

The **BROADCASTER**

NEWSLETTER OF THE BROADCASTING DIRECTORATE
NO. 9 NOVEMBER 1987



• GOVERNOR-GENERAL VISITS RADIO AUSTRALIA DARWIN •

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I will be retiring from Telecom after the publication of this
issue of The Broadcaster and want to take this opportunity to
thank all those people, and particularly my own staff in South
Australia and Northern Territory, who have assisted me in pro-
ducing the newsletter.

It certainly has been a challenge to produce an issue every
four months during the past three years, but my lot has been
made much easier by the dedication of the Co-ordinators, State
Broadcasting Managers, and especially Director Leon Sebire
whose enthusiasm has kept the flame alight when on occasions
it seemed as though it might have gone out due to delays and
frustrations in obtaining material.

I have enjoyed my long association with broadcasting and the
pace of development never ceases to amaze me. The past three
years have been just as exciting as any period in the previous
four decades and we have been able to inform staff of many of
the major achievements through the columns of the newsletter.
Hopefully this will continue.

Finally, I want to record special thanks for my Secretary, Jan
Shirra. Without Jan none of the issues would have been out on
time.

JACK ROSS
Editor

Front cover:

The Governor-General Sir Ninian Stephen (2nd from Rt) at Radio
Australia Darwin

Contributors to this Issue:

Leon Sebire, Bill Edwards, Harry Desouza, Leo Moloney, Bob
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Ivan Crisp, Ray Leskie, Brian Hall, Rai Beelitz, Craig Buchan,
Kevin Buckland, John Paul, Helen Curnow, Chris Fox, Rod Jolly,
Barrie Morton, Jack Ross, Jan Shirra.





Leon Sebire

FROM THE DIRECTOR'S DESK

The Editorial of this issue will provide to many of our readers the first advice that our Editor, Jack Ross, is about to retire. Others will know Jack as our longest serving 'Broadcaster' whose extensive experience and dedication led to his selection as the first State Broadcasting Manager SA/NT on the formation of the Broadcasting Directorate.

Originally from Queensland, Jack transferred to Adelaide as Divisional Engineer Broadcast Transmitters in 1959. His major contributions include the transmitting centre at Pimpala (5AN/5CL) and the Radio Australia Darwin complex. As an author of books on the historical and technical aspects of radio engineering he has achieved distinction and his work Handbook for Radio Engineering Managers has become a reference text in many countries of the world.

It is with great personal regret that I have to record the completion of Jack's career with us. I have valued my personal association with him as a friend and colleague over more than 30 years and must express my gratitude for the advice, assistance and support he has willingly provided throughout the important period of broadcasting development in Australia.

When it was decided that a Broadcasting staff newsletter would be an appropriate vehicle for keeping all of us aware of events, Jack agreed to provide the editorial expertise. The result has far exceeded my expectations, and I am sure that all readers will join me in thanking Jack and his dedicated assistants for their untiring efforts in producing the first rate publication, The Broadcaster.

Similarly, on behalf of all members of the Directorate, I thank Jack Ross, one of the last of the 'Broadcasting Pioneers', for his untiring contributions to the development of broadcasting in Australia and for what we have learned from him. We wish Jack and his wife a long and happy retirement.

This will be the last issue of The Broadcaster for 1987 and I will take this opportunity to extend to all our readers, families and friends, my sincere best wishes for a Merry Christmas and a Happy New Year.

LEON SEBIRE

STATION ROLL CALL

ABCW5A MAWSON

Transmitting station ABCW5A is located some 150 km from Perth in the Central Wheat Belt. Although wheat is the principal crop grown in the area, other crops include barley, oats and lupins. Lupins are fast becoming a major crop because of their high nutritional value for livestock.

Mawson was constructed in 1965 and the first test transmissions were carried out on 24 February 1966 on Channel 4 using AWA manufactured transmitters. Transmissions commenced officially on 28 February at 8.35 p.m.

In 1978 the current Channel 5A NEC transmitters were installed. Program was transmitted on both Channel 4 and Channel 5A to inform viewers of the impending change for several months prior to closing down Channel 4 in February 1979.

The closure of Channel 4 transmitters became necessary in order to cater for the National FM Stereo service. The NEC FM Stereo transmitter was commissioned in February 1984.

The Bunbury based Golden West Network installed a Thomson television transmitter for GWN with the assistance of the local station staff in 1979. Programs from Bunbury were provided via the national broadband microwave system.

The station mast is 187 m to the top of the Commercial Channel 10 antenna. The National antenna is located below the Commercial system and the FM service uses the old Channel 4 antenna at the 150 m level. All transmissions are horizontally polarised.

Following installation of a satellite receiving system with BMAC receiver and 4.6 m diameter dish, programs for the National Television and National FM Stereo services were provided via the AUSSAT satellite as from 30 May 1986. A back-up program source is provided by an off-air receiver directed on ABW2 Bickley.

The station was recently automated and staff now only work a day shift. A new fire alarm system for the National TV and FM transmitters was also installed as part of the upgrading.

CRAIG BUCHAN

6BS BUSSELTON

Station 6BS is located at Busselton not far from popular Geopraphe Bay in the south western corner of Western Australia. Busselton is some 55 km south from Bunbury where the Australian Broadcasting Corporation has a Regional Studio.

The station was commissioned on 22 December 1969 using two AWA BTM 2A type transmitters operating in a parallel configuration on a frequency of 680 kHz. The radiator used for the initial transmission was a 46 m high guyed lattice steel Deeco type and it now serves as a standby antenna. The main radiator is a 183 m sectionalised non-fading omnidirectional type provided by EPT and put into service on 27 May 1971. In 1979 the operating frequency of the transmitter was changed to 684 kHz.

The service area covers south to Cape Leeuwin, inland to Collie and along the northern coastal strip to Perth. The area supports many industries including timber milling and preservation, bauxite mining and refining, coal mining and fertiliser manufacture, but the main primary industry is dairying. Many of the dairy farms are located along the Margaret River.

There is now considerable automation in the dairy industry with most farmers using machines twice daily to store milk in refrigerated vats while waiting the arrival of a refrigerated tanker to take the milk to a processing plant. The processing plants produce cheese, butter and evaporated milk which is widely used in the ice cream industry.

The transmitters are operated in an unattended mode with maintenance being performed by the Broadcasting District staff at Mt. Lennard about 33 km east of Bunbury. In the event of interruption to mains power a 43 kVA Lister unit will automatically start to restore service. An emergency program source is provided by a receiver tuned to 6WA at Wagin.

RAI BEELITZ AND JOHN PAUL

VICE-REGAL VISIT

GOVERNOR-GENERAL VISITS R.A.

On 6th August 1987, His Excellency the Right Honourable Sir Ninian Stephen, AK, GCMG, GCVO, KBE, Governor General of Australia, visited the Radio Australia transmitting station, Cox Peninsula, Darwin.

His Excellency has a particular interest in radio engineering matters being Patron of The Institution of Radio and Electronics Engineers Australia.

The Governor-General was in Darwin to open the new Red Cross Blood Transfusion building and to launch the National Heart Foundation Health and Lifestyle program. He had previously visited the ABC Radio Australia studios in Melbourne and was able to take the opportunity while in Darwin to view the business end of the international broadcasting chain.

His Excellency was very interested in the role of Radio Australia in the Asian region and the technical plant involved in providing high level signals into specific target areas. Staff explained the functions of the various items of equipment and plant in the broadcasting complex and the technical reasons for locating the station on a site remote from Darwin.

Vice-Regal visits to broadcast transmitting stations are rare, and all staff at the station were determined to ensure that His Excellency gained the maximum benefit from the visit by preparing an itinerary which showed the facilities to the best advantage.

One of the transmitters was off air for major maintenance, and this enabled His Excellency and other members of the party to



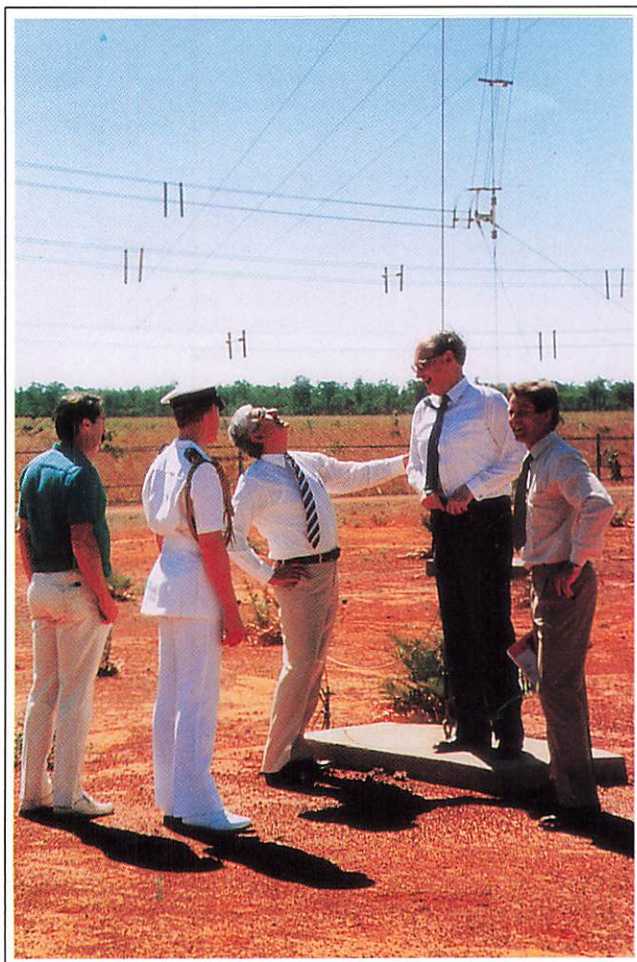
Barrie Morton (R) explaining antenna layout.

view much of the transmitter that is normally behind covers. A special interest was shown in the technique of vapour phase cooling in removing the large amount of heat generated by the high power tubes.

The party which comprised His Excellency, Lt Vincent Hyam, RAN Aide-de-Camp, and Mr K. L. Brown, Deputy Official Secretary, was escorted by Barrie Morton, Manager Northern Territory Broadcasting Section, and Eric Newmann acting TOIC of the station.

On departure the staff were presented with a commemorative plaque and thanked by His Excellency for the opportunity to visit the station.

BARRIE MORTON



Inspecting an antenna. L to R: Eric Newmann OIC, Lt. Vincent Hyam RAN, Mr. K. L. Brown Deputy Official Secretary, Sir Ninian Stephen, Barrie Morton NT Manager.



Inspecting water cooled dummy antenna.



In program input equipment room.

NEWS ROUND UP

LOGO WINNER

As announced in the July issue of *The Broadcaster* the winner of the Broadcasting Directorate Logo Competition was James Darling T01 7ZL/7ZT Hobart.

On 22nd July, Director Leon Sebire and Editor of the Broadcaster Jack Ross, visited the station and Mr Sebire presented a cheque to James, together with a photograph of the slightly amended entry which is now the official logo of the Directorate.

In addition to the visitors, others at the ceremony included Brian Hall State Broadcasting Manager, Milton Cunningham Broadcasting Operations Manager, Graeme Wilmot Station OIC, and station maintenance and installation staff.

The Director took the opportunity to address staff on various matters associated with the Directorate's activities including likely future roles to make better use of skills and resources, plans for examining ways of increasing efficiency and productivity and likely effects of new technologies now appearing on the horizon.

He also took the opportunity to visit the Branch Office and Mt. Wellington where, as usual during July, there was plenty of snow.

BRIAN HALL



Leon Sebire (L) presenting cheque to James Darling.

SHIFT DESTAFFING IN SA/NT

The first high power staffed television transmitting station to run unattended in SA/NT is at Mt Burr near Mt Gambier.

The equipment at Mt Burr comprises twin AWA TVB10A transmitters for the National service ABGS1, an NEC transmitter for commercial station SES8, and an NEC transmitter for ABC FM plus broadband SHF links for Telecom.

The commercial operator recently installed a remote control and supervisory system with their transmitter. This is controlled from their studio in nearby Mt Gambier.

ABC FM is a 24 hour unattended service, but the ABGS1 National TV was installed as a manually controlled system and has operated that way since December 1965.

Earlier this year, interfacing equipment was installed to place the ABGS1 transmitters under the control of the ABC in Adelaide using the BMAC system via AUSSAT.

An ACTTS unit recently became available for installation at Mt Burr to provide the necessary surveillance of the transmitters by the MIC at Mt Lofty.

Night shift ceased at Mt Burr on 9.8.87 following a successful 'hand off' trial period and the station is now staffed on a day shift basis only by the South East Broadcasting District staff.

ROD JOLLY

BROADCASTERS IN GRAND FINAL

During 1986/87., Broadcasting Branch SA sponsored a netball team which competed in the SA Women's National Basketball League.

The team had no previous experience together, but after a couple of games found winning form.

Plagued by injuries, two girls with knee injuries and one with a wrist injury, the battle for the final began. Four teams evenly matched, competed for first and second positions, and the double chance. Broadcasters held third position and in the Preliminary Final defeated the opposition by eight goals to progress into the Semifinal. In a close battle, urged on by their ardent supporters, Broadcasters sneaked in by a single goal and secured their position in the Grand Final.

On an extremely wet night, feeling more like ducks than netballers, they battled for the Premiership. At full time, scores were tied, but Broadcasters had a technical foul against them which allowed the opposition to a free penalty shot. A goal was scored and Broadcasters lost the match.

HELEN CURNOW AND CHRIS FOX

BUGS AND BEETLES

We often hear stories where 'bugs' cause problems with computers, but with broadcast transmitters it is 'beetles' that are to blame.

This was brought home during a recent incident at 2NR Lawrence in northern New South Wales where the station includes a 50 kW transmitter with a 10 kW standby unit.

During a mains power failure the 50 kW shut down and attempts were made to bring up the 10 kW transmitter after starting up the power plant.

The transmitter stepped up and went to line but the output was low, distortion was very high and there was a smell of burning resistance material.

An investigation revealed that a Christmas beetle had lodged in the HT step contactor, preventing the contactor from shorting out the HT series surge resistors.

KEN LARKIN

VISION 2000 CHANGE CENTRES

The three Broadcasting Branch Vision 2000 Change Centres in Western Australia were very active during the year.

Warren Bird, Doug Blackney, Les Chidgey, Mike Dallimore and Ian Gibbs formed a Change Centre Group known as the 'Broadcasting Beavers' and adopted as their vision: 'A Broadcasting Branch where every person works harmoniously together for the good of the customers and the Branch itself'.

The Beavers arranged inter-group visits where staff visited other work areas, and took on the publication of 'The Brag' a local in-house newsletter.

The Broadvision Change Centre adopted the goal: 'That Broadcasting be the customer preferred broadcast equipment provider and supplier by 1990'.

A seminar with the theme 'Commercial Orientation of Broadcasting Staff' was conducted and included addresses by the Director Broadcasting, the Chief State Engineer and Hugh James from Golden West Network.

The other Change Centre headed by Ivor Chapman operated under the title of 'Broadcasters' and their vision was: 'To improve internal working relationships and communications'.

The group invited staff to suggest ways and means of going about the process. One of the suggestions taken up was a series of informal discussions with the SBM during morning tea periods.

KEVIN BUCKLAND

SERVING RURAL AUSTRALIA

2CO-MURRUMBIDGEE IRRIGATION AREA

Station 2CO is situated in the southern part of New South Wales close to the Murray River. Its service area covers a large part of the Murrumbidgee Irrigation Area and also extends well into northern Victoria down to Shepparton, the home of Radio Australia.

The station was commissioned on 16th December 1931 and at the time had the most powerful transmitter in Australia with an input to the radiator of some 7.5 kW. The present transmitter is an AWA 10 kW model and feeds the original antenna system, an Alexanderson flat top type.

The Murrumbidgee River is the third largest river in the Murray-Darling river system. It is about 1600 km in length and rises in the Snowy Mountains. It derives its name from an aboriginal word which means 'never failing water supply'.

The river provides water for the Murrumbidgee Irrigation Area (MIA) which is centred on the towns of Griffith and Leeton and extends north west from Narrandera. The great irrigation scheme was approved by parliament in 1906 following successful irrigation by Samuel McCaughey in 1899 of some 16,000 hectares of his north Yanco Estate.

Today, the irrigation area of the Murrumbidgee Valley covers 550,000 hectares and is one of the richest food producing regions in Australia. The area supports a population of about 50,000 residents.

The water supply for the area is regulated by the Burrinjuck Dam on the Murrumbidgee near Yass and the Blowering Dam on the Tinnant River. Water from the Murrumbidgee is diverted



Grapevines at Lake Wyangan.

into the main MIA canal which is 155 km long. Smaller canals and drainage channels distribute the water to individual irrigation farms.

The main crop in the MIA is rice but other major crops also grown under irrigation include grapes for dried fruit and wine, citrus, vegetables and fodder crops. About 96% of rice grown in Australia is produced in NSW and about 90% of the crop is exported.

Most of the wineries are in the Griffith area with the area producing about 80% of NSW wine. Major wine producing companies include such well known names as McWilliams, Orlando, De Bortoli, Rosetto, Cinzano, San Bernardino and St Peters Buton. The first vines in Griffith were planted in 1913 and there are now 18 wineries in the district.

Leeton which is the administrative heart of the MIA is the home of Letona Cannery, the largest in the State, and specialises in the canning of peaches, pears, apricots and tomatoes.

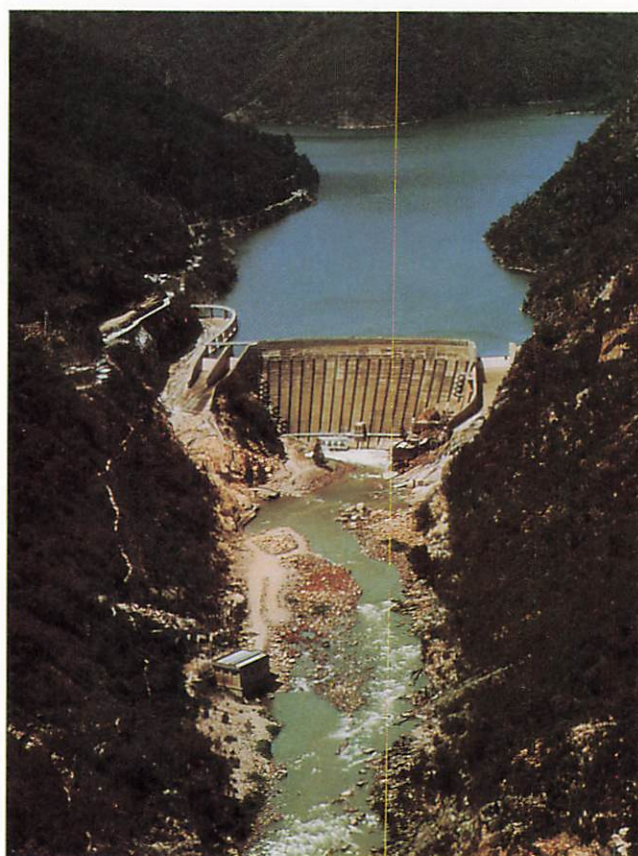
CHRIS STEVENS



2CO Corowa.



Rice harvesting near Griffith.



Burrinjuck Dam. (Courtesy of Dept. Water Resources NSW).

NETWORK OPERATIONS

BROADCASTING OPERATIONAL SERVICES

Sound broadcasting and television technology has undergone tremendous change in an incredibly short period of time. It has had a major impact on the way we maintain the transmitters and operate the network.

It is not so long ago when it was considered essential to staff even a 200 watt station. The improvements in what we can do now in terms of operating even high power transmitters and what we could do even a decade ago are dramatic.

The following article contributed by Bill Edwards, head of the Broadcasting Operational Services Section gives an insight into how the group carries out its responsibilities in overseeing the operation of the network.

The Section co-ordinates the Directorate's day-to-day operational activities. The functions include the monitoring and reporting of the network's performance, evaluation of operational practices, and recommending appropriate improvements. The Section also co-ordinates maintenance activities and equipment reliability investigations, as well as the recruiting and training of technical staff to perform these functions.

The aim of the Section, through consultation with Branch offices and relevant organisations, is to ensure that our National and International Broadcasting Network remains operationally viable within an ever-changing economic and political environment, as well as sustainable in the competitive broadcasting market.

Four multifunction teams work together to provide both short and long term operation objectives. David Duffin and Carmello Costa look after the day-to-day activities of the network.

They provide regular reports of service performance, and co-

ordinate major equipment modifications and repairs. David has the unenviable task of establishing 'lead-house' centres to specialize in selected types of equipment and provide a single contact point for spare part providers and operators. Carmello is the BORIS operating maestro.

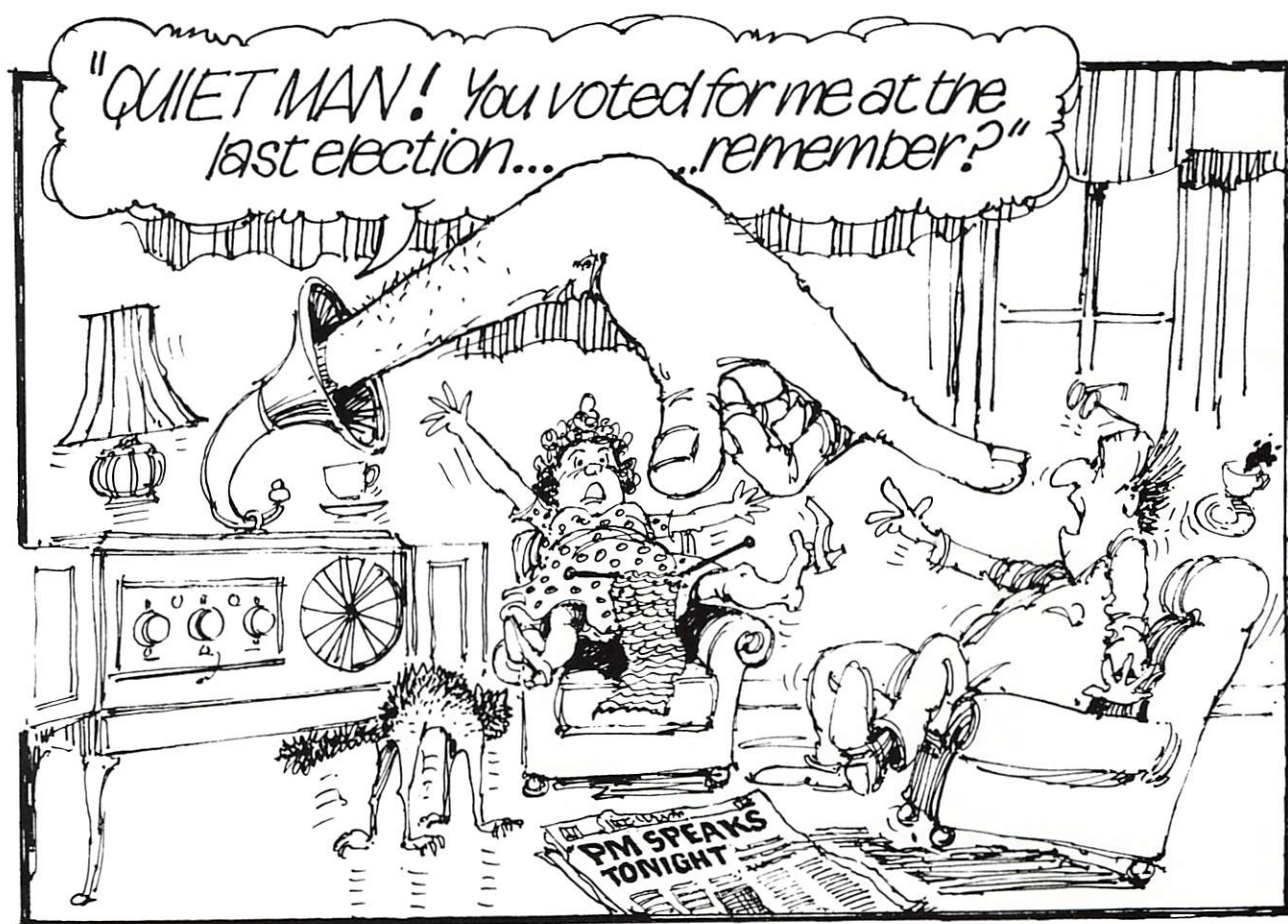
Ian Albury, Bill Flatman and Laurie Hatch plan, provide and develop the network's operational facilities in consultation with appropriate groups. Ian's extensive work with satellite broadcasting experiments in the DOC, provides the group with his solid technical leadership and understanding of modern broadcasting techniques. Bill's speciality is Radio Australia. He schedules and monitors our overseas HF Broadcasting Service in conjunction with IPS and the ABC. Laurie, who recently defected from the West, is our resident computer expert and is currently evaluating software packages in conjunction with outside providers.

Chris Dobson and Greg Woolstencroft provide the Directorate's specialist operational requirements. Twice Chris has officially represented Telecom at International Broadcasting Conferences in Geneva and recently infiltrated the BBC's Operations Section in London. His HF knowledge is sought by both ourselves and outside organisations. The group is currently investigating the Directorate's technical and training requirements. Greg is now familiar to State office staff and assists full time in this field.

The provisioning of major spares and test equipment for operating the network is co-ordinated by Jim Mano. In addition, Jim supervises the daily activities of our laboratory and is assisted by Anthony Shelley and Frank Tabacco.

The task of the Broadcasting Operational Services Section is long and hard. We are sensitive to Branches' feelings and yet have to be responsive to Broadcasting objectives. Spare a thought for the people in this Section who are dedicated, competent, and work enthusiastically towards the Directorate's goal of providing an efficient and viable broadcasting network.

BILL EDWARDS.



BROADCASTING DISTRICT

CAIRNS

The greatly varied topography of the Cairns Broadcasting District extends from the rain forest coastal mountain region around Cairns and Cooktown, to the western towns of Normanston and the prawning port of Karumba in the Gulf Country, north to tropical Thursday Island off the tip of Cape York Peninsula, and east to the Great Barrier Reef Resort of Dunk Island.

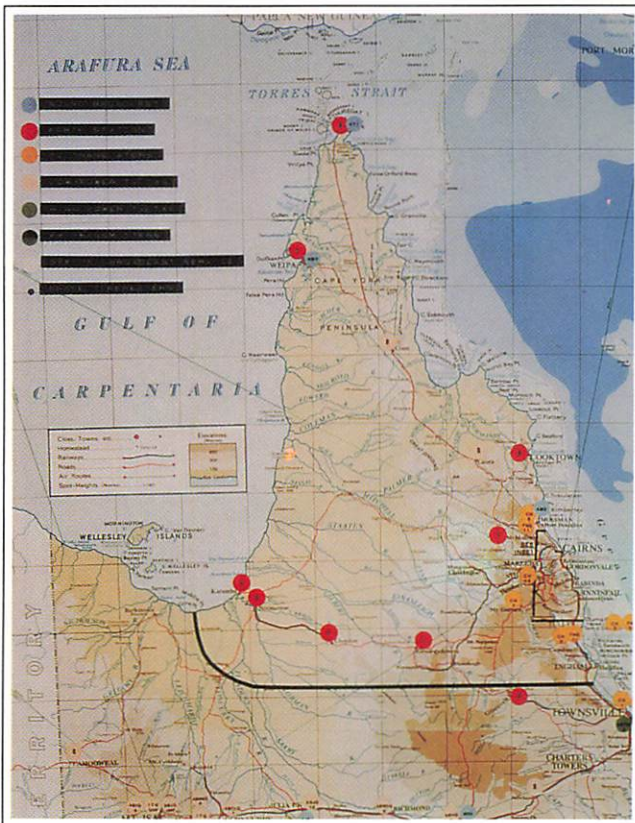
TV coverage of the Cairns region is provided primarily from the highest TV transmitting site in Australia, located on top of Mt Bellenden Ker, south of Cairns. Access to this rugged site is via cable car. There are 26 translators in this region operating off the parent transmitters, ABNQ-9 and FNQ-10, which are unstaffed and remotely controlled from Cairns. A stereo FM transmitter was recently installed on Mt Bellenden Ker to service the Cairns area.

The area has sugar growing on the coast, with dairying and grain and peanut growing on the Atherton Tablelands. The Malanda milk and butter factory boasts the longest milk run in the world. Cairns via Mt Isa to Darwin. Tourism is expanding with the Marlin Coast being accessed via the Cairns International Airport. Unstaffed MF broadcast transmitters are located at 4QY Cairns, 4AT Atherton, 4MS Mossman, 4WP Weipa, and 4TI Thursday Island. All except 4TI are remotely controlled from Cairns.

Within the wider Cairns district, ten low power RATV transmitters are supplied with program from AUSSAT Earth Station Receivers, located at Thursday Island, Weipa, Coen, Laura, Cooktown, Mt Molloy, Georgetown, Croydon, Normanton and Karumba.

The Cairns Broadcasting District was established in August 1985, with a total staff of eleven. Routine maintenance visits to the various outlying transmitting sites is by 4WD vehicle, with the exception of the bauxite mining town of Weipa and the most northern outpost of Thursday island, which are serviced by aircraft from Cairns.

BOB SULLIVAN



The Cairns Broadcasting District.



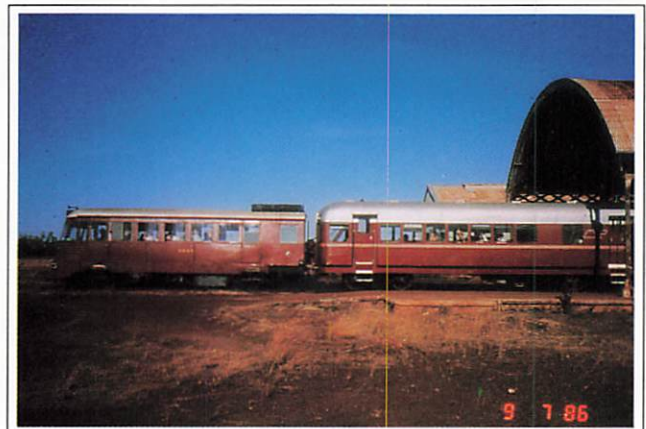
Visit to 4QY Cairns. L to R: Vic Jones Dept. Transport and Coms., Bob Sullivan OIC Cairns District, Allan Garner SBM.



Thursday Island site of Australia's most northern broadcasting station.



Cairns Broadcasting District staff. L to R: (Top) Noel Ratray, John Dhu, Alan Chimes, Fred Flynn, Fred Sichter. (Middle): John Skarott, Peter Werder, Peter Berry. (Front): Joe Ross, Ray King, Bob Sullivan, Brian Cox.



The 'Gulf Lander Express' at Normanton Station.

SBS TV MT. DANDENONG

In 1980, one of the first high power UHF TV transmitters in Australia was commissioned for SBS TV at Mt Dandenong to serve the Melbourne suburban area. This service, located on the same site as the ABC TV and FM transmitters, is on Channel 28 (526-533 MHz).

The NEC transmitter consists of one visual and one aural transmitter only. However, either one can be used alone to transmit both signals simultaneously at reduced power, thus providing an inherent standby facility.

An inbuilt computer has as inputs all of the alarm and supervisory contacts in the transmitter. As outputs, it has control of all internal switching in the transmitter, and communication with the rest of the station. The computer is responsible for outputting alarm and status information to the station, handling external commands like ON or OFF, as well as doing its own diagnostics whereby it can correct some fault conditions.

The audio and video processing modules are very similar to those used in VHF TV transmitters of similar vintage, as are the solid state RF modulators and power amplifiers.

The heart and major working part of the transmitter is the single tube RF power amplifier, a 1AV97A high efficiency klystron. It also represents the main divergence from VHF transmitter design.

This five cavity klystron which works as a class A linear amplifier, delivers 20 kW output power with 33% collector efficiency, and requires only a modest 1 watt of drive power from the solid state exciter.

The klystron is mounted inside a large, water cooled electromagnet. The one metre long magnet focusses the electron beam inside the klystron, keeping it away from the cavity walls as it passes through them towards the collector. The magnet runs at about 30A from a stabilised power supply.

The klystron collector is vapour cooled by boiling a small quantity of ultra pure water. The steam is ducted to an outside heat exchanger where it condenses to liquid and is returned to the header tank in the transmitter.

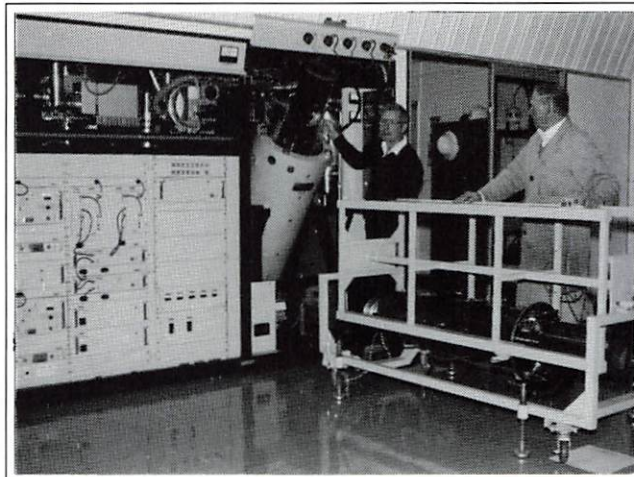
The transmitter design precludes difficulties due to electrolysis by having the klystron collector at ground potential and feeding the cathode instead with the negative 20 kV EHT supply. There is, therefore, essentially no voltage applied to the cooling water.

The heat exchanger system consists of two radiators mounted outside the building. These radiators are blown by belt driven fans which require periodic inspection and replacement of the belts.

The antenna feeders in and near the transmitter are made of 80 mm aluminium and copper, air dielectric rigid co-ax. Even this material has a relatively high loss at UHF frequencies. Thus inside the transmitter where the ambient temperature may be high and there is not sufficient draught, the feeders are cooled by forced air to prevent undue temperature rise.

Replacing the 1.8 m long, 150 kg klystron is a major operation, requiring a minimum of two men, about 30 minutes of time, and considerable care.

A spare klystron is kept in a special carrier designed with tracks in which the klystron can run on rollers attached to its

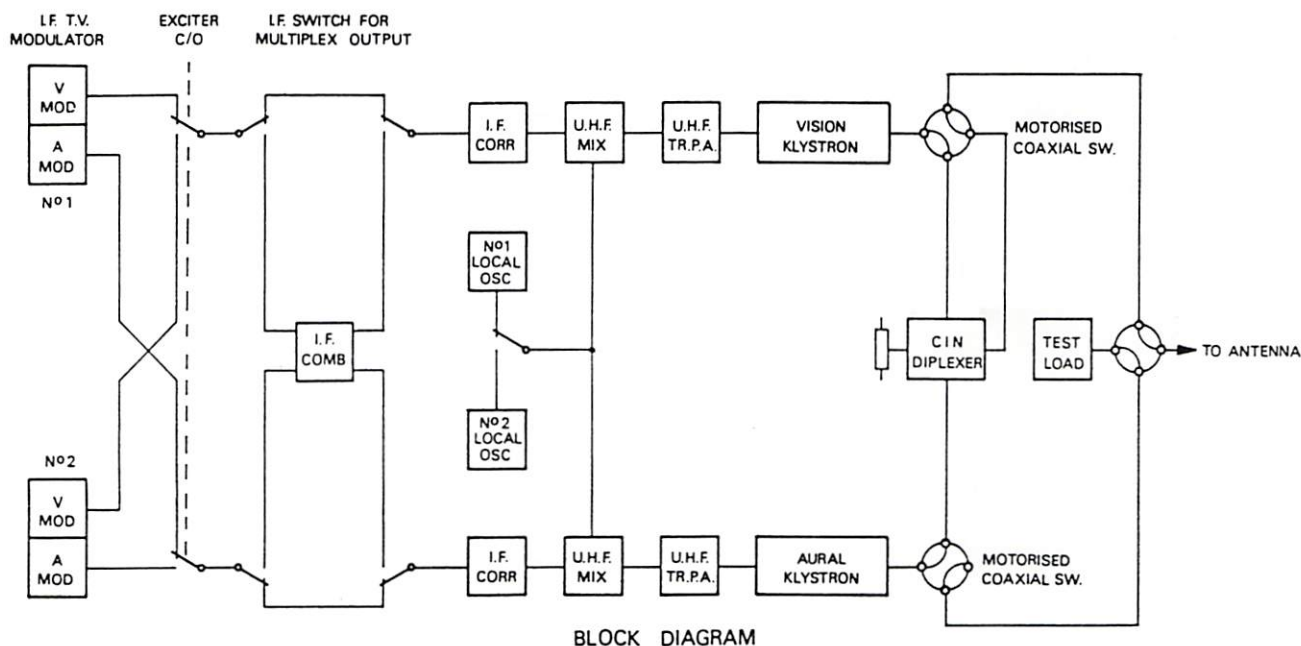


Alan Henley (L) OIC and John Chomenko Technician replacing klystron.

case. For replacement, the carrier is positioned so that its tracks align with those inside the transmitter after the whole transmitter klystron assembly is tilted to horizontal. The klystron is then rolled from the transmitter to the carrier, which now becomes balanced and can be rotated to bring the spare klystron into position for installation by the reverse process.

The transmitter has been running under remote control by SBS in Sydney since February 1986. The controlling signals (ON and OFF only) are encoded onto the television signal in its vertical blanking interval.

IVAN CRISP



WIRE ROPE RE

Mount Bellenden-Ker is the diocommunication complex site Cairns. The most unusual feature is the employment of an aerial cableway.

The cableway was erected in 1968 by the Department of Housing and Public Works. It is a single cable to and fro system consisting of a separate haul rope. The rope is supported by eight towers and a terminal bollard at the top end with a 1000 kg weight at the bottom. A single continuous haul rope drive system is located at the bottom station. The cable runs over the entire length and in 1968 was about 1.3 km. Intermediate supports are from 11 to 41 m and at one point 190 m above the ground. A passenger cabin takes 20 minutes to reach the top. In 1968, when inspections were carried out for the first time in operation, this was not considered a satisfactory arrangement.

A non-destructive tester developed in New South Wales was put into operation by a unit made in Austria in 1978. It used strong permanent magnets in a pulsed field to rate a short section of the wire. The test is picked up by two search coils and a sensitive optical galvanometer.

The very first use of the instrument in 1978 revealed a severe increase in the rope outer strands.

The system was closed down for repairs made by attaching 950 m of rope to the cable and pulling the faulty piece out at the top. The 4.5 km of the cableway to be replaced was driven two kilometres through the bush up a rough track and climb a 200 m to board the car.

When the faulty section was replaced, an examination it was found that the whole length of the layer of 42 wires were broken at the top inside the outer layer.

Decision was made to replace the cable and also the haul rope which had reached its life.

The replacement haul rope was made in Australia and weighed 22 tonnes. It was the original rope except that it was made of polypropylene core instead of steel.

The track rope was made in 1978. It was a single 5.5 km length. Total weight was 11 tonnes.

Judicious use of special machinery and attention to operating procedures enabled the work in three weeks. Specialised powered reel stands fitted with hydraulically operated linear pulling systems, a 1000 kg hydraulic pump, and a 1000 kg cable capable of slicing through the cable in five seconds.

The work was completed by a permanent cableway staff of five, including Branch Radio linestaff, three local temporary staff. In addition there were two (Mech and Elec), two Consultants and a Cableway Engineer.

The work was completed on time and the overall job was a tribute to the skill and dedication of all staff involved.



Bellenden-Ker station in the clouds.



Tower No. 4 with sugar cane fields in background.

PLACEMENT

site of a television and radio station is situated about 50 km south of the town of Port Moresby. The nature of the station is the main reason for access purposes. In 1972 under the control of the Department of Lands and Construction, and is a ropeway consisting of a track rope with a cable car and cablecar system is attached to a concrete support tower. The cable car is pulled to and fro by a hydraulic motor. The ropeway rises 1600 m and includes two long spans of support towers vary in height. The track rope is some 100 mm in diameter. Although regular visual inspection from the start to ensure safe operation is considered to be a satisfactory

developed by the University of Port Moresby for service, but later replaced in 1985. The tester uses very heavy duty wheeled carriage to saturate the track rope. Leakage of the field coils and recorded using a tape recorder and a photographic chart. The tester detected a problem and close visual inspection of the lay length of the track

was done and temporary repairs were made at the bottom end and the top. This enabled the top of the track rope to be used but required staff to enter the forest, walk about 250 m to the top of the tower before they could

later opened up for examination of the core and the first section as well as a number of wires

the whole track rope and reached the end of its useful

was manufactured in Austria and was generally similar to the original galvanized and had a diameter of the original hemp.

Austria and supplied in a weight was 29 tonnes.

Mechanical aids and close attention resulted in completion of the track rope. Mechanical aids included hydraulic motors, hydraulic pump, electrically powered cut-off machine and 36 mm high tensile cable in

by a team comprising the five men, three Broadcasting Technical Telecom staff and three others were the Branch STO and a Structural Engineer

on 3rd June 1987 and the skill, hard work and

LEO MOLONEY



Cable car near station. Coral Sea in background.



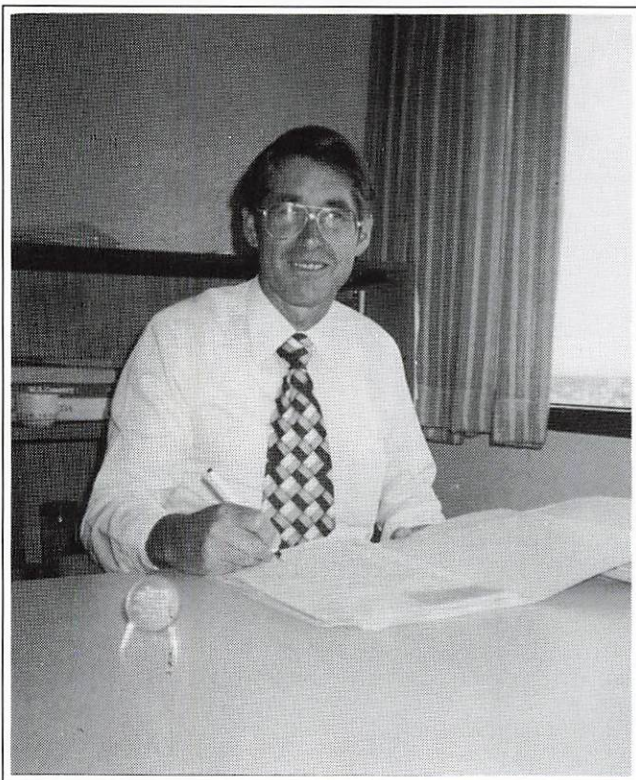
Inside cable car with Rigger Spiro Buhagiar.

ACHIEVERS

BRONZE MEDAL WINNER

Ray Plowman, Staff Clerk in the Western Australian office is not only a regular lunch time jogger and prime motivator for the Branch's involvement in the annual Corporate Cup event, but is also a participant in multi-disciplinary events requiring enormous stamina and dedication. These include triathlons and aquathons.

When he first tackled the big league, Ray wondered whether he had the metal to be successful. In the first triathlon which comprised a one kilometre swim, followed by a four kilometre run and finishing with a 12 kilometre cycle sprint, his performance was not terribly inspiring. Ray blamed the poor performance on his bicycle. He claimed that his 'Cyclops' which could have been mistaken for a small tank was no match for the new lightweight high tech speedsters that most of the other competitors rode. They flashed past him like rockets. This excuse of course brought the usual comments from the office knockers.



Ray and his Bronze Medal.

Ray is a pretty astute sort of a character, and being determined to re-establish his reputation, did his homework and preparation well for the next event. The event was a Telecom sponsored Fremantle Aquathon which involved a one kilometre swim followed by a five kilometre dash along the beach. There was no sophisticated machinery involved in this event, just a requirement for skill, strength, stamina, fitness and mental toughness. Ray, always a true sportsman, decided to give the younger blokes a chance, and entered the veterans category.

The first part of the event unfolded with Ray swimming like a mackerel in the surf and shooting out of the water in second place in his category. His effort was remarkable. He was two or three minutes in front of the next rival.

In the run, he started off like a gazelle with feet pounding so fast that spectators thought he was running on water. He maintained his position in the field until about the last kilometre.

Unfortunately, a very strong head wind and soft sand took its toll. His pace slowed down and his rival flashed past at the 200 metre mark to leave Ray to cross the line in third place.

The next day at work, Ray was able to silence the knockers when he proudly displayed the bronze medal on his desk.

KEVIN BUCKLAND

OUR BROADCASTING PIONEERS

MR. C. E. (CLIFF) MOULE

Cliff Moule began his career in radio when he commenced work with Amalgamated Wireless Australasia Ltd. in Adelaide in 1927. He later worked with Healings Ltd. and Louis Coen, and in July 1936 joined the Transmission Section of the Postmaster General's Department.

Cliff commenced as a temporary Mechanic, but within two years had qualified as Senior Mechanic in both broadcasting and telephony. The work encompassed many installation, maintenance and developmental projects in long line, broadcast transmitter and studio equipment.

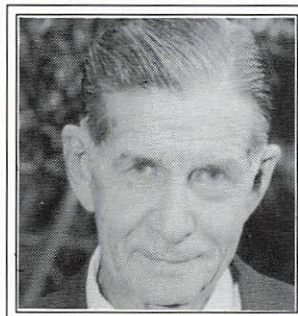
During the period 1938 to 1944 he was associated with air navigation and communication facilities at various locations between Adelaide and Darwin and also at Ceduna and Gawler where three remote communication installations were provided for the RAAF.

Cliff then took up a position in the Adelaide Hindmarsh Square studios where he assisted with the installation of two additional studios and a relay switching scheme. He then moved to the Technician's Training School where he instructed students in radio and electronics.

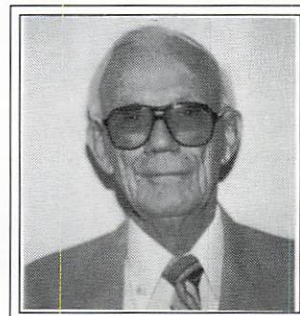
In 1955 he returned to the studios as Shift Supervisor until 1957 when he began a period of acting Engineer on the development of a solid state network switching scheme.

With the introduction of television in 1959, Cliff was appointed OIC of ABS2 Mt Lofty where he was involved with the installation and subsequent operation of the station until his retirement in 1976, after 40 years' service.

JACK ROSS



Cliff Moule.



Percy Eaton.

MR P. G. (PERCY) EATON

Percy Eaton began his service with the Postmaster General's Department as a Telegraph Messenger at Northampton Western Australia during September 1925. However, Percy was more interested in a technical career as he had been interested in wireless and telephone apparatus during his early days at school.

An opportunity to sit for the Telephone Mechanic examination became available and after passing, he was appointed to the Telephone Workshops in 1928.

The following year he qualified as Mechanic Grade 2 and was transferred to the newly formed Radio Section as a Shift Operator at the Milligan Street Studios which were part of the 6WF facilities taken over by the Government as part of the National Broadcasting Service.

Percy spent a good deal of his time on OB work. The OB equipment was manufactured in the PMG Workshops and was very heavy and bulky. The equipment was housed in solid wooden boxes and with the six volt accumulator, high tension battery, portable telephone, equaliser, fader box, microphones and cords, the total weight was in excess of 35 kg.

In 1936 he was involved in the installation of the 6WA Wagin station. Several promotional steps resulted in him being appointed Supervising Technician in 1950 and subsequently OIC at the Hamersley Transmitting Centre where he was responsible for the operation of 6WF, 6WN and VLW. Percy remained at the Centre until his retirement in July 1975.

JACK ROSS

CONFERENCE

MANAGEMENT COMMITTEE MEETING

A meeting of the Broadcasting Directorate Management Committee was held in Central Office on 11 - 12 August 1987.

It was the second meeting of the Committee formed to provide a continuous review of what the Directorate is doing, and to plan and adapt to meet future developments. The inaugural meeting was held in February 1987.

The Committee comprised Leon Sebire, Director; Les Rodgers, Actg Deputy Director; Robin Blair, Asst Director Development C.O.; Roy Badrock, Asst Director Operations C.O.; Mike Stevens, SBM NSW; Jack Carnell, Actg SBM Vic; Allan Garner, SBM Qld; Jack Ross, SBM SA; Don Purdy, SBM WA, and David Johns, Actg SBM Tas. Others who attended include John Bray, Mgr Engineering Service C.O.; Bill Edwards, Broadcasting Operations Mgr C.O., and Harry DeSouza, Finance and Resources Mgr C.O.

A wide range of matters and issues were discussed during the two days. Many matters were brought to finality while others were referred to various groups under nominated Chairmen for report to the next meeting.

Important issues discussed include Broadcasting Operations Review by Dept of Transport & Communications, Commercial TV equalisation, ABC initiatives, Clerical integration, Directorate Logo, Engineer motivation, Standby facilities working party, Work for others, Progress against objectives, Annual Report, Technical information flow, Roles and relationships in Development area, Construction policy, Practices and standards, Operational policy, Management of Lines, Buildings and Drafting activities, FAMAD introduction and reporting, Fire protection and Equipment replacement program.

HARRY DESOUBA



Merry Christmas to all Broadcasters from ABT-2 Mt. Wellington.



2nd Management Committee Conference, August 11 & 12, 1987. Seated L to R: J. Ross (SA), L. Sebire (C.O.), A. Garner (Qld.). Standing L to R: J. Bray (C.O.), R. Badrock (C.O.), W. Edwards (C.O.), R. Blair (C.O.), D. Johns (Tas), H. DeSouza (C.O.), D. Purdy (WA), L. Rodgers (C.O.), M. Stevens (NSW), J. Carnell (Vic.).

STAFF NEWS

CENTRAL OFFICE

It is not only flowers that bloom in the spring. Romance wafted through the air conditioning ducts at Central Office in recent times and affected a few of our staff.

Denise Kemp has married Joe Honan, Victoria Petty has married Phil Ridgeway and Giff Hatfield has claimed to have either married Allison or won Tattsлото.

Three little babes who've made their way into the world have enriched the lives of proud parents Julie Hood, Bruce Cook and Neil Cornell.

Here's a little list of some people who'll be missed. Rajiv Anand has gone to Accounting and Supply, Robert Payton has left Telecom, and Libby Springveldt has joined the Operations Department.

Fortunately some replacements have been found. Bill Sinclair joins us from the Victorian office, Kim Smithe, Gladys Cendak and James Keys have also joined our clerical ranks, whilst Greg Woolstencroft has returned from Shepparton for another sojourn in the Operations Section as an STO2.

VICTORIA

Brian Bingham ES&T Supervisor and Stan Spodar Senior Diesel Mechanic of the Engineering Services group at Shepparton both retired recently taking with them respectively nearly 40 years and 18 years of knowledge and experience.

Staff moves occurring in the Office have included Jennifer Smith promoted to Clerk Class 5 in Metro Network Engineering and Bill Sinclair promoted to Clerk Class 5 in the Broadcasting Directorate Central Office.

The closure of Radio Lyndhurst has also caused a number of other staff moves. Max Bartlett and John Nott have transferred to the Monitoring Information Centre at Sydenham while Bruce Gardiner and Ray Arrowsmith have left the Branch after they had their redundancy requests approved.

Congratulations are extended to Kevin Beanham and Mick Fitzgerald who have been promoted to Radio Linemen, and thanks also to Brian McKenzie from Tasmania who carried out the duties of SLO2 while Dave McCormack was on leave.

New faces to commence with the Branch include Graeme Kelly Draftsman Grade 2 from Metro Network Engineering, Steve Nankivell Diesel Mechanic from the SEC and Lisa Cutler Clerk Class 1 who has transferred from the Toowoomba District Telecom Branch Qld. Welcome to all staff concerned.

NEW SOUTH WALES

In the Management Services Section George Murray has been promoted to Personnel Officer, Carmen Trunzo recently joined the Section and is having great fun in her new position as Registry Assistant. Anna Bridges CA3 is another new arrival. Karen Ross has left to pursue a career of motherhood.

Chris Cooper Engineer Class 1 found the winter a bit cool and opted to transfer to the Northern Territory where he has been kept busy on Radio Australia problems.

Two Radio Linestaff, Frank Thomas and Sean MacDonald tragically lost their lives during construction of a mast at Tomerong on Tuesday, 27th October. Our sincere sympathy has been offered to both families.

SOUTH AUSTRALIA AND NORTHERN TERRITORY

David Carthew Officer-in-Charge of 5AN/5CL transmitting station at Pimpala, retired on 4th September 1987 after 31 years of valued service. His place has been taken by Reinhold Ritter.

Angela Strain Assistant Works Officer returned from an extended European holiday at the end of September; Angela kept her fellow workers informed and envious with a series of postcards.

Chris Cooper Engineer Class 1 from the NSW Branch arrived in the NT Section to act as Engineer Class 2 vice Len Som-de-Cerff for an extended period as a consequence of John Wilkins' long service leave.

Mark Osborn formerly of ABNS1 The Bluff transferred to the Eyre Peninsula District and will provide Iain Fraser with much needed support at the Port Lincoln (5LN) base.

Having completed his training recently Chris Jarvis of Radio Australia Darwin has now qualified for appointment as TO1 while both Peter Cathery (5AN/5CL) and Garry Haylock (ABNS1) have commenced bridging training to qualify as Technical Officers.

TASMANIA

Brian Hall State Broadcasting Manager spent six weeks sunning himself on the warm Queensland Gold Coast during the winter while staff in Hobart watched the snow pile up on Mt Wellington.

David Johns from the State Telecom Resources Management Branch provided Brian's relief as State Broadcasting Manager.

A recent visit by Director Leon Sebire was appreciated by all staff and it is hoped that he will come again soon.

Congratulations to James (Gentleman Jim to his friends) Darling for his successful entry in the Broadcasting Directorate Logo Competition. We are all sure that Jim has missed his vocation in life.

The recent Branch Conference held in Launceston was deemed a huge success. The BOM and A/O arrived at 3.00 a.m. of the same morning for the meeting. How keen can you get?

A recent visit to northern Tasmanian stations by the Personnel Officer Mrs Ruth Virth was appreciated by all staff and the visit has given her a better appreciation of staffing problems in the area.

QUEENSLAND

The Drafting group has had a change with the departure of Trixie Locken and the arrival of Gavin Cameron Drafting Assistant Gr 2.

Greg Duncan Engineer 3 is on top of the world with the arrival of a new son Matthew in the family.

Janelle Paterson, Leave and Wages Clerk, has left the Personnel Unit and transferred to greener fields in another area of Telecom.

In the Operations area, Colin Crick Shift Technician retired from ABQ2, Keith Ross ABNQ6 Mt Goonaneman is overseas on an extended holiday prior to retirement while Greg Weiss of the Mackay District recently resumed after an overseas holiday. Steve Fennell Trainee Technical Officer has transferred from the Emerald Broadcasting District to ABWQ6 Mt Goonaneman.

WESTERN AUSTRALIA

Bob Howie Broadcasting Operations Manager, retired on 3rd August after 40 years service with Telecom and PMG's Department. Bob commenced as an Exempt Technician at 6WA Wagin in 1947 and during his career was associated with many projects including Rosehill Studios, Empire Games broadcasting facilities, HF transmitters at Hamersley, MF transmitters at 6DL Dalwallinu and 6CA Carnarvon, and TV transmitters at Bunbury, Mt Barker, Geraldton, Kalgoorlie and many others. All the best in your retirement, Bob.

Harry Respini also retired. Harry retired on 23rd July after 22 years' service. Prior to joining the PMG's Dept, Harry worked in the Perth Technical College Laboratory, the workshops of Ron Shaw Pty Ltd, and with Dixon Primer TV Services. happy retirement, Harry.

Ivor Chapman has taken up the Broadcasting Operations Manager position following the retirement of Bob Howie.

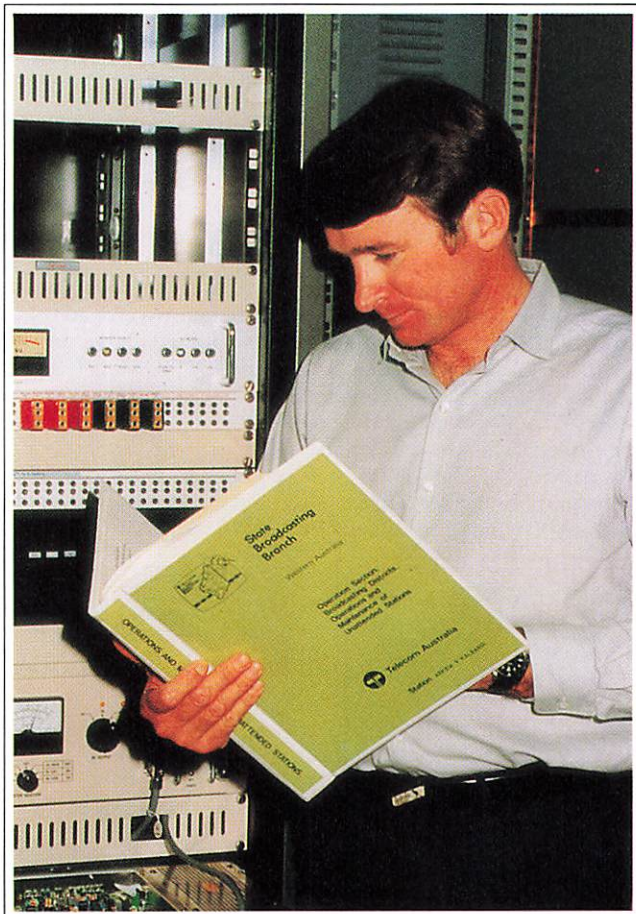
SECOND NETWORK

SECOND REGIONAL RADIO NETWORK

The Second Regional Radio Network (SRRN) is a plan to bring a second ABC radio service to most of the country areas of Australia. These areas comprising about four million people, have been chronically underserved in comparison with those who live in Australian cities.

The Dix Committee saw it as having the highest priority for ABC Radio development because it provided the best means of redressing this imbalance of ABC radio services between regional and metropolitan Australia, and providing a very much needed upgrade of some ABC regional facilities.

The project was approved by the Government in August 1983 at an estimated cost of \$34.37 million based on prices at that time with costs being almost equally shared between transmitters and ABC studios.



Trevor Franklin, Technician at Kalbarri, W.A.

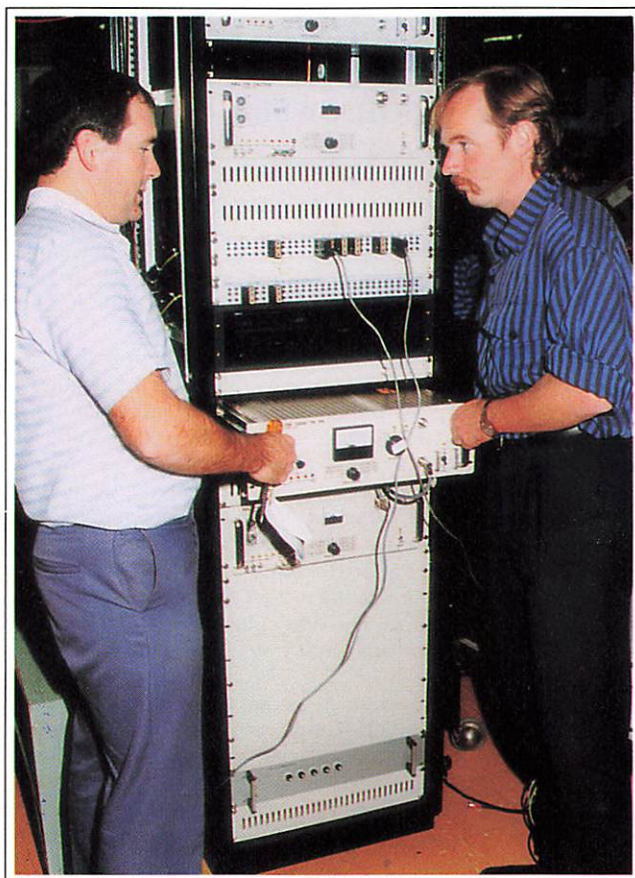
The network when completed will be a major step towards a long term goal of providing all Australians with three ABC programs viz.:

- Regional/Metropolitan Radio
- Radio National
- ABC-FM Stereo

Until SRRN started, most listeners living in non-metropolitan areas were served by a number of wide coverage AM transmitters. Some areas were also served by the ABC-FM Stereo service.

The AM transmitters in the country carry programs which are a mixture of local, State and National material. Through the SRRN, another set of transmitters will be provided so that there are two sets of transmitters in all country areas, as well as any used for the ABC-FM Stereo program. It will then be possible to relay Radio National solely on one of these sets of transmitters together with a greatly enhanced version of the traditional Regional Radio on the other set. This increased Regional Radio is a key benefit of the SRRN rationalisation.

The additional set of transmitters provided through SRRN will



Don Jupp TO2 (L) and Doug Blackney Engr. 2 testing equipment at BSC, Perth.

comprise about 300 FM transmitters and will be co-sited mainly with existing National TV transmitters. Installation has already commenced and this task is expected to extend over some five years.

ABC plans involve the construction of about 16 new regional centres and the upgrading of 20 or so of the pre-existing 31 regionals. The regional studios will vary in size from one person outposts to relatively large complexes having two studios and catering for up to an equivalent of about ten full time staff.

The SRRN project involves a very large amount of work on the part of the ABC for studio facilities and the Broadcasting Directorate for transmitters. Test transmissions for the first stations in Western Australia and Queensland were completed during June 1987.

DAVID SOOTHILL



Ross Stuart LS3 (L) and John Zara Lineman W.A. ready to despatch plant.

PROFILES

JOHN WEBB

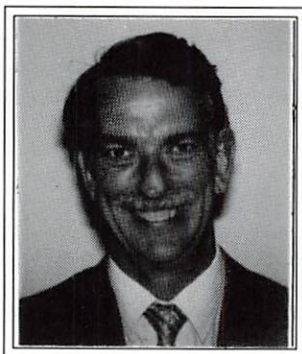
John Webb Section Manager, Projects Section B in the Development Branch, Central Office, is currently responsible for all HF and MF Projects, as well as low power TV and FM installations.

John began his working career as a Radio Technician-in-Training with the Department of Civil Aviation back in 1956. Later he undertook additional studies at night school and was appointed Engineer in 1966.

The 1960's and early 70's were years of rapid growth in Civil Aviation. This growth coupled with optimistic predictions of continued Aviation growth well into the future led to many large engineering works being undertaken, such as the completely new Melbourne Airport at Tullamarine. John was heavily involved with many of these projects and gained wide ranging experience in HF, MF, VHF and microwave communication systems, radio navigational aids and radar facilities.

In 1981 John joined the Broadcasting Branch of Telecom and immediately became involved in the rehabilitation of Radio Australia at Cox Peninsula. This was a large project and occupied the greater part of John's time until it was successfully completed during 1984.

During his six years with Telecom, John has also guided several other HF broadcasting projects to a successful completion, including the NT HF Broadcasting Service. However, with the reduction in the number of HF projects currently being undertaken, Projects Section B has accepted responsibility for a wider range of projects, including RUCS TV and SRRN.



John Webb.



John Hodgson.

JOHN HODGSON

John Hodgson Section Manager, Project Section A in Central Office, joined the Postmaster General's Department in 1971 after moving to Australia from England where he worked for the British Post Office. He was based in Hobart and initially involved in the provision of telephone exchange facilities throughout Tasmania.

Moving into the Radiocommunications area in 1973, John was active in preparations for the introduction of colour television in 1975. As a result of this intensive period of involvement in broadcasting development, he opted to move to Central Office in 1979. Since that time he has been associated with many projects ranging from small translator station design through to major station provisioning. He has published papers on specialised aspects of UHF TV antenna design and provides advice on this subject to DOC. He is currently responsible for the 'equalisation program' and his team is presently involved in preparing detailed designs for several major station upgrades.

John is currently doing up his Brighton home, and in between times enjoys bike riding to the nearby beach. If that is not enough, he has taken up studying French and learning to play the piano.

GIFF HATFIELD

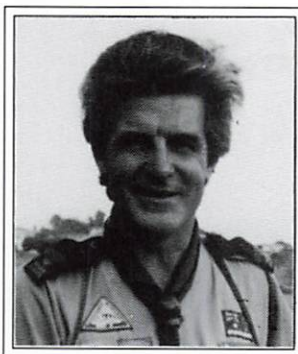
Giff Hatfield, Supervising Engineer, Operational Studies, Central Office, joined the Postmaster General's Department as a Cadet Engineer in 1954 and completed his degree in 1957. In 1959 he joined Central Office Television to work on final tests on capital city stations, established regional stations, and organised early colour tests.

Overseas during 1966-68 Giff gained a Masters Degree for work on TV pulse responses, then examined all aspects of colour, subsequently influencing the choice of PAL for Australia and preparing the plans and estimates for colour conversion.

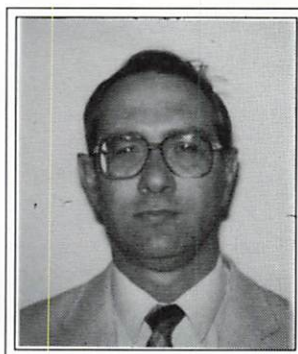
After periods in MF and Radiocommunications, including East/West system and passively cooled shelters, Giff was dramatically commandeered back to TV when a National Park Ranger retrieved him from a remote bush area to overcome problems which caused the last minute cancellation of a station opening. He worked with various States on a computer based fault recording system which was later developed and expanded as BORIS, then introduced computer management and reporting while ensuring Radio Australia, Carnarvon went to air just one year after Cyclone Tracy silenced Darwin Radio Australia transmitters.

In Development, Giff produced a TV remote switching system using insertion signals, and followed monitoring systems through the first ACTTS and Mt Dundas, Victoria and helped steer its further development. He also finalised the 'Brown Book', alias Broadcast Engineering Manual, and associated EI's and TPH's, while in recent years he has been largely occupied with RF radiation safety issues.

Giff likes old cars and restored his 1936 Lagonda Rapide for his son's wedding last year. His daughter, her two children, and farm keep Giff busy. In Scouting, he is a Rover adviser and an instructor in canoeing, rock climbing and scuba diving. His love of rock climbing and mountaineering has taken him to many places throughout the world, including Switzerland, Wales and the United States, as well as places closer to home in Victoria and Tasmania. For relaxation Giff combines all these with photography, and also enjoys music and wine, and is a member of the API Wine Club Committee.



Giff Hatfield.



Gordon Evans.

GORDON EVANS

Gordon Evans Section Manager Provisioning, Central Office, commenced employment with the Postmaster General's Department in 1954 as a Clerk, prior to becoming a Cadet Engineer and studying at the University of Melbourne.

After graduation as Bachelor of Electrical Engineering, he worked in the Victorian Planning Branch on transmission matters from 1959 to 1970 at which time he transferred to the Central Office Radio Section. Apart from a couple of brief excursions into other areas of Central Office, he has been in the Broadcasting field since that time and major involvements have been the conversion of the National Television Service to colour transmission, and the introduction of SBS television in Sydney, Melbourne and Canberra.

Gordon is married has four children, two girls and two boys, and a mad Siamese cat. He maintains a keen interest in music, cinema, books and competitive shooting, and never gives up hope that he will persuade 'flat earthers' to abandon vinyl records in favour of compact discs.

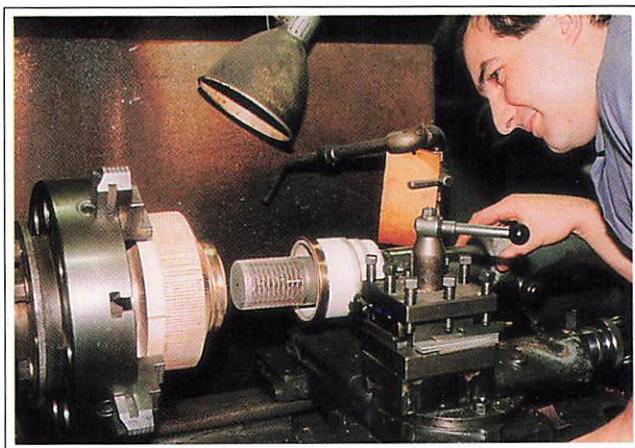
TRANSMITTING TUBES

AWA REBUILD TUBE FACILITY

For over 50 years AWA have manufactured new electron tubes for both defence and commercial use. In addition to new tube production, AWA also operate a rebuild facility for suitable failed transmitting tubes. Typically such rebuilt tubes give comparable operating life at less than half the cost of a new tube.

In general the tube rebuilding process consists of the following basic stages:

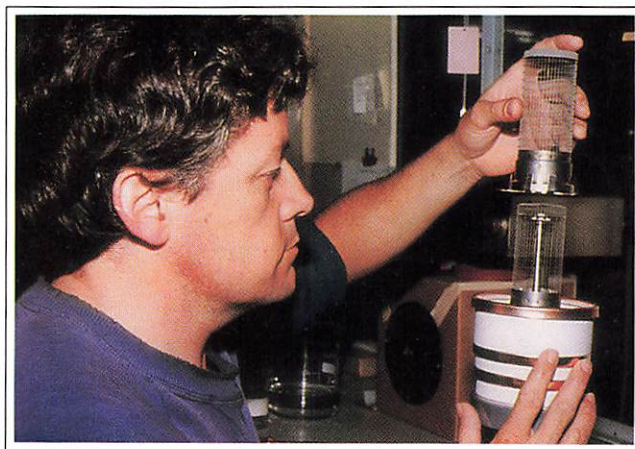
1. Dismantling by typically machining the vacuum seal on the external tube envelope.
2. Replacement of tungsten cathode filaments by spot welding on the tube mount assembly.
3. Carburising new cathode filaments by flashing in hydrocarbon vapour bell. This process ensures correct hot



Dismantling machine.

filament resistance and electron emission level and stability during service life.

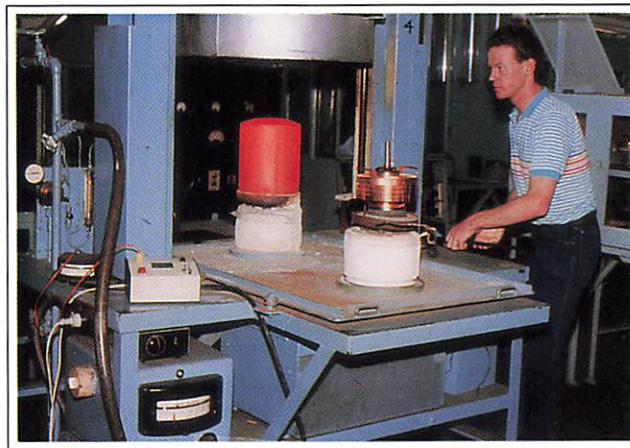
4. During replacement, grids are concentrically lined up with respect to the filament strands to ensure correct electrical characteristics.
5. Exhaust tubes are replaced on the anode radiator assembly by silver brazing in either a hydrogen atmosphere or vacuum furnace.
6. Final assembly of the repaired tube mount and anode radiator is by argon arc welding of the vacuum seal on the external envelope.
7. On the exhaust bench the sealed tube is evacuated typically to below 10^{-5} Torr pressure and baked at temperatures up to 600°C to remove residual gases. Finally after filament



Mounting grids.



Vacuum furnace brazing.



Hydrogen furnace brazing.

activation and electrode bombardment the tube is pinched off at the copper exhaust tubulation by hydraulically operated jaws.

8. After electrical aging the exhausted tube is statically and dynamically tested in either an oscillator or PA stage to the relevant electrical specifications.

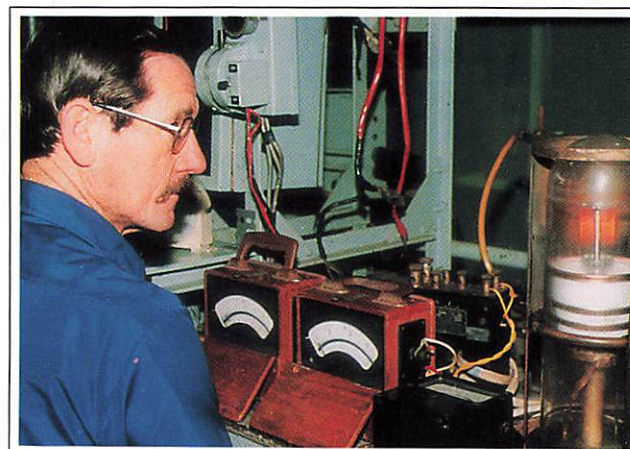
9. After silver plating and branding, the finished tube is packed ready for delivery.

Rebuilding of some transmitting tube types is not feasible because their construction is unsuitable.

In general this restricts suitable types to ceramic metal seal construction with anode dissipations greater than 2 kW.

Many years of field experience has shown that a rebuilt tube has a similar life expectancy to that of a new tube.

C.F. PLATT



Carburising filaments.

THE SECRETARY

Most employers are agreed that capable Secretaries are hardest of all employees to find. The Broadcasting Directorate is no exception.

Central Office and the State Broadcasting Branches are fortunate in having Secretaries whose competence, loyalty and dedication are second to none. All the Secretaries are currently women, but that does not mean that in the future the positions will remain the preserve of women and girls.

Most Secretaries start off as typists and in this role they develop a high level of expertise in shorthand and typing and become familiar with technical terms. In broadcasting many of the technical terms are stumbling blocks to some young typists, but they get to know what broadcasting is all about and how it fits into the other activities of Telecom. Above all, they begin to 'fit in' and gain the ability to confidently mix with a variety of people including Clerks, Administrators, Technicians, Linemen, Engineers, Building Officers, Draftsmen and others.

In recent years more and more has been expected of a Secretary. She must now be familiar with a range of business equipment such as electric typewriters, word processors, nefax, telex machines and others.

What does a Secretary do? Shorthand and typing are only two of a score of activities which may include receiving visitors, screening incoming callers to senior managers, attending meetings and preparing minutes, arranging conferences and other functions, making arrangements for accommodation and transport for visitors, co-ordinating conference room bookings etc.

The Secretary's job is a most demanding one, but there are a number of advantages:

- It is a prestige position in the office.
- She knows a great deal of what is happening in the office. Confidential material frequently passes through her hands.
- She is in contact with people calling the office.
- She knows she is completely trusted by senior management.
- If she is capable she knows she has a wide range of positions. There is always a shortage of competent Secretaries.
- She obtains personal satisfaction out of knowing that she has important work to do, and is doing it efficiently.

Obviously there are some disadvantages. The Secretary's job is not an easy one. It calls for high personal qualities and frequently means a good deal of material handed to the Secretary for typing is often illegible, contains bad grammar and overall, gives the impression that it was written with a thumbnail dipped in tar.

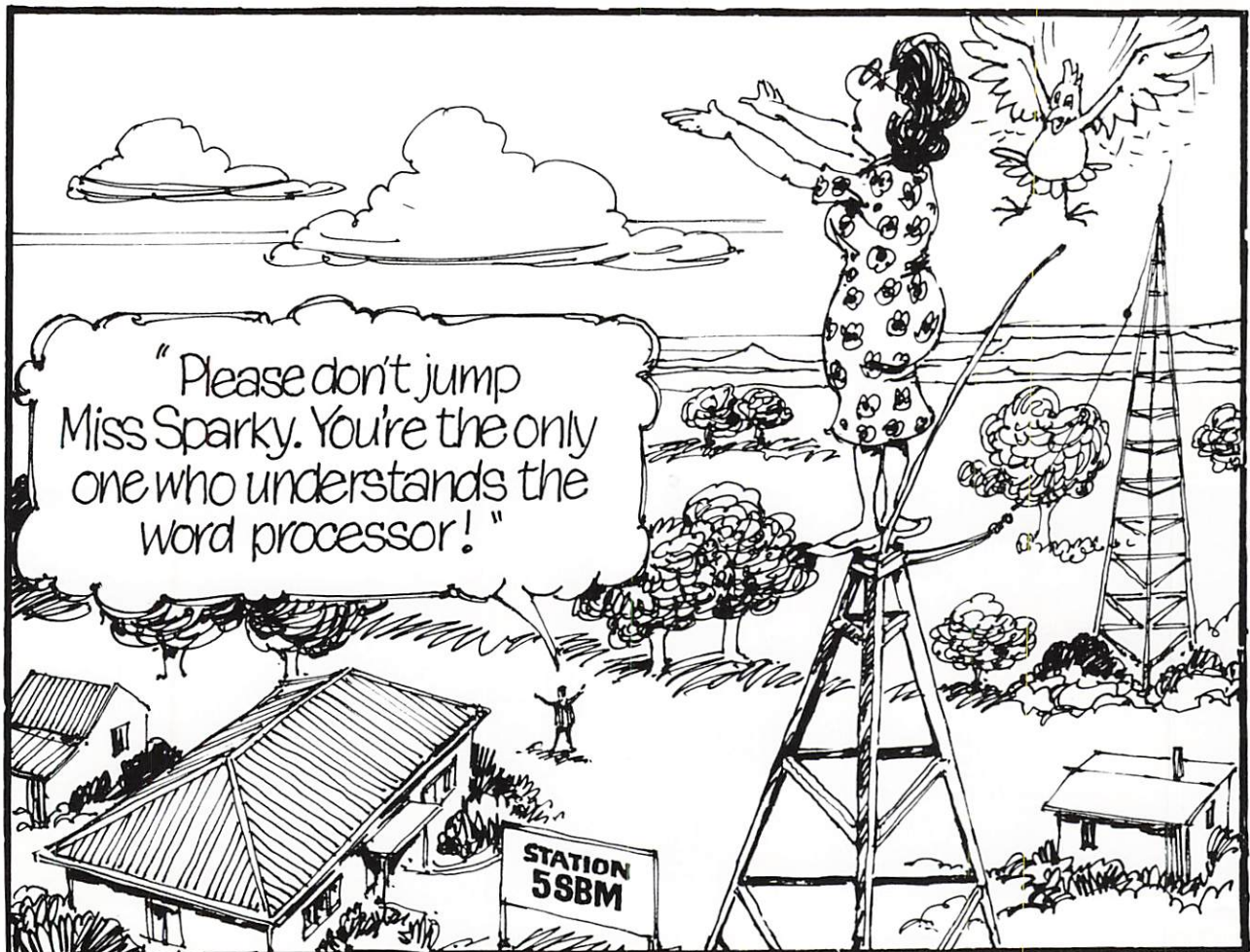
To handle some assignments she needs to be a Sherlock Holmes to decipher handwriting, a Professor of Mathematics to understand complicated formulae and symbols in Engineers' reports, a Master of English to straighten out disjointed and incorrect grammar, a Bachelor of Phonetics in order to take dictation from a mumbling speaker with a mouthful of jellybeans and above all, she must have the patience of Job to satisfy half a dozen people all of whom want their typing ready as soon as they return from a fringe benefit lunch.

After a while a good Secretary becomes very adept in handling people, and especially those with a grievance.

Frequently she can teach field supervisors a lesson. You will find that she won't argue with the person complaining, she listens sympathetically, maintains a friendly and pleasant attitude, and most of all makes it plain that she is trying to help.

What a wonderful person to have around.

JAN SHIRRA



PRE-BROADCASTING ERA

WIRELESS TELEGRAPHY – VICTORIA

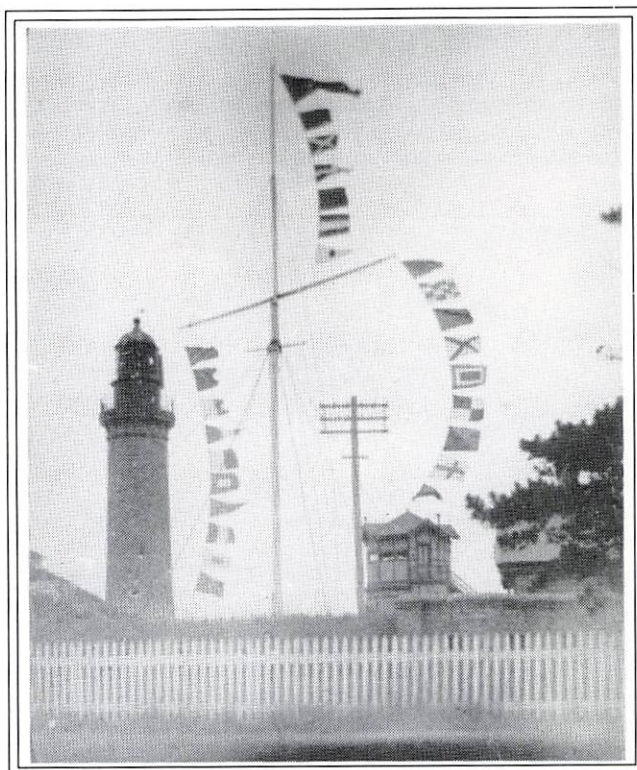
One of the earliest wireless telegraphy experimenters in Victoria was George W. Selby. In 1886 he gave a demonstration of wireless telegraphy in the Melbourne Town Hall, the same year that H.R. Hertz carried out his historic demonstration in which he produced electromagnetic waves, and ten years before Marconi was granted his patent.

In order to increase his knowledge of the then practically unknown science Selby taught himself French and German so that he could read foreign technical papers on the subject.

In 1896 he sent a wireless message from Brighton to Caulfield.

The importance of Selby's work was not appreciated at the time. It was left to Sir Oliver Lodge with whom Selby was in communication, to acknowledge his results in Great Britain.

Although he obtained no practical support for his experiments, he had the willing co-operation of the Victorian naval authorities before Federation. Portion of his equipment was installed in the old gunboat *Cerberus*, making it the earliest warship in Australia.



Lighthouse, signal station and flagpole 1901. (Courtesy ET Raison).

Although Selby was an Electrical Engineer and Manager of the Australian Electrical Co. which was established in 1884, he served as Auditor of The Broken Hill Proprietary Co. Ltd. for some 59 years. He also manufactured and owned one of the first X-ray plants in Melbourne.

Another leading early wireless experimenter in Victoria was H. W. Jenvey, Electrical Engineer of the Victorian Postal Department. Although the authorities encouraged his experimentation by allowing him to use the Melbourne GPO facilities he purchased much of the equipment using his own funds. Most of his experimental work was carried out with a station he erected at Point Ormond, then known as Red Bluff, St. Kilda.

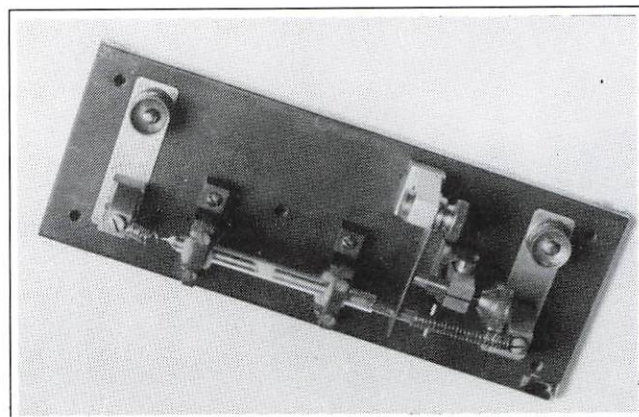
During Easter 1901 Jenvey exchanged messages between the Red Bluff station and another station which he installed at Point Cook some 16 km away.

Following these successful tests it was suggested that a station

be established to transmit messages of greeting to the Duke and Duchess of Cornwall and York (later to become King George V and Queen Mary), who were due to arrive in Melbourne during May of the same year to open the first Federal parliament after Federation.

Jenvey established apparatus in the Queenscliff upper or black lighthouse which overlooks the entrance to Port Phillip bay. Communication was established on 6 May with escorting naval vessel HMS St George which was equipped with Marconi wireless telegraphy equipment. The messages were relayed to the ship carrying the Royal couple, RMS Ophir, by semaphore as it carried no wireless apparatus.

The original intention was to use balloons and kites to suspend the shore station antenna, but both proved unsuitable.

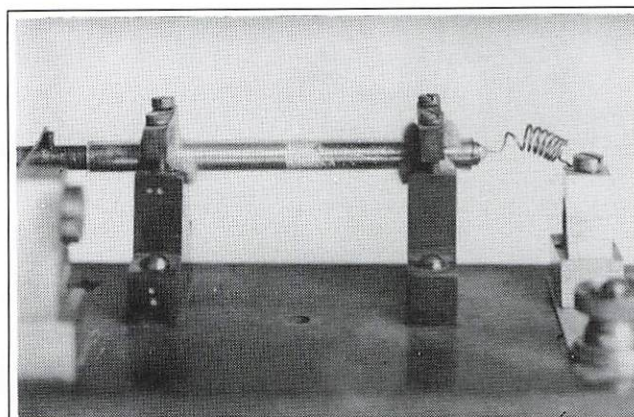


Coherer and sensitivity control used by H. W. Jenvey. (Courtesy Science Museum of Victoria).

The final installation comprised a wire hauled to the top of the lighthouse flagpole.

The communication with the St George was the first recorded occasion of wireless telegraph communication between a ship permanently fitted with W/T apparatus and a shore station in Australia. An iron filing coherer was used as a detector in the receiver and the messages were printed out by a Morse inker on a paper tape.

The ships remained in Melbourne for some days and Jenvey



Close-up of gap and filings. (Courtesy Science Museum of Victoria).

continued to maintain communication with transmissions from his own experimental station at Red Bluff about 5 km from where the St George was anchored. His equipment was connected to a 50 m high antenna and when the party departed on 18 May he maintained communication until the ship was about 15 km off Cape Schanck. At this point the ship lost its antenna in a gale.

Tape records of the messages are now deposited in the Archives of the La Trobe Library and the coherer is with the Science Museum of Victoria.

JACK ROSS

BROADCASTING MILESTONES

3WV DOOEN

Western Regional transmitter 3WV Dooen about 10 km out from Horsham, was the second regional station of the National Broadcasting Service to be commissioned in Victoria. It commenced transmission on 25 February 1937.

The station operated on a frequency of 580 kHz and was the first Victorian station to employ a radiator with an armature top. The lattice steel mast which is still in service is 200 m high, triangular in section, and is guyed at four heights in three

directions. The armature is 18.3 m in diameter, and is supported by a group of stand-off insulators.

The transmitter was built by Standard Telephones and Cables Ltd of Sydney. It was a modification of the 6.25 kW type installed at 3GI and produced an output of 10kW. The major modification was in the power amplifier stage where four 4220 B type water-cooled tubes were operated in parallel push-pull arrangement under Class B operating conditions. Facilities also included emergency studio equipment for providing a local program in the event of long interruption to the program line from Melbourne.

As commercial power was not available, power was generated locally by Ruston and Hornsby six cylinder diesel engine alternator sets. Two units each of 180 horsepower were provided either of which could supply enough output to operate the transmitter while the second was on standby.

Mains power was connected to the station in 1959 and in 1971 the power plant was replaced by a Volvo diesel type of 60 kVA output used for emergency power purposes.

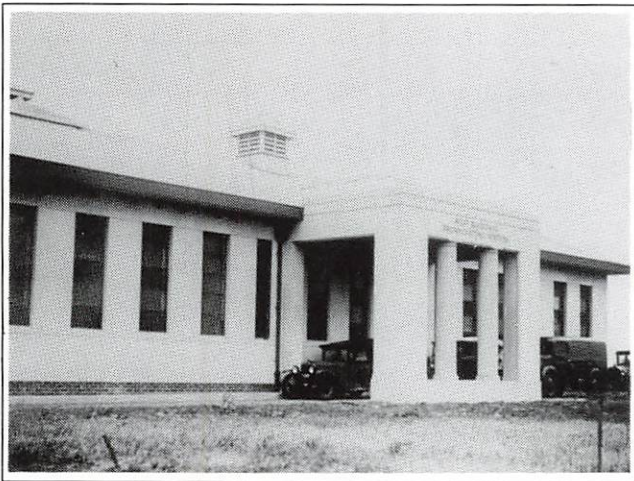
In 1950 a 2 kW AWA transmitter was installed as a standby facility and in 1959 this was replaced by a 10 kW AWA BTM model.

On 31 August 1960 a 55 kW STC air cooled transmitter was installed to replace the original STC water cooled unit.

The station staff from 1937 to 1959 consisted of three Technicians, three Diesel Mechanics, a Cleaner/Gardener, and an Officer-in-Charge. Since 1966 the station has been remotely controlled and monitored from the National television station at Lookout Hill, near Ararat.

Over the years the building has suffered a number of structural problems due to the poor soil, and work is already in hand to establish a new transmitter in another building on the site.

RAY LESKIE



3WV Building 1937.



10kW standby (L) and 50kW main transmitter 1987.