
The

BROADCASTER



Newsletter of the Broadcasting Directorate

No. 6

November 1986



CENTRAL AUSTRALIA

The Broadcaster

The Broadcaster is the in-house Newsletter of the Broadcasting Directorate and is published three times a year to inform and recognise the people who make up this organisation.

Articles appearing in The Broadcaster do not necessarily reflect the views of the management of Telecom Australia.

Written and photographic contributions are welcome. All material should bear the contributor's name and location and be directed to:

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Published by: The Broadcasting Directorate,
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11th Floor
484 St Kilda Road
MELBOURNE VIC 3004

National Library Card No. ISSN 0816-3235

Front cover: SONY ICF2010 receiver
near Central Mount Stuart

Editorial

This Issue makes a feature of the HF broadcasting network recently established to serve the Northern Territory.

High frequency broadcasting to this remote area is not new. It goes back to 1928 even before the PMG's Department became involved in the National Broadcasting Service.

Although there have been improvements in transmitter technology over the intervening 58 years, they pale into insignificance compared with improvements to receivers.

The centre page shows a receiver used in Central Australia in 1928. It employed two tubes in a Reinartz circuit, a fluted horn speaker, and required A, B and C type batteries for operation. The regular replacement of the high tension battery and charging of the filament battery was an expensive outlay.

The Sony receiver shown on the front cover requires only three torch batteries for high performance operation. It can also be powered from a car battery.

The receiver uses a quartz controlled PLL (phase locked loop) synthesizer system using a microcomputer for pin point tuning. It gives a choice of direct, manual, scan, memory or memory scan tuning. Up to 32 stations can be memorised for instant tuning at the press of a button.

With the festive season approaching, we wish all readers of The Broadcaster a Merry Christmas and a Happy New Year.

JACK ROSS
Editor

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Brian Hall	



ABNT3 MT BARROW

National Television Station ABNT3 is situated on Mt Barrow about 25 km east of Launceston, Tasmania's second city. It commenced transmission on 29 July 1963 with parallel operated AWA 10 kW TVB10 type transmitters.

For the first five years of operation, program was obtained off-air from ABT2 Mt Wellington near Hobart, 178 km away, using a pair of Siemen's receivers and rugged Yagi antennas. In 1968 a 4GHz bearer replaced the off-air valve type receiving system.

A striking feature of the station is the tower. It is 85 metres high and completely sheeted in 3 mm steel plate up to the 60 m level from which point the antenna section is enclosed in a cylindrical radome some 6 m in diameter. The radome skin is 25 mm thick and consists of a core of polyurethane foam sandwiched between layers of glass reinforced plastic. The whole is supported by a series of wooden spokes radiating from a central column.

Although the radome has suffered some problems of deterioration, it has proved to be a very worthwhile investment as the antenna has sustained no physical damage due to the elements in twenty three years of operation. A similar unprotected antenna on Mt Wellington sustained frequent severe damage due to massive ice deposits.

From the outset staff have worked a year-round overnight roster with a normal weekday shift commencing at the city depot at 1300 hours each afternoon and finishing there at 1630 hours the following day.

Snow of relatively even distribution does sometimes block the roads on the relatively flat top of the mountain. The station is equipped with a Mercedes four wheel tractor fitted with a suitable blade, and staff are able to keep the roads clear for access to the station and to the tower which is situated on a knoll sixty metres above the station building.

BRIAN HALL

7NT KELSO

"A link drawing Tasmania closer to the mainland and the rest of the world . . ."; so said Prime Minister Joseph Lyons on 3 August 1935. The occasion was the opening of 7NT, northern Tasmania's first ABC radio station. The Prime Minister was in fact speaking from a recorded disc made especially for the occasion, he being in the United Kingdom at the time, representing Australia at the Silver Jubilee of King George V.

Kelso is a small town on the central north coast of Tasmania and the site of the ABC's third network station 7NT for the past fifty years.

The original transmitter was an STC type with an output power of 7kW and was complete with 20 mm thick, polished marble fascia panels. The transmitter employed low level modulation and a water cooled final power amplification stage. Distilled water circulated around the external anodes of the electron tubes. A large Ruston-Hornsby, five cylinder diesel powered generator set provided emergency power. The generator was started manually by compressed air. The diesel engine was cooled by water circulating through a cooling tower. A bank of metal rectifiers thought to be the largest in the world, provided the low tension d.c., while the 12,000 Volt high tension was supplied via rectifying tubes. The 152 m high radiator was, at the time of construction, the highest in Australia, and is still in service.

The last major equipment upgrades were the installation of an AWA 10kW transmitter in 1954 and the standby 2kW AWA from the now abandoned transmitting site at Radio Hill, Hobart in the late fifties. A second 152m mast came into service in 1966, giving Kelso's transmitting pattern a directional nature.

Kelso is currently staffed by an OIC and four Technical Officers, working on a shift basis, transmitting for some twenty one hours daily.

GEOFF CARR



Leon Sebire

From the Director's Desk

I am often asked the question "What do we as Broadcasters need to do to ensure the future of broadcasting within Telecom's Broadcasting Directorate?" My response has generally been, "We must demonstrate that we possess the three V's — Vision, Viability and Visibility". This might sound a little like a trite "motherhood" statement but I am convinced of its importance to all of us.

This issue of *The Broadcaster* marks the occasion of two years' publication of our newsletter — two years of dedication and hard work by our contributors and particularly those who have put together our low cost budget and well received magazine aimed at providing "visibility" within our relatively small but far-flung organisation.

Despite original intentions, *The Broadcaster* has achieved a circulation (by demand) well beyond our ranks and it is now read widely even outside Australia. It has indeed made us "visible" in many places and the response has been tremendous and gratifying. We have, on a number of occasions, given approval to the reproduction of our articles by others and requests continue to be received.

This will be the last issue for 1986, and I believe it is appropriate on behalf of all readers to thank our hard working Editor, Jack Ross, and his assistants for their efforts and the pleasure we have derived from their good works. I would also like to extend to our readers, their families and friends my most sincere wishes for their happiness and health over the forthcoming Christmas Season and during the New Year.

LEON SEBIRE



EXCELLENCE THROUGH PEOPLE

News Round Up

RED TAPE SLASHED

The Broadcasting Directorate was party to a unique event on 3 July 1986 when in the presence of a large contingent of Broadcasting Engineers, Director Leon Sebire presented a contract to Dr Ermenegildo Ventura of Sira Sistemi Radio, Milan, Italy.

The contract is for the supply of omni-directional circularly polarised FM broadcasting antennas which will be used in the Australian Broadcasting Corporation Second Regional Radio Network. The equipment will be supplied through Magna-Techtronics (Aust.) Pty. Ltd. whose principal is Mr Barry Lancaster.

The presentation took place at the conclusion of a seminar conducted for the benefit of the Directorate by Dr. Ventura. The seminar concerned the products and services provided by Sira and the design and construction techniques employed by the company.

The presentation of the contract was made possible with the co-operation of Telecom's Accounting and Supply Branch in cutting red tape to enable the documents to be delivered while the seminar was in progress.

GORDON EVANS



L to R: Leon Sebire, Dr Ventura, Barry Lancaster.

LUCKY ESCAPE

Recently, Trevor Franklin from the Broadcasting Technical Centre in Perth was glad safety shoes had been invented.

In the process of moving into his new home Trevor was unloading a side wall of a garden shed from the back of a truck. Even though he was wearing gloves Trevor lost his grip on the panel and it dropped about 30 cm onto his shoes. The impact on his Safety Shoes dented the steel cap about 3 mm — imagine what it would have done to his foot if he had been wearing ordinary shoes.

KEVIN BUCKLAND



Saved by the boot.

QUEENSLAND ANNUAL CONFERENCE

The Annual Conference of Station and Depot OIC's was held in Brisbane during June. The Conference was honoured by the presence of Director Leon Sebire who attended for one day. Mr Sebire addressed the meeting on future developments and the many challenges which the Directorate faces in the future. He also took the opportunity to present Graham Stead OIC of the Townsville Depot with a long service badge.

All concerned voted the Conference a very successful one and agreed that the formation of the Broadcasting Directorate and the establishment of Districts to control the operation of groups of stations were major highlights in more than half a century in the history of the National Broadcasting Service.

DOUG SANDERSON



Rear: Merv Hixon, Jeff Cirson, Bob Horsley, Brian Cleary BOM, Graham Stead, Bob Sullivan.

Centre: Chris Russell, Jack Barden, George Marshall, Barry Smith, Peter Tilley, Chris Duffy, Jim Heath, Tony O'Brien.

Front: Jeff Laidlaw, Frankie Bonomo, Dave Walker MMS, Bill Barter, Keith Ross, Mick Pike, Geoff Bucknell, Arthur Naylor.

YOUR BLOOD HAS MANY USES

The Red Cross Blood Transfusion Service is always in need of blood. Telecom supports the service and staff who volunteer as blood donors or who give blood transfusions are regarded as being on duty for the period of absence necessarily involved.

The following comments by Donor Recruitment Officer Sue de-Deer indicates some of the ways your blood can be used.

It has become increasingly common to divide blood into various components so that patients may be treated only with those they actually need. Red cells, platelets, cryoprecipitate and fresh frozen plasma are generally prepared by the Blood Transfusion Services throughout Australia, but the more complex processing of plasma components needs to be carried out at the Commonwealth Serum Laboratories.

Blood loss of more than about three pints — as a result of an accident or major operation, requires a transfusion with whole blood to replace lost blood cells and restore or maintain normal blood pressure.

With extensive and severe burns there is a massive loss of plasma which needs replacing if the body is to function normally. In these cases the patient is treated with plasma protein solutions.

Haemophilia is an inherited bleeding disorder caused by lack of anti-haemophilic factor (clotting factor 8). This can be separated from the plasma of fresh blood and stored in frozen or dried concentrated forms, until required by the patient after common or minor bleeding episodes.

Anaemia due to the shortage of red cells is not uncommon. If a transfusion is required, red cells can then be used for the treatment of these patients.

Some plasma contains special antibodies which can be extracted and concentrated. These can be used to treat or give temporary protection against diseases such as measles, rubella and infectious hepatitis.

LEW GRUBB

NEW API BRANCH FORMED

In May 1980, staff at Radio Australia Shepparton formed a Social Club in order to promote social activity amongst staff and to provide amenities not available through Telecom.

The Club has been an outstanding success. Family and staff functions have been regular events while Club members have taken an active role in catering for retirement functions and similar activities. The RA Christmas Bar-B-Q is the key event on the calendar.

Club assets include pool table, table tennis table, soft drink machines, barbecue and other items.

There are some 55 members and the Club was recently granted API Branch status. This has a number of advantages in that members now receive a better financial return for their API membership and they maintain a linkage with the larger Shepparton Branch of the API.

Recognition and thanks must be given to Kevin North STO3 who as Social Club President since inception guided the Club through its formative stages and eventual API Branch status.

BRUCE WILSON

NEW UHF ANTENNA

When the Adelaide UHF television translator service was established in 1980 local building regulations and restrictions imposed by the building owners dictated the position of the transmitting antenna on Grenfell Centre, a 100 m high office block in Grenfell Street. The antenna was erected on the south eastern corner of the plant room just below the top of the building.

In 1985 work began on the construction of Telecom House located only 50 m away from Grenfell Centre and designed to be about the same height. Investigations revealed that the Telecom building would seriously distort the radiation pattern of the transmitting antenna and decision was made to provide a new antenna contained within a 7.4 m by 1.2 m diameter fibreglass radome and to erect it on the roof of Grenfell Centre so that the signals would pass over the top of Telecom House.

In May 1986 when the Telecom building had reached its maximum height, opportunity was taken to use the construction crane to lift the new antenna onto its foundations on the building nearby. The work was carried out early in the morning and was completed without any problems.

BRUCE MCGOWAN

MAINS POWER CABLE DAMAGE

Urgent action to replace the mains power cable feeder to the ABGS1 Mt Burr television station became necessary when lightning struck the cable at 8.20 p.m. on 8th May causing extensive damage. The original cable feed which comprised twin cables of the paper insulated lead sheathed and steel wire armoured type had been damaged three years previously when a disastrous bushfire swept through the property. On that occasion the flames caused the exposed fibrolite pipe to explode and the pitch in the terminal box to boil. Extensive repairs were necessary.

A point of interest with the latest fault was that when shift Technician Sam Mugridge arrived for duty next morning he found the gate padlock hot to touch. The damaged cable had caused an earth current to flow through the metal gates which are near the transformer pole.

During the replacement operation, SLO2 Jim Finch, OIC Radio Lines group, arranged provision of a trench and the laying of 100 mm PVC conduit to carry the new feeder cables.

Station OIC Ron Mitchell had an anxious time hoping that the station power generating plant would keep operating. Except for a minor problem after cessation of transmission one night, the plant performed well.

RAY GALLIFORD

CENTRAL COAST TV EXPANSION

Work has commenced on a project to improve Television reception to residents and holiday visitors in the New South Wales Central Coast region. When the project is completed by Christmas local viewers will have a service equal to the best in Australia.

These new translator stations combined with the benefits of VHF technology will bring communities which have lived with poor TV reception for years closer to local, national and world events and entertainment.

The translator station sites are located at trig stations/look-outs in Rumbalara Reserve near Gosford, Bouddi Reserve near Macmasters Beach and Wyrabalong Reserve near Forresters Beach.

The Gosford translator will serve the Brisbane Water area, the Woy Woy Peninsula, part of Erina Valley and areas around Narara and North Gosford. The Bouddi translator will cover the northern Sydney beaches, the region from Koolewong to Point Clare and parts of Kincumber and Green Point while the Wyrabalong station will serve the coastal strip south to Terrigal and north to Munmorah and the Tuggerah Lakes area.

VIC AUDET

NEW WATER TREATMENT PLANT

The water treatment plant for the Radio Australia transmitters on Cox Peninsula was upgraded recently.

The original demineralization plant was installed in the late 1960's to supply deionized water for transmitter water cooling systems. The plant demineralized the raw water by chemical reaction, using cation and anion exchange materials to remove dissolved ionizable substances. When the exchange materials became exhausted, they had to be regenerated with hydrochloric acid and caustic soda.

The decision to replace the demineralization plant was made when the quality of deionized water was no longer satisfactory and the plant's maintenance was becoming uneconomical.

The new unit contains an ion exchange cartridge which contains a mixture of strong cation/anion resins. As the raw water passes through the resins, the dissolved salts are taken up by the resin and exchanged for hydrogen and hydroxyl ions. These then recombine to form water. Hence unwanted salts are replaced by pure water. Periodically, the cartridge becomes exhausted of hydrogen and hydroxyl ions and must be replaced.

GRAHAM SHAW

AIR CONDITIONER LIFTER

Many air conditioning units in remote area buildings are mounted high above the floor level and the removal of these units for maintenance purposes can be a problem. Typical heights are 2 m but even 2.5 m is not unusual.

The Eyre Peninsula District staff in South Australia developed a transportable lightweight frame which has simplified the removal of the unit and at the same time made the operation much safer.

Previously two staff members each climbed a ladder, pulled the air conditioner out of its container and then gingerly and with difficulty stepped down their ladders carrying the unit.

The mechanism now used has two car bumper-type jacks located on a frame 1 m x 1 m x 2.3 m high with extra 0.5 m legs when used at one of the stations where the air conditioner is higher than normal.

A platform with sheet metal folded over the edges is attached to the jacks. The jacks as purchased were modified to allow the handles to be screwed into position.

Each man operates a jack with the operation being synchronised so that the platform remains level when being raised or lowered.

To remove the air conditioning unit, the platform is raised to the required height using the jack, the unit is unbolted and pulled out to sit in the middle of the platform. It is then lowered to the desired height where the necessary maintenance can be performed.

For transport, the lifter legs are carried on the vehicle roof rack and the dismantled remainder fits into the back of a station sedan.

JOHN LOVEGROVE

Engineering Highlights

GUY REPLACEMENT AT 6WF/6WN

Replacement of the guys on the 177 m top loaded 6WF/6WN radiator became necessary because of the increasing cost of guy maintenance and the long down-times involved in the work. The design of the original insulator mounts resulted in operational problems due to arc-overs.

The guy-replacement operation commenced with a site meeting to discuss safety aspects, mast security, and an efficient working approach. SLO Stan Randall, assisted by LO Allen Johnson, established three working groups relating to mast, ground, and winch activities. LS3's Tony Monk, Ian Hodson, and Ross Stewart led individual groups which, in democratic fashion, took turn about at various phases of the operation. Doug Roxborough attended to theodolite stations vitally important for mast alignment purposes. These stations were surveyed by Senior Draftsman Ian Gibbs, who returned periodically for alignment checks.

This mast is the largest structure tackled to date by the W.A. Broadcast Lines group. Winch hydraulics fell short of the heavy loads and required extensive modification before work could continue. Although for the lower guy sets winch loads were light, loads of up to 2.5 tonnes were encountered on the two upper sets of the four-guy set.

Throughout the project, structural expert Bruce Cook from Central Office advised, among other things, guy tensions to be used at various stages, and the procedures to achieve final balanced mast alignment.

Technical specification of the new guy system included the use of 'bridge strand' guys, which was a departure from the older style flexible 'rope' guys. Initial tensions were set at: Top guy 60 kN; 3rd guy 86 kN; 2nd guy 48 kN; Bottom guy 48 kN.

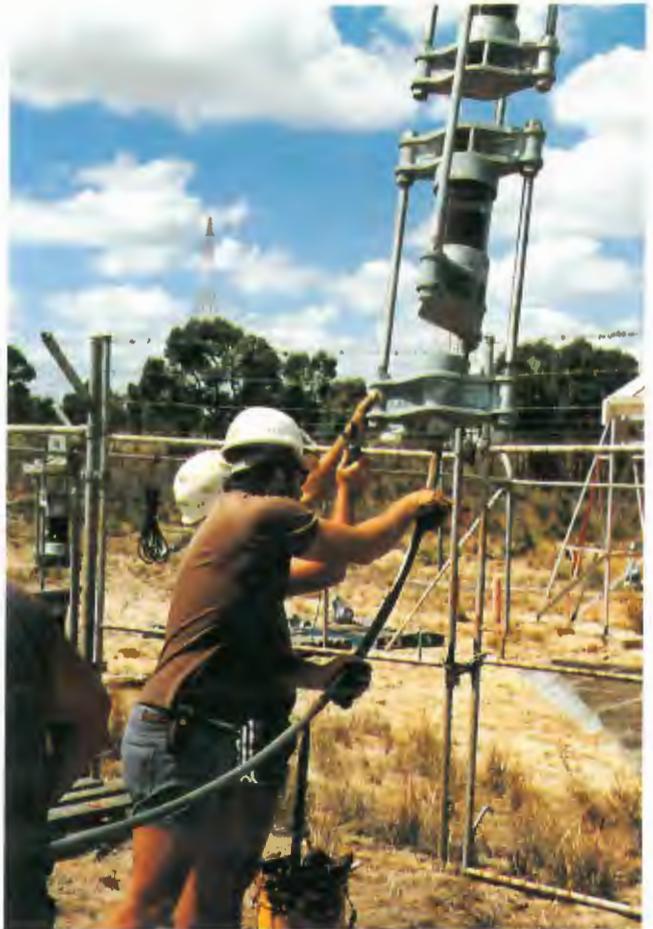
Interestingly the tensions for the two higher level guys of the new system are in approximate reverse order from that of the old system.

The first new guy was installed on 20th February and the last on 14th March; Sustained effort by a dedicated group of Broadcasting Lines staff and efficient working methods were the principal factors which allowed such a large undertaking to be completed in such short time.

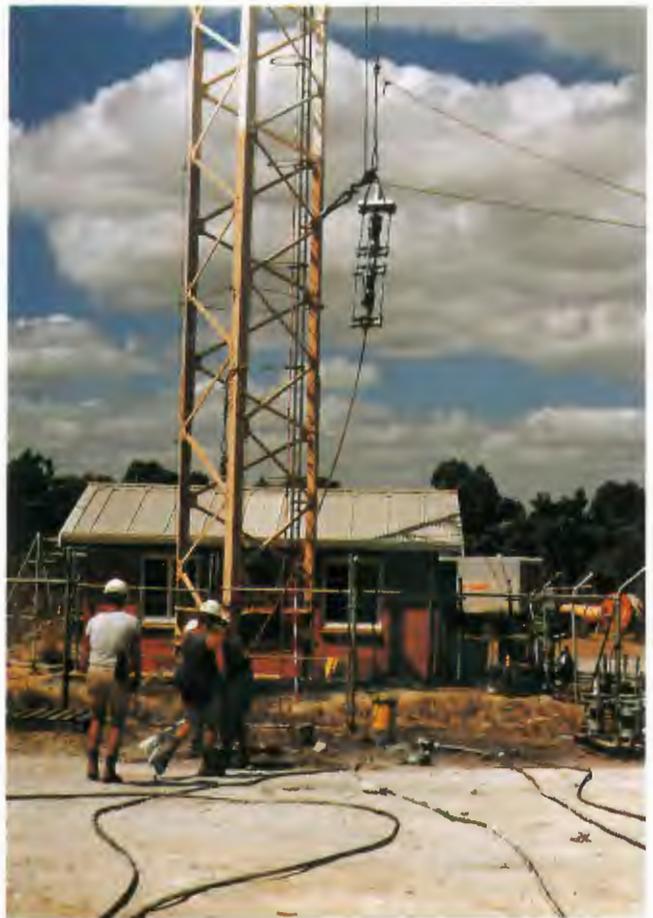
ALAN MCCARTHY



Project Engineer Alan McCarthy checking insulator assembly.



Applying protective grease to guy rope.



Another guy on the way.

New Program Format

SHOWER SERVICE SPEAKS OUT

The Northern Territory has a new powerful media service. Reception reports of the High Frequency Service have come from Finland, Sweden, Austria, all along the American East Coast, Canada, Japan and from around Australia.

Even before VL8A Alice Springs officially opened on 20 February reports of the test transmissions flooded in with one of the first being from veteran New Zealand DX-er Arthur Cushen.

With the subsequent commissioning of VL8T Tennant Creek and VL8K Katherine, an average of ten reception reports, often accompanied by tapes, arrive each week for the ABC in Darwin for verification.

Programs on VL8A and VL8T are vastly different from those on VL8K.

The Central Australian Aboriginal Media Association (CAAMA) supplies about twelve hours of programs each day for Aboriginal communities in the Alice Springs and Tennant Creek regions. These programs are supplied on contract to the ABC which is managing the High Frequency Service until an appropriate body is established to control the system at arms length from all its eventual users.

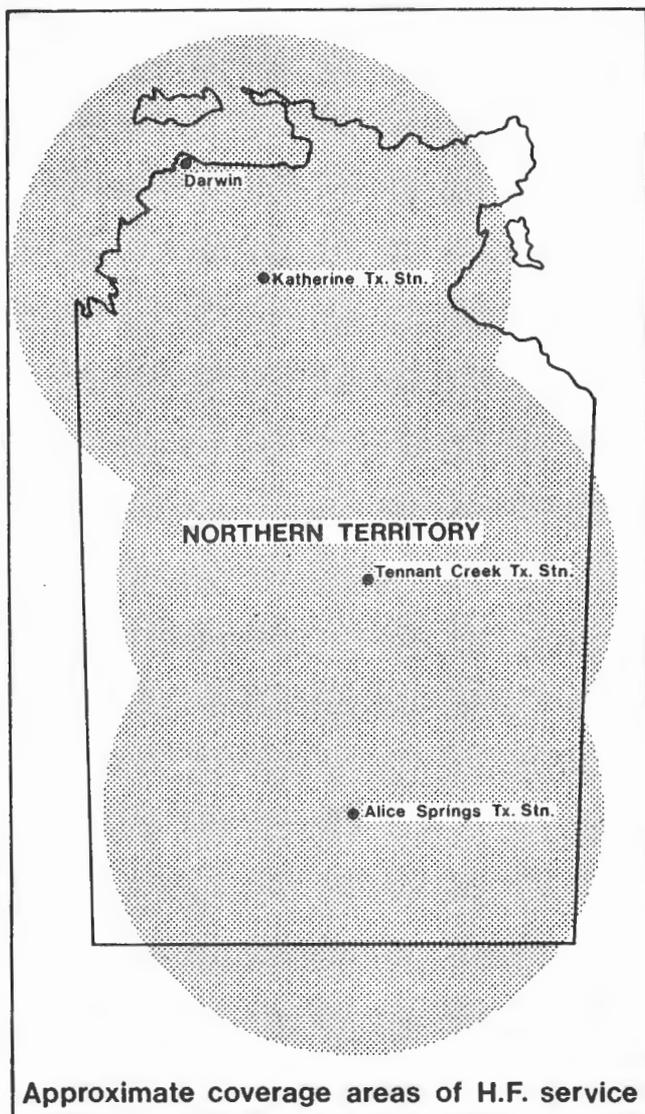
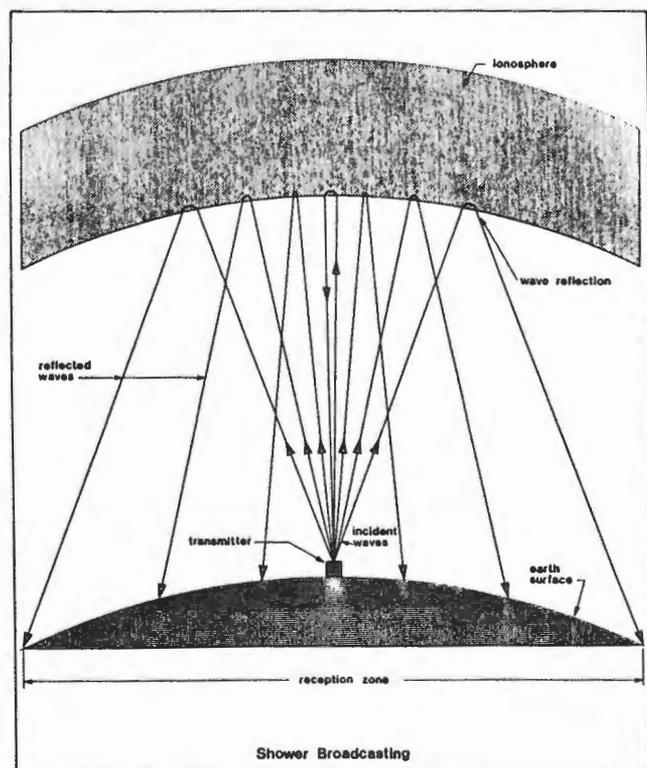
News in Central Australian languages plays an important part in this program line-up. From early morning, news in Walpiri, Arrenta and Pitjantjatjara can be heard along with an afternoon English bulletin.

VL8A and VL8T return to the Northern Territory ABC service during the day for news bulletins, the Country Hour as well as programs such as AM, PM and the local Territory Extra.

In the early afternoon CAAMA provides talkback access, a hospital program, more news in language, a very popular rock music half hour, and indepth profiles of the Aboriginal communities served by the High Frequency transmitters in Alice Springs and Tennant Creek.

VL8K Katherine at the moment has a much smaller Aboriginal/Islander output as there is no organisation similar to CAAMA in the Territory's Top End and CAAMA programs would have little relevance there.

An ABC contract employee Les ("Echo") Cole compiles and presents a daily two hour program from 2.30 p.m., Monday to Friday, for communities in the Top End.



Approximate coverage areas of H.F. service

Echo has a special affinity with these communities as he is a "local" and pioneered Aboriginal programming on the Darwin Public Broadcaster 8TOP-FM some four years ago.

At other times during the week VL8K is attached to the Northern Territory Service as are all the shower stations on weekends and public holidays.

In providing access to the High Frequency Service, the ABC is responding to the Australian Broadcasting Corporation Act and Federal Government Policy.

The Report of the Task Force on Aboriginal and Islander Communications — subtitled "Out of the Silent Land"; set strategies for Aboriginal broadcasting which later became this Federal Policy. Part of the recommendations was that "programs should be aimed at the development and maintenance of Aboriginal culture . . . (and) programs should be prepared and presented by Aborigines with due regard to the unique needs, attitudes and opinions of Aboriginal people".

These programs have generated a lot of interest overseas, particularly among people who have never heard Aboriginal language or music, much less met an Aborigine or Islander.

Many reception reports request details of traditional music and where records can be purchased.

There have been complaints about the CAAMA program content on VL8A and VL8T, particularly the amount of air time non-European programs have daily. However, when it is pointed out that 80% of all people in the coverage areas are Aborigines who do not use English as a first language and that there is an alternate program receivable on VL8K, the complaints usually disappear.

The Territory ABC is justly proud of its proven international voice.

BOB O'SULLIVAN

Serving Rural Australia

6WA WAGIN — THE WHEAT AND SHEEP BELT

Broadcasting station 6WA Wagin is the senior regional transmitting station in Western Australia, being commissioned on 7 December 1936. It started service in the days when an isolated station had to be self supporting even to the extent of generating its own power for a water cooled transmitter and providing accommodation on site for the operating staff.

Today, the station comprises a 50 kW transmitter feeding a 200 m radiator and is operated by a staff of seven compared with the original complement of 17 which in addition to the transmitter Technical staff included Fitter and Turner, Diesel Mechanic and Electrician.

The name Wagin was derived from an aboriginal word 'wedge-on' which means emu. The nearby lake was a popular emu watering place.



6WA 200m radiator.

Settlers began arriving in the area in 1840 when a sandalwood industry was established. A Post Office was opened in 1893 and a Telegraph Office added in 1901.

Wagin has a population of 2650 and is situated some 227 km south east of Perth. It is an area of fertile land known as the wheat and sheep belt.

Although Western Australia comprises a very large area most of the intensive farming is confined to the south western corner. The belt of land from near Esperance to Geraldton produces nearly all of the State's wheat and about 96% of its wool. Western Australia is the second largest sheep raising State with some 30 million sheep. Only New South Wales has more sheep.

Farms in the area are generally large, ranging in size from 500 to 1200 hectares with a typical farm growing wheat, barley or oats and carrying about 1500 sheep and cattle. The sheep graze on the stubble after the wheat has been harvested during December. The farmer trucks the grain to the nearest rail sid-

ing where it is stored in large bins to await railing to one of the ports.

Some of the top wool is produced in the Wagin area with many of the stud breeders commanding very high prices for top quality stock. The annual Woollerama Show is one of the largest rural shows in Australia.

The importance placed on the wool industry is emphasised by the giant fibreglass ram, seven metres tall and fifteen metres in length erected in the town. He has been dubbed locally as Big Baart and is a popular tourist attraction.

STEVE FARRALL



Wheat as tall as a man.



Loading a field silo.



Big Baart.

Our Broadcasting Pioneers

MR W. (WALLY) CLAIR

Wally Clair commenced work in the Postmaster General's Department in August 1924 as a Telegraph Messenger delivering telegrams at Mosman. His ambition was to enter the technical area and after burning the midnight oil was successful at the entrance examination for Junior Mechanic-in-Training.

Unfortunately, Wally was laid up for a long time due to illness and was unable to commence training for some time. After resuming duty and while waiting to commence training he filled in time as Telegraph Messenger at the Sydney GPO.

During his on-the-job training and school lecture and instruction work, Wally fitted in a training course as a Military Cadet. The Junior Mechanic-in-Training course proceeded smoothly until the fourth year when the nation's economy hit rock bottom as a result of the Great Depression. The PMG Training School was an early casualty and closed. The trainees transferred to other duties.

Wally was sent to Cremorne Post Office as Postal Assistant but seized an opportunity to transfer back to his home town Mosman to work in the exchange. He was later reclassified as Postman and lo and behold found himself immediately on the staff of the 2FC/2BL studios on pick-up duties.

His experience widened to other areas in the studios including studio maintenance and control room duties. He passed the Open Mechanics examination and was appointed as Mechanic in 1935.

In 1938 when work began on the establishment of a transmitting station at Prestons near Liverpool for 2FC, Wally transferred to the installation staff. On completion of the commissioning activities he was appointed as a member of the maintenance team and remained there until his retirement in October 1971. He saw the centre grow to include 2BL and the High Frequency Inland service VLI and both 2FC and 2BL being upgraded to 50kW in 1962.

During the war a listening post was set up on the station for receiving BBC news and for monitoring enemy propaganda. A more elaborate centre known as Snake Gully was later established with rhombic antennas directed on London and American Forces bases in the Pacific.

After spending 33 years at the station Wally is a regular visitor ensuring that the present staff maintain the best traditions of the broadcast transmitter fraternity.

MELINDA CONLON/PETER POLDER



Wally Clair (R) with Bob Barrett (former BOM) at VLI transmitter.

Achievers

CAR RALLY FEVER

Jim White, Technician in the Sydney Audit Group, is an enthusiastic car rally organiser and participant.

Jim's involvement in rallying spans over 15 years. In 1971, he began servicing rally cars for other drivers, became a member of Central Coast Car Club, and went on to navigate in these vehicles. In 1976 he became a member of the Deep Water Sporting Car Club and more frequently got 'behind the wheel'. By 1979, Jim started rallying his own car, a Mitsubishi Lancer and by 1980, completed the 2GO Forest Classic. By this time Jim's interest had expanded not only to competition but to the complexities of organising rally events. From



Jim White rounding the corner at top of a hill.

control officer, Jim worked his way up to Assistant Director for Australia's first recognised international event, the 1983 Dunlop 2GO International Forest Classic.

Jim's determination for the recognition and promotion of rallying in Australia culminated in being appointed Director of the 1985 2GO Rally, the largest event to be held in recent years and the first rally organised in this country using the International Group A rules.

The event covered more than 1700 km between Gosford and Coffs Harbour and brought the rally within close proximity to TV transmitter sites at Middlebrother and Mount Moombil. It was estimated that 10,000 people followed the forest route over the three day event.

This year the rally was held in and around Gosford during August 9th and 10th, and was a great success due mainly to Jim's organising and planning abilities.

One of the hallmarks of his career in the sport was the 1978 Southern Cross Rally when as a member of the service crew for the Gosford Dynotune-Mitsubishi team their car came first in its class, was the first privateer home and they were awarded the Manufacturers' Trophy. Jim's long term ambition is to see the World Championship held in Australia.



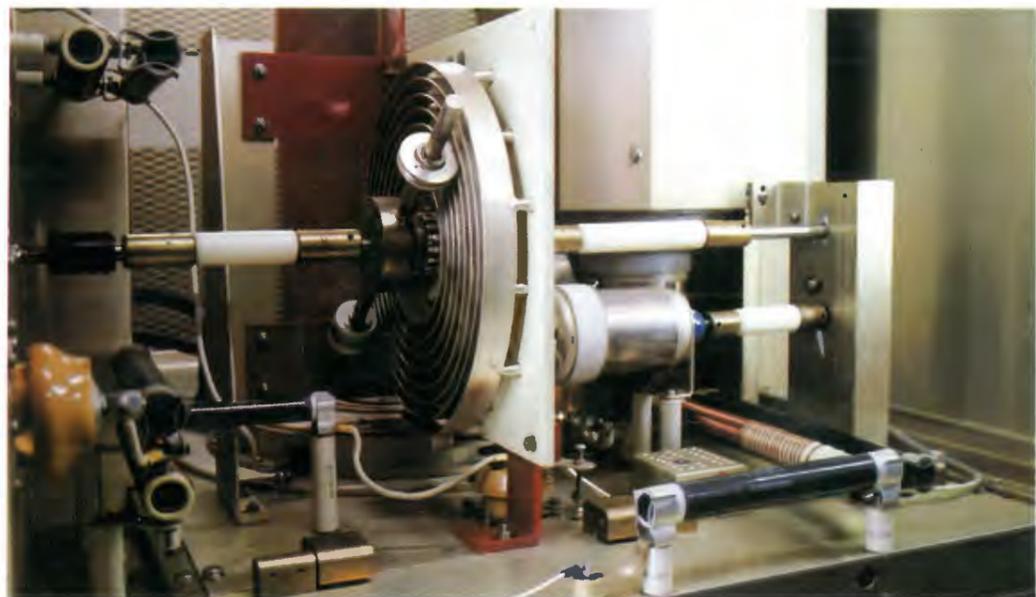
High speed cornering.



Receiver used for HF transmissions to NT 1928.



Continental transmitter.



Penultimate stage tuning coil.

HF Broadcasting Service

SHOWER BROADCASTING

The need for a broadcasting service to serve the isolated settlements of northern and central Australia was recognised even before establishment of the National Broadcasting Service.

In 1928 the Research Laboratories of the PMG's Department established experimental station VLR at Lyndhurst near Melbourne to cover the western and far northern districts of Queensland, north-west of New South Wales and the Northern Territory. Transmissions were limited to two to three hours daily using a 500 Watt transmitter on 9580 kHz.

Response from listeners was encouraging and in March 1934 the station was placed in regular service to broadcast the ABC programs. The transmitter power was increased to 1000 Watts.

The Lyndhurst transmissions were later supplemented by a service originating from VLW Perth but the listeners were not satisfied with either service as the programs contained very little of local interest to Territorians.

Plans for providing high frequency stations based in the Northern Territory go back at least 25 years but this year 50 kW stations were commissioned at Katherine, Tennant Creek and Alice Springs so ending a very long wait by many isolated outback communities for a local broadcasting service.

Programs for the service generally originate in the Darwin studios of the ABC. For most of the time they are the same programs as broadcast over the medium frequency stations 8DR Darwin, 8AL Alice Springs, 8GO Nhulunbuy, 8JB Jabiru, 8KN Katherine and 8TC Tennant Creek. The Central Australian Aboriginal Media Association (CAAMA) also provide programs mainly for transmission over the Tennant Creek and Alice Springs stations.

The stations use a technique known as vertical incidence transmission, sometimes called "shower" broadcasting. This is a technique whereby radio waves are transmitted upwards in a narrow conical beam to be reflected back downwards by the ionosphere in a more dispersed beam for reception within a planned coverage area. Each station has an approximate range of 450 km in all directions.

Properties of the ionosphere vary considerably due to the influence of solar radiation throughout each day, and cyclically with solar activity over periods of some eleven years. These changes affect the efficiency with which radio waves of different frequencies are reflected. Because of this, it is necessary for the operating frequency of each station to be changed twice during each day, normally around 8 a.m. and 5 p.m. The stations operate in the 120 metre band (2.3 to 2.5 MHz) during night and morning and in the 60 metre band (4.8 to 5.0 MHz) during daytime.

Each station comprises a Continental Electronics Type 418D-2 100 kW transmitter cut back to give 50 kW output. The modulator uses two 4CV100000C type tetrode tubes while the power amplifier uses one of the same type. These tubes use a vapor-phase cooling system which is superior in efficiency compared with a conventional water cooled system due to exploitation of the latent heat of vaporization of water.

Each antenna is a wide band broadcast type capable of handling 100 kW carrier power plus modulation. The curtain was assembled on the ground and hoisted to its correct position by winching up the supporting rope. The dipole elements were fabricated from alumoweld wire, a wire composed of a high strength steel core and an integral aluminium coating.

The Alice Springs station VL8A commenced test transmissions in February and was officially opened by Mr. Michael Duffy, Minister for Communications on 20th February, 1986. The Katherine station VL8K went to air on 31st March and the third station in the network VL8T Tennant Creek began transmission on 14th May.

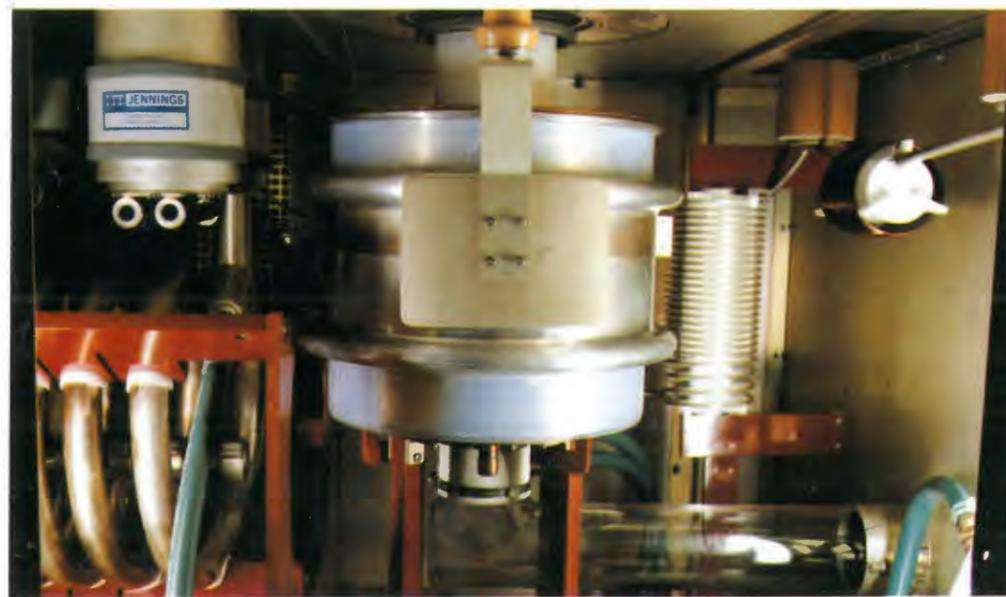
WAYNE CROFT



Transmitter building.



Antenna system.



Power amplifier and tank coil.

End of an Era

HIGH PARK CLOSED

In 1932, the Research Section of the Postmaster General's Department established a receiving station at Mont Park, a suburb just north east of Melbourne for the purpose of monitoring and relaying the new BBC Empire Service.

Facilities comprised one receiver housed in a portable type corrugated iron garage and one Rhombic antenna situated on leased property of about 36 ha. About 12 months after establishment, the facilities were transferred to the Victorian Engineering Branch for operation and maintenance.

The station expanded considerably during the war period when it became an important listening post for intelligence gathering for the Department of Information as well as performing its role of receiving the BBC transmissions for re-broadcast.

After the war, the growth of industries and housing resulted in high electrical interference with the receiving facilities and a new station was constructed at High Park near Kilmore some 60 km north of Melbourne. The station was commissioned in 1959.

Over the years the main duties and responsibilities at High Park included:

- A reception terminal for interstate radio telephone and telegraph services.
- Off air broadcasting reception from the BBC and other services for ABC re-broadcasting purposes. Reception of the BBC and other international overseas broadcasting services for ABC news gathering purposes and for the Telecom Research Laboratories in respect of time signal services.



L to R: Leon Firestone, Bill Harder, Ken Johnston, Peter Dainton, George Weissman, Jack Carnell, John Robinson, Bill Edwards, Chris Rogers, Jack Buckland, Keith Ferrer.

- Band scanning and station identification activities for the International Frequency Registration Board and the Broadcasting Directorate. Reciprocal monitoring reports for international short wave broadcasters.
- Transmission checks on Victorian NBS transmission and Radio Australia transmissions from Shepparton and Lyndhurst.
- Oversight and service restoration of short wave communication receivers provided by others e.g. Country Fire Authority, Victoria.

However, the importance of these services steadily declined because of the development of alternative communication systems, including the use of satellites, and many of the earlier functions had been discontinued.

The station ceased its Broadcasting role on 9 July 1986 but the facilities will be put to good use by the Department of Communications who will use it for radio frequency management purposes.

The closure was marked by a farewell function held at the station on 27th June and attended by Jack Carnell Acting State Broadcasting Manager, the staff and friends from Central Office and other areas.

Officer-in-Charge Peter Dainton and Technicians George Weissman, John Robinson and Bill Harder had between them accumulated 100 years of dedicated broadcasting service. Peter has been transferred at his own request to an Operations District position in Wollongong NSW, whilst Bill opted for retirement and headed for Queensland where he has a small property. George and John also opted for retirement but will remain in the area where they have lived for many years.

RAY WEEKS/DAVID DUFFIN

RA Monitor

VICTOR GOONETILLEKE

Notwithstanding the growth of direct satellite broadcasting shortwaves are likely to remain the principal means of broadcasting internationally for a very long time to come. They are still the most cost effective means of providing sound broadcast services throughout large areas. They have the considerable advantage over a satellite service in that they can be readily received on simple cheap receivers already possessed by vast numbers of listeners and special antennas are not necessary for the average listener.

The Directorate employs over 30 monitors living in the target areas of Radio Australia to report on our shortwave service. They provide weekly reception reports on Signal strength, Interference level and Overall quality (SIO) of RA transmissions.

The work represents a commitment of time over four or more days per week and the pay is determined on the basis of performance. Such a monitor is Victor Goonetilleke, who lives in Pilyandala, Sri Lanka, is aged about 40 years and is married with two children.

Victor belongs to that special class of people known as short-wave DXers. They take pride in logging the transmissions of broadcasts from all around the world and collect "QSL cards" (acknowledgement cards) from broadcasting organisations.

DXers make excellent monitors as is testified by Victor's personal writing paper which states he is an official monitor for the Voice of America, BBC, Radio Vertias, Radio Vatican and the Far Eastern Broadcasting Association — Seychelles.



Victor Goonetilleke. Sri Lanka.

The current file on Victor Goonetilleke goes back to 1978 but, according to a sage at the ABC, Victor has been around for over twenty years. Some of you may have heard Victor on Radio Australia contributing short wave snippets to the RA Talkback show, which is primarily aimed at the world-wide DXing community.

Victor is a regular contributor to the Australian DX news, a local magazine and is co-editor of the World Radio and T.V. Handbook — the DXer's bible. If we could find monitors like Victor in all our major target areas our task would be greatly simplified.

To give an insight into the difficulties under which Victor sometimes has to operate, the following extract from a letter tells the story:—

"Second disadvantage is that the local power supply is not reliable like in the Colombo city limits. Here at peak hours 0030-0130 in the morning and 1300-1530, the line voltage drops to about 170V which means that I can not have the use of the Collins and Racal Communications Receivers at this time which is also the peak listening hours. I am trying to secure a voltage stabiliser which will enable me to overcome this problem.

I have the full use of my Sony ICF 5900W and to a limited level the 2001 which draws so much that at 170V input it's like running it off discharged batteries. Of course all of you know that unless one inherits a Union Carbide factory it's not so easy to run a 2001 for long on batteries."

CHRIS DOBSON

Vision 2000

IS IT RELEVANT TO BROADCASTING?

In the early stages of the introduction of Vision 2000, many people expressed misgivings about the program. We in Broadcasting who are not in the field of installing or maintaining the telecommunications network which forms the basis of Telecom Australia's revenue, at least initially, have even more cause to question the relevance of Vision 2000.

Vision 2000 is relevant to us because we are staff of Telecom Australia, and the program has the potential to make every one of us more effective in our jobs. Also, Vision 2000 is relevant to us because the degree of efficiency with which we undertake the Broadcasting function on behalf of the Department of Communications will determine several things important to us all.

How does the program hope to make you and me more effective? It won't: we have to do that ourselves. The program can show us certain things and give us ideas, but we've also got to have the willpower to execute those ideas. Vision 2000 can help us become more effective in our jobs in many ways, usually little ones. It might be to simply give a friendly greeting to your fellow worker each day, or starting each day with a positive outlook.



In Broadcasting where we have many small groups of staff widely scattered at stations, we need to remember that isolation creates barriers to good communication.

When communication is poor, our relationships suffer and confidence and trust disappear. So we must constantly work on maintaining and improving communications. Vision 2000 asks us to concentrate on our own contribution to the efforts of a team. It does not ask us to work harder, or to do the work in less time than before, but it is unrealistic of us to imagine that there are not areas where we can improve ourselves.

The second area where I believe we can make Vision 2000 work for us is in the functional responsibility Telecom has for Broadcasting. The Government reimburses Telecom for the work of the Broadcasting Directorate and this means that until it is periodically reimbursed, Telecom's funds are not available to it for its own activities. Telecom also charges the Government a fee for undertaking the Broadcasting functions, and the Government is very conscious of the cost of this activity. We have, through Vision 2000, a chance to 'look' at the Broadcasting function within Telecom in a slightly different way. Consider Broadcasting not just as a task delegated to Telecom by the Government, but as one of the many diverse interests, even opportunities which Telecom actively seeks to undertake and even use to its own advantage. We should do this work so effectively that there is no organisation more efficient than our own.

JEROME VAN DER LINDEN

TV Diamond Jubilee

THE TELEVISION RECEIVER

There can be no doubt that high definition colour television is one of the most remarkable technical achievements of our times.

The possibility of seeing events at places remote from the observer was a dream of humanity for countless centuries. The technical advances of recent years have made this dream first a possibility, and today an accomplished fact.

The first public demonstration of a practical system of television was given by John Logie Baird to the Royal Institution in London in 1926. The BBC began experimental transmissions in 1932 using the Baird mechanical system but following further trials and comparisons with an electronic system in 1937 opted for the electronic system.

The Baird picture was composed of 240 lines transmitted at the rate of 25 pictures per second while the electronic pictures had 405 lines, the picture being scanned at the rate of 50 frames, 25 pictures per second, interlaced scanning.

Receivers developed for the electronic system employed cathode ray tubes to reproduce the picture with vision and sound sections of the receiver using tuned radio frequency (TRF) circuits. Later, the superheterodyne circuit was employed.



State-of-the-Art TV receiver (courtesy Bang & Olufsen).

By the time television was introduced to Australia in 1956, receivers had reached a high standard of performance and reliability notwithstanding the large number of vacuum tubes employed. Large screen models were readily available and television certainly created a revolution in home entertainment.

When colour television replaced black and white, solid state circuitry had been well developed and it gave a strong boost to even higher receiver performance and reliability.

It is estimated that there are some 560 million television receivers in use throughout the world today with about 6 million sets being in Australia.

Television technology has reached a high standard of excellence and receivers now provide, in addition to reception of television programs, a wide range of ancillary equipment and special features including video recorder, teletext, printer, home computer, TV games, descrambler, loop amplifier, stereo sound and others.

Although many home television receivers are part of a wider home entertainment unit with hi-fi amplifiers, FM and AM receivers, compact disc player, turntable, cassette recorder etc, most designs comprise TV receiver only, with perhaps an in-built video recorder.

Typical features incorporated in a state-of-the-art receiver include a flat/square picture tube to ensure studio quality pictures; a vision clear screen that prevents external light bleaching the colours, weakening the contrast and altering the brilliance; automatic contrast control for adjustment of level of contrast to correspond with level of light in the room; preset programs; language selection to choose between two languages when bilingual programs are transmitted; stereo enhancement; hi-fi speaker system; and of course total remote control of all functions.

JACK ROSS

Staff News

CENTRAL OFFICE

John Lawrence has returned to work after being on Accident Leave for over eight months. It is rumoured that he has a slightly bent motor cycle for sale. His replacement during this period, Gary Watts, has returned to the Victorian office.

Sandra Mannings has replaced Jean Brookes as Private Secretary to the Director. Other arrivals include Ralph Annis, Engineer Class 2 from the ABC, Terry Murphy who steps into the new Staff Services Co-Ordinator position, Greg Farrell, Staff Clerk and Nick Caruso, Draftsman Grade 2.

Dave Duffin has returned from an eight month sojourn in the Victorian office. Rajiv Anand has also joined us from that office. He replaces Mike Couzens as Finance Officer. Mike has left for the greener pastures of Commercial Services.

Some temporary transfers to Central Office have included Arch Murphy who fled back to Queensland after a few weeks to escape our winter, Trevor Gower, Engineer Class 3 who spent three months here before returning to South Australia, and Bill Papadatos, Engineer Class 1 who is here from our New South Wales office for a few months.

Carl Dillon, Engineer Class 4 has marched off to the Department of Defence. For the going away present he selected a pair of boots.

John Hodgson, whilst holidaying in Europe, visited the SIRA Systemi Radio plant in Milano, Italy. These antenna manufacturers made him feel most welcome. John claims they even flew an Australian flag at their entrance in honour of his visit.

Roy Badrock has moved to more palatial accommodation as befits his new rank of Assistant Director, Operations. His promotion followed the vacancy caused by the promotion of Max Chadwick to Deputy Director.

QUEENSLAND

Samantha and Kent Lechwere became proud parents in July with the birth of their first child Aimee Elizabeth.

Russ Dahl OIC at 4QB Pialba is back at work after a lengthy period of sick leave. Welcome back Russ.

Joe Ross TO1 decided to broaden his fields of interest and to sample the pleasant tropical climate of North Queensland. He transferred to the Cairns Broadcast Depot and has now settled down to a new lifestyle.

After almost 40 years in the PMG Department and Telecom Mick Pike OIC Peel Street Installation Depot ventured into a new career — RETIREMENT.

At a send-off held in the Irish Club on 4th July, Mick and his wife Gwenda were joined by more than 100 friends and working associates who wished them every success in their new venture.

Mick spent most of his early career as a Technician's Assistant at Perry Park before being recruited into the Installers Club. He quickly made his mark on projects like the Palm Island/Fantome Island VHF link and the Western Queensland HF links.

Mick also spent time at the ABC studios in Toowong and the Mt Gravatt Radiocom centre before transferring to the Broadcasting Branch Installation Depot. During this time he was an active member of the Naval Reserve and reached the rank of Petty Officer. He was STO1 (acting) Broadcast Engineering and Construction Section when he retired and his contribution to the installation of the AUSSAT Earth Stations assisted the timely cutover of these facilities. Mick will always be remembered as "an installer with only one standard", and his attitude was an excellent example to the younger members of the staff. Mick always believed that "near enough" was only good enough for horseshoes and depth charges and had little time for anyone who thought differently.

Mick's new vocation will allow him to spend much more time at his favourite pastimes — spoiling his wife, four children, grandchildren and watching football.

NEW SOUTH WALES

Mike Stevens formerly Supervising Engineer Engineering Construction has been promoted to the position of State

Broadcasting Manager following the retirement of Vince Thompson. Congratulations Mike.

Vic Audet Engineer Class 3 is acting Supervising Engineer Construction while Kel Stansfield OIC ABQN-5 Mt. Cenn. Cruaich is acting Principal Technical Officer.

Carol Reilly has been promoted to Clerk Class 4 as Works and Costing Officer.

Two staff retired during July. Athol Jennings TO2 ABRN-6 Mt. Nardi retired on the 9th after 36 years service and John Malouf TO2 Radio 2GL Glen Innes retired on the 23rd after almost 38 years with the PMG Department and Telecom.

In the Radio Lines group, Greg Florey has been promoted to an office based LS2 position while Ross Irwin-Clugston has been promoted to Radio Lineman.

Welcome to several new faces in the Branch; Melany Bartholomeusz, acting Assistant Works and Costing Officer, Clerk Cl. 2/3, Kathleen Lord, acting Registry Assistant, CA4 and four new Trainee Technical Officers — Andrew Phillips, Tam Tran, Ray Strickland and Mark Currie.

WESTERN AUSTRALIA

Geoff Tytherleigh Engineer Class 1, left Broadcasting recently to undertake a 12 month period of relief in the Engineering Services Group, Services Branch as Engineer Class 2.

Accounting Machinist Judy Jackson resigned from the Branch to take up a position outside the Commission. Judy was a member of the Branch staff for 17 months prior to her resignation.

A recent arrival in the Branch is Andree Espenlaub who has taken up duty as Clerical Assistant Grade 3 in Registry. Andree was previously in Central Registry at Telecom Centre.

VICTORIA

Les Rodgers from Queensland has now taken up duty as State Broadcasting Manager. Prior to his arriving, Jack Carnell provided the necessary relief in the position while David Duffin acted in the Broadcasting Operations Manager position. Welcome Les and thanks to Jack and David for your capable work.

Brian Milton ex-Radio Australia Carnarvon has transferred East and joined the Branch to take up a position of STO2 at Radio Australia Shepparton.

Congratulations are extended to Robert Ridgewell on promotion to OIC Yatpool TV station.

Other staff changes include Rajiv Anand being promoted to Central Office, David Rofe joining the Branch from Ballarat District Operations as Staff Clerk and new Telecom recruit Craig Richardson.

Babies have been the cause of some celebrations recently with Personnel Officer Helene Plessias becoming a grandmother for the first time and Accounting Machinist Dorn Dick giving birth to daughter Sabrina. Best wishes to all concerned.

SOUTH AUSTRALIA AND NORTHERN TERRITORY

Graham Shaw Manager Northern Territory Section has been promoted to Supervising Engineer Engineering Construction Section following the retirement of Bruce McGowan.

Jim Finch SLO1 Darwin has been filling the SLO2 office position in Adelaide since Alex Brown headed east to Central Office.

New faces in the Branch include Victor Dartel from FDC Darwin relieving at Radio Australia as TO1, Jean Coelli Technician from TIC also relieving at Radio Australia and Paul Nicolle who has joined the Radio Lines group after transferring from Adelaide North.

Tadeusz (Ted) Mirski Technician ABS2 Mt. Lofty retired on 29 August after 36 years of service. Ted and his wife Ursula have been responsible for preparing and presenting the Christmas functions at the station for many years. Best wishes in your retirement Ted.

Regional Museum

BROADCASTING HERITAGE PRESERVED

South Australians are currently involved in the State Sesquicentenary Celebrations. It is 150 years since the first white settlers arrived to establish the Colony of South Australia.

Broadcasting staff have thrown in their lot to preserve their heritage by establishing a museum of broadcasting equipment at 5CK Crystal Brook some 240 km north of Adelaide.

Station 5CK was the first Regional transmitting station of the National Broadcasting Service in South Australia, being commissioned on 15th March 1932.

As was the case with other early stations equipped with water cooled transmitters and local motor generating plant, the building floor area was considerable. However, transmitters which have since replaced the original installation have required much less floor space and the present 10kW unit appears to be dwarfed in the large hall. Also, the station is unstaffed so that the control room and lunch room are seldom used. The station residence which was home for eleven successive families was dismantled and shifted to another town some years ago, but resident OIC's have left their contribution to the local environment with a magnificent tree lined drive to the station building.

To take advantage of the space available in the transmitter hall and a desire to make a lasting contribution to the Sesquicentenary Celebrations staff collected together a range of equipment, components and memorabilia with emphasis on the station itself and receivers used by the listening public in the service area of the transmitter.

After a lot of detective work staff were able to locate one of the original water cooled tubes, the log book used from the first day of transmission in 1932, photographs of the building construction, photographs of the installation and commissioning team, a complete set of photographs detailing the original transmitter and many early battery and mains operated receivers. Listeners receivers built in the 1920's were used to tune-in 5CL Adelaide before 5CK began transmissions.

All items have been restored to their original glory and visitors to the station can see the display, and are given a brochure outlining the history of the station. The collection includes crystal sets 1925-1926, battery receivers 1926-1929, beautiful veneer consoles 1933, mostly made in Adelaide, loud speakers, A, B and C batteries, valves, components and even a working Wimshurst machine used to teach trainee broadcast technicians the hazards of high voltage.

GRAHAM WARD



Transmitting tubes, receivers and batteries.



Early mantle receivers and consoles.



Father Christmas ballooning down 5CK mast.

Profiles

LES RODGERS

Les Rodgers, State Broadcasting Manager, Victoria commenced service in the Postmaster General's Department as Technician-in-Training in January 1951. He was advanced as Technician at the end of 1955 and qualified as Senior Technician in 1956. Les worked almost exclusively in Broadcasting as a Technical Officer except for a short stint tracking satellites at Island Lagoon near Woomera in South Australia in 1962. He was a member of the team which built ABDQ3, the first Country National TV Station in Queensland in 1963. He stayed as a maintenance shift leader until 1966 when he was appointed as Trainee Engineer.

Les graduated as Engineer at the Queensland Institute of Technology in 1970 and worked as a Broadcasting Engineer until 1975. He was involved amongst other things in the construction of the first of the phase 7 TV stations and also the colour conversion project. He was seduced into the communications side of Telecom in 1975 where he moved around from pillar to post trying to find out how it all worked. He worked in such areas as Radiocom Operations, Transmission Planning, Forward Planning, Trunk Network Planning and Radiocom Construction. After acting as State Broadcasting Manager Queensland for eight months he finished up as Superintending Engineer Trunk Network Engineering in charge of a Group which seemed to do everything imaginable.

By this time things were starting to get too hot for Les in Queensland so he looked to the south to start a new life and was appointed State Broadcasting Manager, Victoria on 1st May 1986 arriving in Melbourne in the middle of winter.

Les and his wife Val have four grown up children, the youngest of whom hopes to commence University next year. His interests include tennis (he gave up squash after managing to beat Allan Garner) fishing and music.



Brian Rowland.



Les Rodgers.

BRIAN ROWLAND

Brian Rowland, Engineering and Construction Manager Victoria, commenced his engineering career with the Postmaster General's Department in February 1973 as Engineer Class 1 attached to the Victorian Radio Section.

During the following eleven years of service, Brian worked in a number of Radio areas, including Radiocommunications, Mobile Services and Broadcasting, where he gained valuable experience in all aspects of the planning, design installation and maintenance of communication systems.

In 1976, he decided to further his education, and undertook a tertiary course of study at the Royal Melbourne Institute of Technology and successfully obtained his Bachelor of Communications Degree in 1978. Since that time, Brian has worked mainly in the broadcasting discipline, and has been involved in a number of interesting projects including the provision of SBS CHO/CH28 in 1980, the expansion of the Victorian FM Transmitter Network, the completion of Victoria's first unattended TV station at Mt. Dundas in 1983 and the upgrading of Radio Australia Shepparton with the provision of four 100 kW Harris transmitters.

Brian was promoted to Senior Engineer of the TV and Broadcasting Group in 1983 and appointed to his present position of Engineering and Construction Manager in March 1984 following the establishment of the Broadcasting Directorate.

Brian is married with one young daughter. His hobbies are diverse and include squash, fly fishing, bushwalking, photography and music.

JACK CARNELL

Jack Carnell, Manager Broadcasting Operations Victoria joined the Postmaster General's Department as Telephonist in 1942. During the fourth year of training he was allocated to Broadcasting and was initiated into the operation and maintenance of transmitting stations and studios.

These were the days when the technical facilities of the Australian Broadcasting Commission studios were installed and maintained by staff of the Postmaster General's Department.

Jack was advanced as Technician in 1946 and qualified as Senior Technician in 1948. His first assignment as Technician was in the switchroom of the ABC Melbourne studios followed by periods in the Radio Laboratory, on installation work and at the Mont Park Receiving Station which was subsequently replaced by High Park. He also carried out inspection of the technical facilities of commercial broadcasting stations throughout Victoria on behalf of the Australian Broadcasting Control Board.

In a career extending over 40 years Jack was Officer in Charge of a number of stations including the Metropolitan transmitting centre 3LO/3AR and Yatpool TV station.

In 1977 he was appointed to the position of Principal Technical Officer in the Victorian Radio Section where he was responsible for Broadcasting and Radiocommunication functions throughout the State and activities of the Radio Line§ group. With the formation of the Broadcasting Directorate, Jack was appointed Manager Broadcasting Operations in February, 1984.

When State Broadcasting Manager John Lush left the Branch during October 1985 in order to return to private enterprise, Jack acted as State Broadcasting Manager until Les Rodgers from Brisbane took up duty.

Jack's interests outside the job include competitive chess; tennis and gardening when in the mood, and weather permitting.



Ray Weeks.



Jack Carnell.

RAY WEEKS

Ray Weeks, Manager Management Services Victoria joined the Postmaster General's Department in 1968 as a Staff Clerk with the Materials Testing Division, Melbourne.

He was promoted to the Engineering Department Admin Branch where he worked in various positions until that area was reorganised and, as a result, was transferred to the Network Service Branch. During that period Ray gained wide experience in several Admin Officer positions, working in areas such as Equipment Design Co-ordination, Lines Practices and Protection, Trunk Network Service and Radio Section, as well as Assistant Executive Officer for the Branch.

Ray was Admin Officer in the Radio Section when the Directorate was formed and was successful in obtaining the position of Manager of the Management Services Section in 1984. Included among his many duties is that of Victorian Co-ordinator for The Broadcaster.

The Branch office was originally located in Lennox Street, Richmond but was subsequently relocated at 484 St Kilda Road, sharing the same building as Central Office. Ray was heavily involved in organising the shift to ensure that day-to-day work was interrupted as little as possible.

At home his wife Jeanette and young daughters Catherine and Lauren ensure that Ray is kept fully occupied, while for recreation, he enjoys playing squash and occasionally, time and family permitting, trying his luck prospecting for gold in the old Victorian mining fields — but so far with little success. The big nugget remains well hidden under a mountain of earth or in some small creek waiting to be discovered.

Grand Prix

DARWIN BILLY-CART GRAND PRIX

The inaugural API Billy-Cart Grand Prix was held in Darwin during May 1986 and the local Broadcasters and their families received prizes for the Best Cart and first place in the Women's Powder Puff Derby. Only the men's team failed to win.

Specifications for a cart required that it have rope steering, have a maximum width of one metre, have four wheels, be made from any building material and not have any sharp projections.

Months of "think tank" discussion led to a first class design and a superb manufacturing effort by Draftsman Ralph Denison. Ralph was given the task of whipping the team into a high level of physical fitness and training the driver to handle the cart which was expected to break the sound barrier. During a lunch time round table discussion the ultimate in secret weapons was devised to give lightning speed to the cart in the straights. It was broom stick propulsion. A preliminary trial revealed that seconds could be cut off a 100 metre dash and all concerned were confident that the race would be a pushover.

The big day arrived and the Broadcasters started off in good form. With the Best Cart prize under their belt, betting was heavily in their favour and the bookmakers were feeling sick.

The woman's race over four kilometres, the Powder Puff Derby, was won easily by the Broadcast ladies with half a kilometre to spare.

It was evident that everything was going for the Broadcasters and the bookies were besieged for bets on the big race — The Grand Prix.

The starters gun signalled the start of the race and the Broadcasting Racing Team lept to the front aided by their secret weapon. The Le Mans organisers would have been proud of them.

Alas, after fourteen laps and fifteen kilometres they wearily trotted across the finishing line in third place. Fitness — lack of it on their part — won the day.

BARRIE MORTON



Justin Shaw (in cart) and Tony James.



Powder Puff Derby Winners.

Back Row L to R: Shobha Roach, Dana Morton, Nicole Shaw, Ralene Shaw, Pat Morton.

Front Row: Vivien James, Val Samuelson, Pat Dowling, Emmalene Denison (Driver), Betty Denison.



Standing L to R: Davo Denison, Dave Edwards, Geoff James, Len Som-De-Cerff.

Seated: Paul Roach, Ralph Denison, Barry Morton, Bruce Pine.

In Cart: Ross James, Tony James.



Standing L to R: Dana Morton, Nicole Shaw, Emmalene Denison, Debbie Wooster, Amanda Pine.

Seated Back: Ross James, Amanda Som-De-Cerff.

Seated Front: Philip Wooster, Justin Shaw, Tony James.

From the Back Room

THE BROADCAST ENGINEER

From the earliest days of broadcasting, the Engineer has played a major role in its development. The rate and quality of engineering development have increased rapidly since 1930 when the Postmaster General's Department acquired the A Class stations to form the National Broadcasting Service, but since the mid 1950's, development has escalated enormously with the introduction of television, FM stereo and satellite broadcasting.

The pioneers of wireless telegraphy which preceded broadcasting learnt a lot of their skills the hard way. When, for example, the Engineer attempted to construct a bigger tower or antenna system by using the same type of materials and methods that he had used before, and the structure collapsed, he tried again by using stronger components and modifications of techniques suggested by experience. He became an Engineer mainly as a result of his experience and knowledge gained in the field or in the workshop where he designed and constructed the transmitting plant.

The tremendous improvement in achievement in modern times is a result of the application of scientific and mathematical methods to broadcast engineering. The Broadcast Engineer today has to be not only skilled in electronic and radio engineering to Degree standard, but must have a working knowledge of mechanical, structural, electrical and civil engineering.

The Directorate employs 50 Professional Engineers on its broadcasting activities. In Central Office they are employed in basic areas of new station development, specialised broadcasting operations and in structural engineering.

Station development Engineers work closely with the Department of Communications in the establishment of new broadcasting stations for the National and Special Broadcasting Services. They are responsible for designing the antenna systems, drafting specifications and arranging for the provi-

sion of equipment. As such, they accept responsibility for ensuring that stations operate in accordance with the Department's Technical Operating Conditions.

In the Operations Branch, a small group of experienced Engineers determines technical and operational policies for the transmission facilities. They liaise with and advise the Department of Communications on the operational aspects of sharing National facilities with other users and are involved in occupational health and safety issues associated with the workforce. As a consequence, they are responsible for the efficient use of the Directorate's operational resources.

A recently established civil engineering group deals with the structural aspects of National broadcasting facilities. They are responsible for the design of new masts and towers associated with broadcasting antennas as well as the analysis and redesign of existing structures. They carry a particularly heavy burden of responsibility for their design decisions, as a structural failure of a broadcasting mast or tower could have disastrous consequences.

State Broadcasting Engineers on the other hand have somewhat different functions from their counterparts in Central Office, due to their proximity to the workface. They assume responsibility for planning, preparing detailed designs and overseeing the installation of internal and external plant at new and upgraded stations, as well as commissioning these facilities. As such they carry the final responsibility for ensuring each new or upgraded station is brought into operation in accordance with the Department of Communications technical requirements.

The need for innovative engineering has never been greater than it is today. The broadcasting network is in a state of continual expansion, new types of services and upgradings are pressing for attention, and there is an ever-present requirement for operational and maintenance costs to be reduced to meet the demands of those responsible for allocating funds. Complex technical problems, rising labour costs, high costs of materials and escalating mains power charges all tax the innovative skills of the Engineer to ensure constructive solutions are found for these economic and technical problems.

ROY BADROCK



"Yes, he was a brilliant Engineer until the computer broke down. He couldn't remember the formula for antenna impedance"

Letters to the Editor

Contributors to Letters to the Editor are reminded that full names and addresses must be supplied. Letters should be brief and to the point. Long letters may be edited. The Editor's decision in respect of the suitability of letters for publication in The Broadcaster is final and no correspondence on the Editor's decision will be entered into.

Sir —

Readers of The Broadcaster may be interested in my recollections of the early days of 4QS Dalby.

The installation of the 4QS transmitter commenced in May 1939 and while Engineers Vern Kenna and Sam Ross were on a visit to Dalby I applied for a job.

They referred me to Arthur Clark for an interview and examination. Arthur showed me around the transmitter and apparently being satisfied with my answers to the many technical questions, I was taken on the staff.

A week later, I found myself in company with two new recruits from Brisbane, John Wheller and Toby Marcus, bashing and drilling holes and channelling in the concrete floor of the transmitter room.

I remember the kindness and help of Senior Mechanic Tom Knott, of Fred Emmerson from 4RK, Bernie Duggan from Brisbane and Bill Stoddart from the Workshops. Bill did an expert job assembling the pipes for the water cooling system and the solid coaxial transmission line to the 711ft radiator. He was assisted by Bert Williamson.

In the initial stages Vern Kenna was Engineer in charge of the installation but was called to some other job and Mick Hall completed the work and carried out the commissioning. Engineer Roy Hutchinson was also involved.

The STC transmitter was an interesting one with its low level modulation-grid bias type — on the 500 Watt driver unit, the two 5kW Linear Amplifiers with common output tank circuit, the four water cooled triodes which obtained their anode supply from a 12kV rectifier using mercury vapour tubes.

The station went to air in October 1939 and Foreman Mechanic Harry Conway arrived from 4RK Rockhampton and Arthur Clark returned to the Brisbane Studios.

The operating staff at 4QS comprised Harry Conway, Bernie Duggan, Fred Emmerson and myself.

During the War years the station OIC was issued with a .45 revolver which the man on night duty was instructed to wear when venturing out of doors to inspect the pumps and water cooling radiator. Harry Conway was not happy about this business as Fred Emmerson, while a likeable bloke, was inclined to have a "shoot first and ask afterwards" disposition. At times we had visits from innocent, although unauthorised motorists, who had lost their way and required direction. I would be very surprised if at least one or two did not get an awful shock when Fred opened the door with the .45 at the ready.

We also had less welcome visitors — large snakes. Many a time we could hear OIC Les MacDonald blasting away with a shotgun down in the coupling hut. One day Don Brownlie had a narrow escape when a black snake came out of the chase in the Control Room.

Nowadays when I listen to programs from Interstate my mind goes back to those nights when the ABC took programs of classical recordings from Sydney or Melbourne. Terrible quality, static on line all summer, carrier systems going out of sync, interchannel crosstalk — Ugh! Listeners of today should be given a flashback to those days so they might better appreciate the advances made.

ERIC NISSEN
RETIRED 4QS DALBY

(There are three generations of the Nissen family who have served PMG Dept/Telecom. Eric's father Hans was on the Lines staff in Dalby and dug the soil samples at the 4QS site and son Kevin is currently at ABDQ3 Mt. Mowbullian near Dalby — Editor).

Let's Play It Safe

NEW AWARD

As a general rule an award is given as a reward for merit. Most Broadcast Engineers and Technical staff would be aware of awards presented by the Institution of Radio and Electronics Engineers Australia, such as the Norman W.V. Hayes Award, the Oswald Mingay Award and the Pither Award.

These are given for technical papers of outstanding merit or in the case of the Pither Award for meritorious service to the profession.

The Western Australian Broadcasting Branch has initiated an award with a difference. It is known as the 'I KNEW THAT WOULD HAPPEN AWARD' which is presented annually at the Branch Christmas function.

To quote from the nomination form for the award:

"This award is to be presented annually to the person or group responsible for the most impressive, amazing or unbelievable event that has occurred as part of their normal working habits.

To qualify for nomination the event must have been unforeseen at the time by perpetrator(s), but, in retrospect, could have been avoided by the use of forethought, clear thinking or commonsense."



As a footnote the nomination form carries the following paragraph:

"The judges consist of a group who, for obvious reasons, would like to remain anonymous. Their decision is final and seeing as no one knows who the judges are, it will be impossible to enter into any correspondence with them."

The trophy was designed and made by Senior Draftsman Ian Gibbs whose skill in the wood turning field was recorded in the July 1985 issue of The Broadcaster. The dish was turned from a block of jarrah and the support structure was cut from galvanised sheet steel. The shuttle is of the matchbox variety.

The inaugural presentation of the award attracted a large number of nominations. Those nominated ranged over the whole of the Branch staff and included such eminent persons as the Broadcasting Operations Manager and the Supervising Engineer, Engineering and Construction. After considerable soul searching and deliberation the judges reached a unanimous decision. The award went to Ian Gibbs.

There must be a moral in this somewhere.

KEVIN BUCKLAND

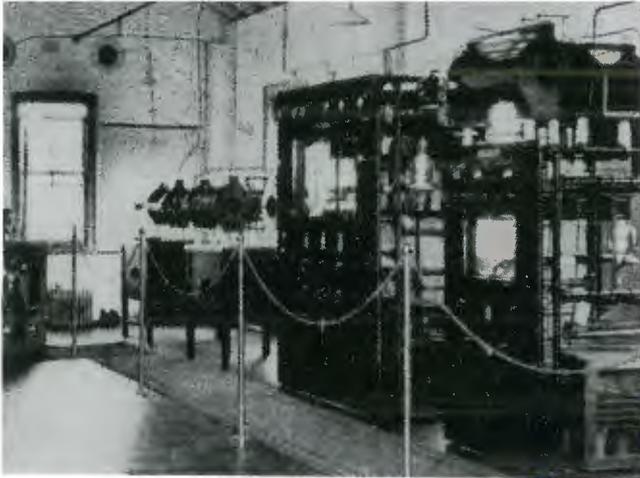
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Broadcasting Milestones

2FC SYDNEY

Station 2FC operated by Farmer & Co. Sydney, commenced transmissions on 5 December 1923 with a temporary transmitter and a studio on the upper floor of the company's huge departmental store bound by Pitt, Market and George Streets. The antenna was located on the building roof.

Early in 1924 major transmitting facilities were commissioned at Willoughby about 13 km north of the city. The transmitter was a 5 kW model manufactured by Amalgamated Wireless (Asia) Ltd. and operated on a frequency of 272 kHz. This was later changed to 610 kHz.



2FC transmitter 1924.

2FC 1986.

L to R: Wally Clair (1938-1971), Bob Barrett (former BOM) and Gary Singleton OIC.

The antenna was a four wire squirrel cage type suspended between two lattice steel masts 61 m high and spaced 175 m apart. The earth system comprised a counterpoise arrangement 4.5 m above ground insulated from the steel support posts.

A large building was located directly under the antenna and housed the 5 kW transmitter, and a 0.5 kW standby unit. In addition to the transmitter hall, the building contained a maintenance workshop room and the living quarters for the operating staff.

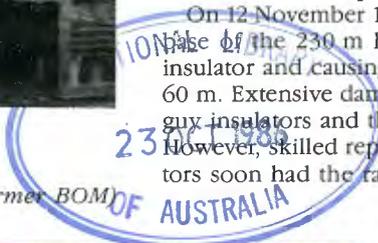
The studio facilities in the city included a large studio, a small studio, an instrument or maintenance room and a special reception room for the artistes.

The transmitting facilities were transferred to the AWA complex at Pennant Hills in 1925 and opened by Mr W.M. Hughes. When the station was taken over by the Government in 1929 as part of the National Broadcasting Service network, the technical facilities were maintained by AWA under contract.

In 1938 the PMG Department acquired land at Prestons near Liverpool and installed an STC 10 kW transmitter using low level modulation and water cooled high power stages. The transmitter went to air on 28 October 1938. Station 2BL which had also been taken over as part of the NBS was subsequently transferred to the site with both transmitters sharing a common radiator fed by coaxial cables.

In January 1962 an STC 50 kW main and 10 kW standby transmitters were installed to replace the earlier model. Similar transmitters were provided for 2BL.

On 12 November 1969 an intruder exploded a bomb at the base of the 230 m high radiator destroying the main base insulator and causing the 50 tonne structure to drop about 60 m. Extensive damage was caused to the mast steel work, guy insulators and the matching equipment brick building. However, skilled repair work by radio linestaff and contractors soon had the radiator back in service.



WALLY CLAIR

