the bush, looking at the flora and fauna and setting the scene for a lifelong hobby of wildflower photography — which he has since pursued 'all over Australia'.

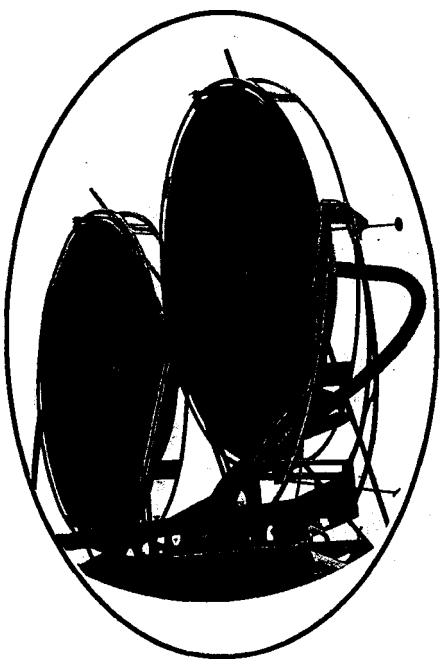


Fig.2: From the cover of 'Wireless World, September 1946, this photo shows the twin parabolas atop the military trailer carrying a complete '10-set' and power supply. Two such units cabled back-to-back could function as a repeater.

At the same time, he was picking up an interest in popular science from a father and grandfather who dabbled in things mechanical and electrical. This was in a 'country' style family home, mechanised by a one-cylinder kerosene engine to pump water and maintain a 12-volt electricity supply based on 'big, glass accumulators'

Hobby became career

In the early 1920's the Mauger household was also involved in crystal and small regenerative radio sets, which ultimately enticed both Harry and his brother into radio careers (Fig.1). His brother started out with Howard Radio, became Service Manager for Vealls, joined the RAAF and finished up in the Measurements Lab of DCA (Dept. of Civil Aviation).

Harry himself was educated at Blackburn State School and Swinburn College, gaining excellent credits. With jobs in radio rather few and far between, his father managed to get him a position as a junior wirer at Eclipse Radio in Melbourne, for the princely sum of thirteen shillings ($1.30) per week. Fortunately, those were the days when a trainee could buy a hot meat pie for threepence (3c) and an economy three-course meal for ninepence (10c). I know, because I often did!

Harry's job involved being issued with parts for a radio — most commonly a five-valve mains powered superhet — which had to be assembled, wired and got to 'the plug-in and get a signal stage', in an elapsed time of one hour and 45 minutes.

In the process, Harry became familiar with complex circuits, learned to recognise components, and developed skills at assembly and wiring. At night, at RMIT (thanks to a scholarship from Swinburn) he studied radio technology under Dr McKay.

Once again, Harry performed better than average and was adept enough to accumulate 'spare time' from assembly duties, enabling him to watch receivers being serviced and/or aligned by senior trainees. In due course he, himself, became a tester and a 'final OK' man earning £2.10.0 ($5.00) per week.

According to *Mingay's 1939 Radio Trade Annual,* Eclipse was an active and enterprising firm in the 1930's, with its factory at City Road, South Melbourne and branches at Sydney, Brisbane, Adelaide and Perth. Eclipse produced a wide range of house brand components, plus complete mains and battery powered receivers and were also a wholesale supplier of components, local and imported — including Empire phono pickups and motors, Tungsol valves and Plessey capacitors.

Fig.3: The Harry Mauger that remember from the 1970's — not always with shirt and tie! He was singularly well informed about what was going on in the sound recording industry.

They also supplied unbranded receivers for sale under other distributors' logos, such that in Sydney, the first receivers sold by Reliance Radio came from the Eclipse factory, loudspeakers and all!

Interlude in Sydney

In 1939, Eclipse's Sydney Branch was beset by more then its fair share of technical problems, and Harry Manger was despatched to sort them out as the Company's factory-trained trouble-shooter. Harry still has painful memories of arriving at Sydney's Central rail station, 'suitcase in hand and mouth open', wondering where all the people were coming from and hurrying to!

Fortunately, the Branch Manager, Mr Salmon was there to meet him and saw him settled in a comfortable boarding house at Bondi.

At home, Harry had been accustomed to plenty of music. His father was an accomplished pianist, who earned extra

money by providing musical accompaniment for silent movies. For good measure, the Maugers also had a three-manual Bell organ in the living room — no mean instrument in those days.

Perhaps it was the comparative quiet of the boarding house that induced him one day to walk into the Harmony House Recording Studios in York Street, Sydney. There he met and made friends with the Proprietor's son and an ex-BBC recording engineer they had on staff. During the next few months, hours of discussion followed on recording, amplifiers and sound, from which they all probably profited.

In 1940, Harry returned home and to a job in the Eclipse Research Lab — and for good measure, joined the Army Reserve in Infantry Signals. Called up soon after, he promptly applied for a transfer from Infantry to Divisional Signals, with the idea of exchanging switchboards and ("would you believe?") flags and Lucas lamps for (then) modern military radio transmitters and receivers!

Divisional Sigs sent him back to RMIT, where he was re-taught much of what he had already learned — plus the theory and practice of PMG-style carrier telephony systems.

A different world

Harry's first assignment after training was to be one of team of five, charged with the responsibility of maintaining all Army Signals equipment between Albany and Geraldton in Western Australia.

From there he had to make a memorable trip by train across the Nullarbor, then by sea to Townsville in Qld, and overland by truck to Cape York. He spent two years there and in the Torres Strait Islands as a staff-sergeant, servicing Army Signals equipment, including field transmitters up to a half-kilowatt — not always an easy job in such circumstances!

In 1944, Harry was sent back to Melbourne to work on a 'hush-hush' project. Having been duly sworn to secrecy, he became one of a group to be sent to the Radiophysics Lab at Sydney University to learn the wonders of magnetrons and klystrons, and how radio signals could be sent along pipes called 'waveguides', to be focused and radiated by parabolic dishes. Says Harry:

"We were taught how to plan signal paths at UHF using contour maps. We were then sent back to Melbourne, where we were introduced by two English sergeants and a captain to the `10 Set'. The very latest in Army Radio, it could simultaneously handle eight audio channels, pulse-width modulated and transmitted at 10cm."

"Nothing like this had ever been heard of at the time by non-specialists, and our job was to train selected groups in the mysteries of this equipment and turn them into field operators."

"Our first tryout and probably the first *use* of 10cm pulse modulated communication in Australia was from Balcombe Military Camp across the Bay to Flinders Park near Geelong — about 70 miles. We learned two things from that experience:

(1) Rain could affect 10cm signals at that distance and

(2) As our line of sight was grazing the water, the rising tide could also result in loss of signals, obliging us to relocate the equipment further up the mountain."

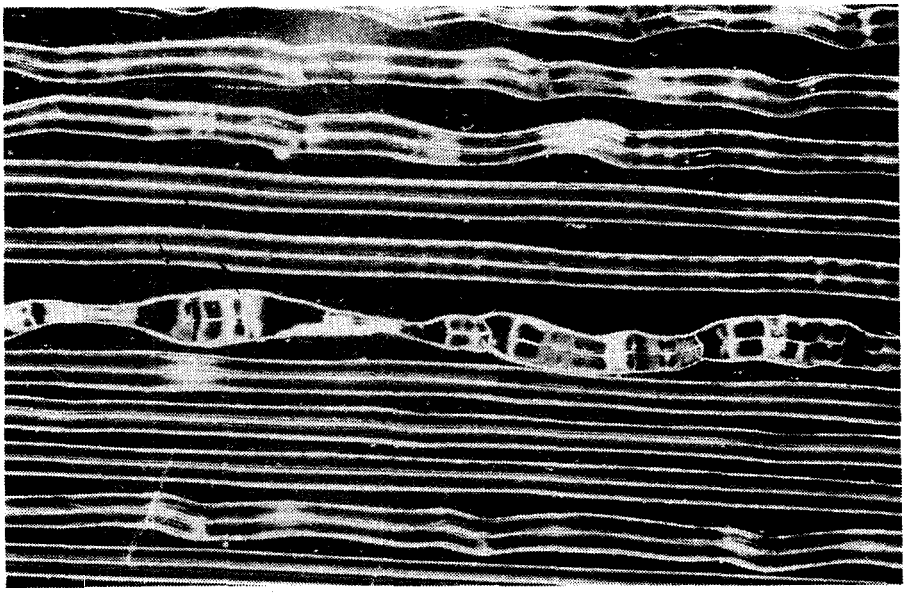


Fig.4: 'Oops!' One of Harry Mauger's own photos showing a sudden transient breaking through into the adjacent groove. To minimise the risk of such an eventuality, some recording lathes had provision for manual or automatic variation in the pitch of the groove spiral while a recording was in progress.

Intercity phone link

The next exercise was to establish a telephone link via a chain of bases between Sydney and Melbourne, to demonstrate the systems's utility and reliability. Two units could be cabled together to form a repeater, each unit being mounted in its own trailer with dish aerials, dipoles, etc. folded on top for travel — and a 230V petrol driven generator in a compartment at the rear (Fig.2).

Valves used included a magnetron, with EF50's in all other stages, thereby greatly simplifying the situation with regard to spares.

Each audio channel could be split into three teleprinter channels, each capable of 66 words per minute, putting the traffic handling capacity of the equipment ahead of anything else available up to that time. Says Harry:

"The exercise was headed up by Captain (later Lieut. Colonel) Jacoby, whose headquarters were at a relay site on Mount St Leonard, about 80km out of Melbourne."

"Once established, the respective ends of the link were connected into the PMG system in each city. You may recall that, at this time, to place a call from city to city, it was necessary to go through a manual switchboard and wait your turn to be connected."

"Imagine the novelty of being able to dial a number directly from one city to the other; the Top Brass were suitably impressed!"

"As it happened, a day or so after the system was in place, the war ended and, as I had a job to go back to, I was demobilised promptly. As a result, I went back to Eclipse — by now taken over by Astor — as a project engineer."

Wide-ranging experience

Harry's first post-war assignment for Astor/Eclipse was to complete and have approved a large PMG contract for ABC Program Termination Equipment, Type EY-1. It consisted of multiple Program amps (amplifiers) bridging amps and attenuators, in eight-foot (2.5m) racks. It provided invaluable audio experience.

20,000 MASTERS: PORTRAIT OF A DISC RECORDING ENGINEER

In ***Electronics Australia*** for January 1979, an article by Bill Hawtin, President of the Audio Engineering Society (Melbourne) commended the productivity of the Astor/Mercury disc record enterprise. During the previous year (1978) the Company's Chief **Recording** Engineer had cut his 20,000th master disc!

Like many other **technician/engineers** of the era, Frank Hulbert had come up the hard way. Born in London, he had been obliged to leave school at 14 and help support the family.

Starting as a 'tea boy' at an electrical corn **pany,** he showed sufficient interest and aptitude to begin training as a lathe operator, which later stood him in good stead. However, an asthmatic condition was aggravated by factory conditions and, at age 15, he obtained a job as a stage hand at the London Coliseum Theatre, which introduced him to the world of showbiz.

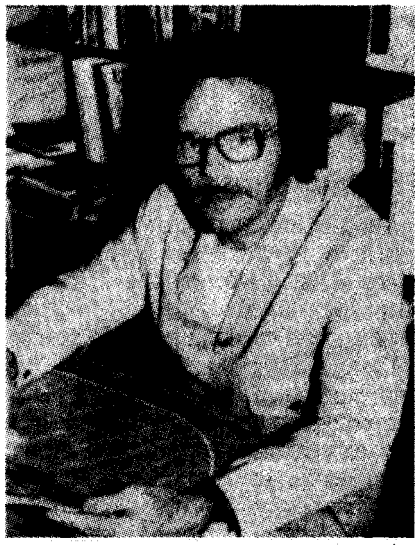
Frank joined the Army in 1943 and became a Bofors gunner in the Thames **Estuary.** There he was exposed to radar equipment and gained an interest in things electronic.

Back in civvies, he took a job as a **comptometer** operator and hated it. He turned instead to importing jazz records in small numbers from the USA and selling them in the UK by mail order.

From there, he combined his earlier interests and, in 1948, purchased a small disc recorder which he used to cut acetate discs for sale back to the musos in jazz clubs for fifteen shillings each. With the help of a photographer friend, his discs were later embellished with a suitable label and packaged with a picture of the artist. Frank had created his own 'Discophoto' label. In this environment, he developed musical skills of his own and ended up as percussionist in the Burne Regal Quartet, as well as playing as a professional around the London Club circuit.

About this same time, tape appeared on the scene and Frank invested in an early model Ferrograph. He made recordings, had them cut as LP's and advertised them through ***Melody Maker*** magazine. For good measure, he was also a foundation member of the Glen Miller Society.

Still troubled by London's fog laden atmosphere, however, he headed for Australia in 1955 and joined **Astor/Mercury** in their 'Tin Shed' factory in Richmond in 1956. To his extreme delight, they paid him to audition jazz records — this at a time when they were often obliged to use their Connoisseur



lathe to dub masters from imported pressings of sometimes dubious merit.

But better things lay ahead, and when Astor Records moved to **Huntingdale** with its sharply upgraded equipment and conditions, the self-taught boy from London was given his big chance as Recording Engineer.

Twelve years later (1978) and still operating the faithful Neumann equipment, his personal log showed that he had cut his 20,000th master — a staggering figure when one considers the implications of making any one recording. Thinking back in 1979, he volunteered these memories:

MY SILLIEST BOO-BOO: Recording a Tom Paxton single and inscribing the matrix number over the run-out groove!

MOST CURIOUS LP: 'Sounds of Silence', with normal looking but unmodulated tracks — presumably for checking acoustic feedback.

SHORTEST LP: A Trini Lopez album at 9-1/2 minutes per side!

LONGEST IP: A Caruso re-issue with one side lasting 37-$^{1}/_{2}$ minutes!

MOST EXCITING LP: Australia's first direct-cut LP.

MOST HAIRY MOMENT: A swarf problem which nearly wrote off the above!

TIME TO RETIRE When he found himself keeping time by tapping his feet to tempo, when mastering from a steam train **tape!**

Next, he spent months getting Astor Radiosonde production under way.

He was then transferred to the Astor Research Lab, to work on audio gear and radiograms. At this stage, Astor was producing a high quality radiogram with a wideband tuner, separate bass and treble controls, a proper preamp for the pickup, a push-pull Williamson type amplifier and multiple loudspeakers in an elaborate cabinet.

About this same time, an Astor executive, a Mr McGregor, had visited America on a business trip and had met the people at Mercury Records. They had convinced him that, as Astor was producing consumer hifi equipment, they should also consider marketing hifi records to go with it. All fired up, he approached Harry Mauger and the Company's electroplating specialist, Colin Swan, and requested them to investigate 'mother' and 'stamper' production, along with master recording equipment for record production. Harry said that he headed for the Public Library to find out all he could about the subject (Fig.3).

McGregor himself contacted Johns, who made moulding machines, with a view to adapting one of their designs to moulding records. Dies were imported from the USA and Harry Manger and Colin Swan directed their joint efforts towards setting up a Master Cutting and Plating Centre. At this juncture, a specialist by the name of Charlie Gendle, who had been a Technical Manager to ARC (Australian Record Company), was persuaded to join the Astor Group to help set up Mercury (Australia) in a factory at Richmond, Melbourne. This was in the early 1950's.

The word 'factory' comes from Harry's own notes, on which I am basing this article. In terms of producing even 78rpm discs, it would appear to have fallen somewhat short of the ideal environment.

Writing in January 1979 issue of this magazine, Bill Hawtin, President of the Audio Engineering Society (Melbourne) recounted the setting up of Mercury Records in Australia in less expansive terms. I quote: "The Record Company was housed in a tin shed in the suburb of Richmond."

When I brought this to Harry's notice, he conceded that as factories go "it was a pretty terrible place" with a leaky roof, no internal partitions and few amenities. Nor was it improved when they started milling operations, which further blanketed eveything with a thin layer of black dust. However, they were apparently so preoccupied with learning the fundamentals of record production that they were prepared to put up with the accommodation.

All-Australian enterprise

`Tin shed' or not, Richmond was envisaged as a completely self-contained operation, including the above mentioned milling equipment and the production of 'shellac' biscuits, which were the basis for 78rpm consumer discs of the day.

There were presses for both 10" and 12" discs (25 and 30cm), electroplating facilities to process 'mothers' and 'stampers', and a master cutting room to produce the acetate masters from both imported and local master tapes — a task which fell to Harry Mauger himself, in the early days.

Start-up equipment included a Mag-

necord tape deck with outriggers to accommodate 10" (25cm) spools and a `Connoisseur' cutting lathe, made by Sugden in England — the machine made famous by Briggs of Wharfedale, with his 'Breaking Glass' demonstration disc. It was fitted with a moving-coil cutting head, with a huge magnet and driven by a Leak amplifier.

The Connoisseur lathe had the facility — notable for those days — to vary the groove pitch while cutting (Fig.4). The first disc produced from tape to pressing, entirely in the Richmond factory, was a 78rpm childrens' record titled `Journey to the Moon' (around 1953).

However, despite the reputation of the equipment, the team at Richmond soon realised that they could not match the peak levels impressed on the American Mercury discs.

But, equally, they could not base the Australian enterprise on imported mother discs. Some seemed to take forever to arrive, thereby missing the market peak. Some also had original imperfections, or suffered damage here during the plating process, thereby doubling up on the waiting time.

It turned out that Mercury in America were using a special cutter developed in Britain by the BBC. It incorporated a feedback winding which, when used in conjunction with a 100-watt Grampian amplifier, reduced distortion and resonance effects and increased the available groove amplitude. Mercury Australia decided to follow suit.

The microgroove era

Another important change came as a result of a high level of breakages, which resulted when normal discs were despatched interstate by old-fashioned freight trains or along unsealed roads.

Their attention was drawn to a British company which had produced a plastic that could be compression moulded in existing presses. Astor imported a ton of the material, and succeeded in producing what became the first 'unbreakable' 78's in Australia. Charlie Gendle was soon producing the material in his own mill, and the extra know-how stood them in good stead when the time came to move to 45rpm and 33rpm microgroove technology.

Before that happened, Harry Mauger says that he was appointed as Production Foreman for the whole factory. Bob Morrison took over the cutting room and Frank Hulbert assumed responsibility for the mastering. (An article in this magazine for January 1979 featured Frank Hulbert, who had just celebrated his 20,000th master cut for Mercury Australia. See panel).

New Huntingdale plant

Harry Mauger says that they were never short of technical problems, but they were handled successfully by the local team: Charlie Gendle with his wealth of knowledge, Colin Swan in the plating area, Frank Hulbert, Bob Morrison and himself in the mastering section, and a staff who were genuinely interested in making a top quality product. Rarely, if ever, did they need to seek assistance from their overseas affiliate.

The team had demonstrated their ability to make records — and money — but, as the focus shifted from 78rpm discs to microgroove, the need became evident for improved facilities and conditions. In 1956, management agreed to establish a new plant, especially designed for record production, at Huntingdale, across the road from the Anodeon valve factory. By then, Charles Gendle had retired and Harry Mauger became Technical Manager.

(To be continued) ❖