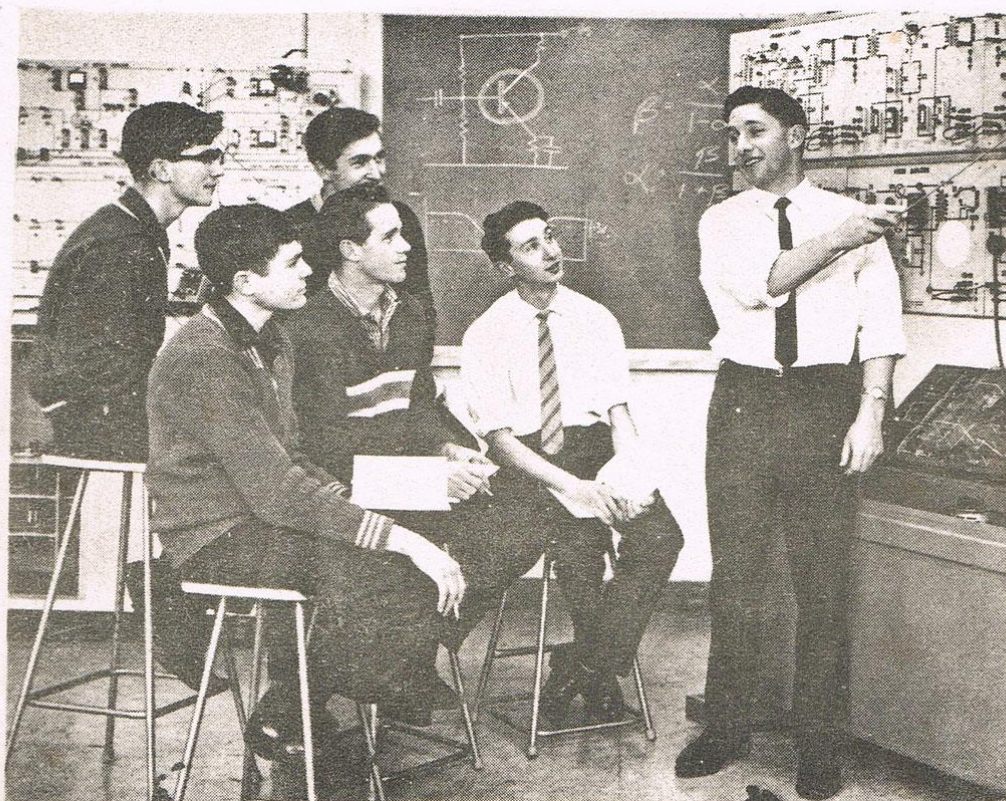


RADIO INFORMATION BULLETIN

NEW ZEALAND POST OFFICE

AUGUST, 1964



Number 15

COVER PHOTOGRAPH

Our cover photograph depicts a class of junior mechanics undergoing instruction on the Philco Electronic Trainer (transistorised version). The equivalent valve version can be seen in the left-hand corner of the photograph.

Officers in the photograph are, from left to right

I.D. Wilton (Himatangi), K. Patmore (Christchurch),
P.R. Moore (Auckland), M.V. Hadrup (Auckland),
I.L. Gow (Awarua) and Ian Grant (Instructor).

A correction to the above caption was published in edition Nr 16: March 1965:

AMENDMENT AND APOLOGY

In the caption to the cover photograph of the Radio Information Bulletin, August 1964, delete I.D. Wilton and substitute H.N. Wiggins. Apologies to both these boys!

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This bulletin is published by the
Radio Section, Engineer-in-Chief's Office,
General Post Office, Wellington.

1. FROM THE RADIO SECTION, WELLINGTON EAST

(a) Radio Mechanician Training

Since the last bulletin was issued there has been a change of instructors at the Radio School. Ray Sayle resigned to go into private business and the position he vacated has been filled by Bill Glavin. Ian Grant and John Hoskin are still with the school. The fitting out of the school laboratory is progressing well, although it is expected that it will be some time before it is fully operational.

An interesting departure from the usual pattern has been the inclusion of three Radio Inspector trainees in the recent 1st stage school and two more in the current school. It is hoped that the courses will prove beneficial to these trainees.

(b) Radio Technician Staffing (see graph)

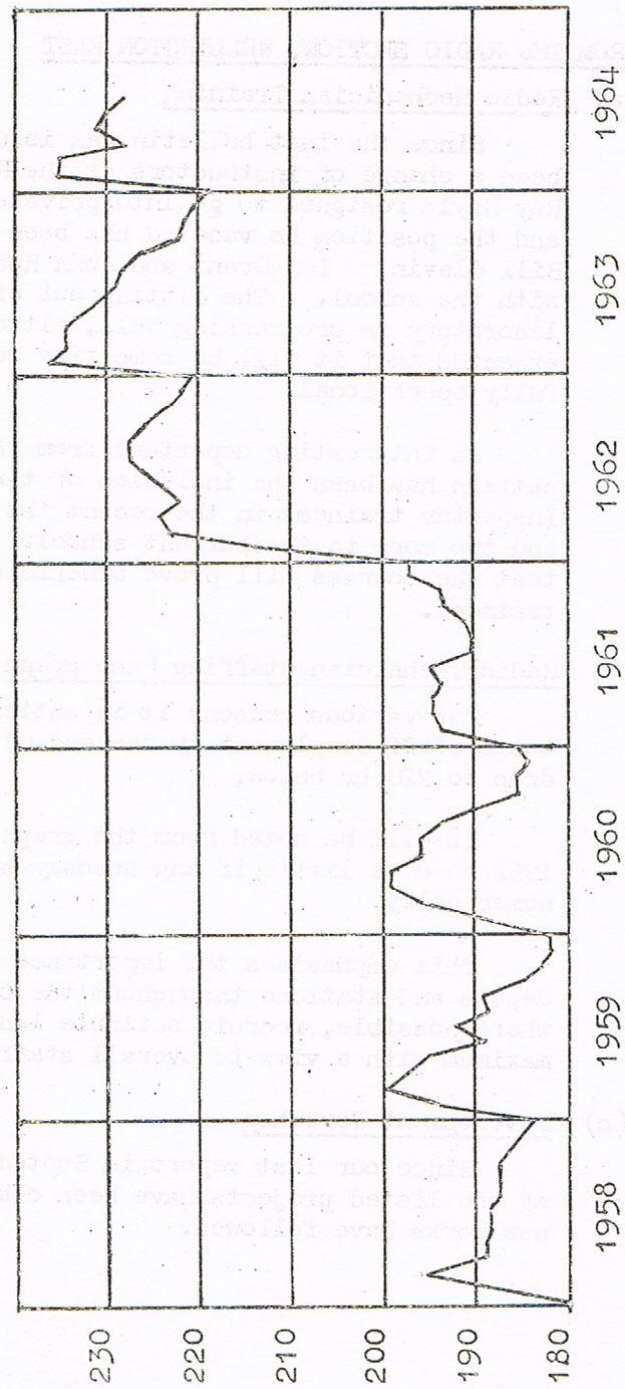
For various reasons it is anticipated the total staff complement by the end of 1964 will drop to 220 or below.

It will be noted from the graph that from 1962 to date little if any headway has been made numerically.

This emphasises the importance for radio depots and stations throughout the country to, where possible, recruit suitable lads to the maximum with a view to overall staff build-up.

(c) Development Workshop

Since our last report in September, 1963, most of the listed projects have been completed and new works have followed.



This graph illustrates the growth of the Radio Technician staff since 1958.

We desire to congratulate the successful students studying for N.Z.C.E. and wish them continued success.

There have been many staff movements amongst the junior officers pursuing their training programme and John Ruddick has just been farewellled following his resignation. Lou Campen recently commenced duty in this Section and we take this opportunity of welcoming him back from Rarotonga.

Word has been received from Peter Munro that he is having a very enjoyable and interesting stay in England. As yet we have not heard from Brian Rickerby who departed for South Africa on special leave in January, 1964, and many wild theories have been mentioned as to his welfare.

This Workshop has continued to be very busy and some of the projects under action are as follows:-

1. Aerial transformers for Scott Base.
2. Manufacture of seven station alarm units (microwave installation).
3. Manufacture of four order-wire units (microwave installation)
4. Manufacture of two roof Entry Waveguide seals (microwave installation).
5. Prototype "B" relay unit.
6. Manufacture of four monitor control units.
7. Manufacture of Injection Moulding machine.
8. Manufacture of three power level meters (Police Department).
9. Manufacture of telegraph school training facilities.
10. Manufacture of ten yagi aerials for the Napier-Gisborne radio link.

11. Modification of Marconi HM 104 to HM 102
for the Napier-Gisborne radio link.

Regarding item 7; the manufacture of an injection moulder to replace the old manually operated device was represented and approved last year because of the ever increasing use of plastics in our field and the difficulty of getting outside manufacturers to produce in small quantities the variety of items required for land mobile and trunkline work.

Work on the moulder commenced last December but was interrupted on numerous occasions because of pressure and priority of other work.

However, we are pleased to state that the machine is now completed and has manufactured its first mouldings, these being 130 moulded, right-angle, B.P.O. connectors for the N.Z.B.C.

We are pleased to see the completion of the Transport 40 Mc/s service there having been a total of 42 aerials and 60 cavity filters manufactured by this section and the staff hope to get on to more practical radio development work.

(d) Frequency and Technical Operations Sub-section.

Considerable work is being done in the Sub-section in organising the operations side of various post office radio services, and bringing technical operating criteria up-to-date. For example, a study is being made of all H.F. Maritime Mobile services and consideration is being given to the need for SSB, for extended frequency range for transmitting equipment and the implications of future remotely controlled transmitting facilities are being studied.

From time to time various district offices and radio stations have made use of the National Radio Frequency Register to assist in identifying QRM. A telephone call to 56-580 (Wellington), extension 774, will provide access to the Register, which is kept up-to-date with information on frequency use in New Zealand and at our Pacific Island stations.

The work of co-operation with Fiji and Australia, called "frequency co-ordination", continues to assist New Zealand and the other countries to choose radio frequencies for any new services. Recently there has been quite a lot of work in co-ordinating Australian requests for agreement to the use of 3A3A and 3A3J (SSB, reduced and suppressed carrier) for many fixed circuits, which are being converted from low power 6A3 working.

U.H.F., in the vicinity of 460 Mc/s, is making its appearance in frequency assignment engineering in New Zealand and so far is mainly for fixed working by power boards, who need telemeter and telecontrol circuits. These applications have demonstrated that more accurate recording of the locations of radio stations is needed in the Frequency Register and an investigation of just how to achieve this accuracy is being made now.

A maritime radio navigation system, new to New Zealand, will be installed by the contractors who are laying the Cook Strait power cable, for temporary service during July to December, 1964. It is the "Decca HI-FIX" and operates on 1910 kc/s using a continuous wave technique. This application was processed by this Sub-section and to enable a temporary assignment to be made AREC stations in the band

1900 - 1925 kc/s will need to be temporarily restricted in their activities for about 100 miles from the site of the Decca system.

It is often desirable to carry out test transmissions before making a firm commitment for a large quantity of radio equipment. Temporary frequency assignments, for the use of equipment/crystals etc., which are readily available, can usually be made at short notice for private or government stations and the Frequency Register facilities are readily available to assist district offices in this respect.

(e) Wit and Wisdom

- (a) Action: Did nothing in particular and did it very well.
- (b) Advice: Many receive advice - Only the wise profit by it.
- (c) Ambition: If you wish to reach the highest, begin at the lowest.
- (d) Anger: Anger is momentary madness, so control your passion or it will control you.
- (e) Authority: The highest duty is to respect authority.
- (f) Complaining: Those who complain most are most to be complained of.

2. RADIO DEPOT, AUCKLAND

V.H.F. News

At Mt Eden this month a re-shuffling of the Auckland taxis channels has become necessary following the bringing into use of six consecutively numbered channels, and the consequent intermodulation possibilities that have now arisen. Up until recently when four channels 61 - 64B were in use, channel 62B was located at Mt Victoria, Devonport, but with bringing into use of 65 and 66B it is necessary to rearrange channels as

follows:- 62B back to Mt Eden, 63B to be installed on the top floor of the Symonds Street Post Office and a folded dipole mounted on their chimney, 65B to go to Mt Victoria. The above changes, of course, refer only to the transmitters, all receivers and retransmit units are located still at Mt Eden. The use of two channels from other locations than Mt Eden enables better coverage of specific areas rather than the all-round coverage obtainable from Mt Eden. 65B at Mt Victoria gives good reception in the Orakei, Mission Bay, Remuera end of the city and 63B at Symonds Street will provide coverage for the downtown Auckland area, Queen Street, Customs Street and the wharves etc.

We have just submitted an estimate for 8 more lowband channels for Mt Eden. The 100th channel gets closer.

At Manurewa two new channels in the 80 Mc/s band are being installed and with the erection of three more dipoles on the existing mast we have more room to expand our services in this area. A major reconstruction job is taking place there at the present time.

At Whangarei recently a re-survey of the coverage obtainable from the new microwave terminal building at Kamo was made. Arising from good Police Department tests a survey was also made from Maunu seven miles west of Whangarei and the excellent results obtained from there have caused some re-thinking about radio coverage in the north.

Auckland Radio

The annual calibration of the old Marconi D.F. receiver was carried out during a recent spell of cold but fine weather. The spread of houses into what a year or two ago was farm land has caused the loss of more of our test pegs and caused a bit of head scratching at times. The calibration of the

sea sectors was held up occasionally by fog and the need to top trees on the cliff edges. No news yet about bringing the Telefunken set into use.

The working frequency on our main marine transmitter was changed from 524 kc/s to 432.5 kc/s on 8th June for a month's trial. This was not a happy choice however, as the fifth harmonic of this new frequency appears on 2162.5 kc/s on the small ships to Auckland Radio frequency. Putting traps in the aerial feeders at the transmitting station reduced the level of this harmonic at the receiving station to just under ten microvolts, a tolerable level on this service.

General

- (a) Depot staff has been increased by two by the transfer to here of men from the carrier room and Engineer's Office. These are very welcome as the recent promotions of Class III, IV and V men have been of staff already here and these are the first "Indians" we have gained for some time. The "chiefs", of course, are pleased with the recently announced salary increases.
- (b) Our storeman looks much happier these days with the sudden unexpected arrival of stores which had been N/S for many months. Even the stocks of QQEO3/12 valves are ample now and we hope this means the end of buying them in threes and fours when available locally.
- (c) The value of seat belts in cars was strikingly demonstrated recently when a depot technician on his way to clear a fault at Whangarei in the early hours of a morning struck and killed a cow which had strayed onto the main road north of Auckland. Extensive damage was done to the car but the driver was only shaken and was able to continue on to Whangarei, when another car was

brought out to him. The cow's owner had arrived on the scene by this time and was at a loss as to what to do with the dead beast but this problem was solved by the arrival of a pre-war V8 with two Maoris in it. On being offered the body they joyfully accepted and were last seen in the ditch with the cow, dismembering it and stowing it in their car.

3. RADIO DEPOT, NAPIER

Since our last appearance in print a steady expansion of work commitment has occurred, with the usual attendant interest, problems, doubtful equipment, etc.

V.H.F. Mobile Services in the area are still developing, with 40 Mc/s Transport channels at Gisborne and Napier installed. 40 Mc/s Police equipment has also been installed at Napier and the Gisborne equipment is on the way at present.

Unusual propagational conditions during the December - January period gave us some considerable trouble on these channels. Just when both were at their busiest, of course, but fortunately our obscure QRM troubles have now ceased, and we hope the peace continues.

In the 94 - 108 Mc/s band the installation of triggering channels via Kahuranaki still continues, with the installation of a further exclusive channel and two-party channels under way.

With our triggering channels it has been found necessary to maintain a close check on modulation level from the triggering base, to preserve a reasonable audio quality received at the mobile. With the triggered equipment adjusted to retransmit the same modulation level that is received, any

tendency toward heavy compression at the triggering base gives a small deterioration of audio quality which when passed through all units of the triggering chain, seriously degrades the received signal. While this audio deterioration is apparent on a normal base station compressing heavily, it is not found objectionable, as it is in triggering service when passed through the extra set of equipment.

To facilitate the operation of the 40 Mc/s Transport channel from Kahuranaki it is hoped to establish a further trigger station at Awatoto, our 48-channel trunkline terminal. It was found impractical to operate Police base equipment and Transport trigger equipment from the one Napier station due to mutual QRM effects.

This new station would also serve as triggering base for Napier party channels at present triggering from Hastings.

With the loss of Errol Lilley on promotion to Hamilton, the local staffing situation is now a little bit thin. With training schools occurring regularly, and the need arising for two staff units to be dispatched in opposite directions at the same time, the Depot is often left to run itself. It is hoped that our plea for replacement staff is not in vain. To anyone interested we offer employment in a new Depot, with residence in a climate which is definitely better than the one you are enduring at present. Hurry and get your application for transfer in before this year's intake is filled.

4. RADIO DEPOT, PALMERSTON NORTH

Marconi HM 100/150 training courses

These courses are in full swing and so far this year 24 officers have attended. We do not

know whether the time spent will reflect in the outage returns but many officers will be much more confident when working on the equipment under fault conditions.

Land Mobile Service

- (a) Surveys. Four surveys have been carried out in the Wanganui area recently, three from new sites and one from the present station at Bastia Hill. The aërials at Bastia Hill are mounted on the side of the water tower and omnidirectional coverage is not obtained owing to shading by the tower in certain directions.
- (b) New Stations. Post Office services should be established during the year from Pukehou, a hill near Otaki and Mt Ashcroft which is adjacent to the microwave repeater station at Mt Curl.
- (c) Saddle Road Station. This station is going to line control and a cable is being installed between Ashhurst and the station at the present time. A new pole holding the Police and Transport Department's aërials was completed recently.
- (d) Standardisation. From comments of visitors our standard installation differ from theirs. Is it possible to standardise equipment for non-standard applications? Why not standardise the required results and let the job be engineered to fit the application.

Vehicles. A Holden stationwagon was received recently. This type of vehicle seems very suitable for our work, better from a staff comfort point of view and for safely carrying radio and test equipment. A Landrover has also been

delivered. We imagine the price of these 4-wheeled drive vehicles, supplied to various Depots, is immediately recovered by a great reduction in roading costs to the more inaccessible stations. The type supplied seems quite satisfactory although it may be necessary to install suitable containers for carrying fragile equipment.

5. HIMATANGI RADIO

Staff

After the staff upheaval over the last six months things are at last settling down to normal. All new members are settling in and having completed a training period are beginning to play a full part in all duties.

Remaining older hands Brian Gibb, Don Snadon, and Wally Turvey have no doubt found the schooling period rather trying, but possibly at times educational, with questions coming thick and fast.

"And now they are one" - Laurie Edgerton has gone forward to the G.P.O. leaving Kitch Coley as the sole member of the original staff.

The only other staff movement was Brian Flynn to Awarua joining Lionel Tatton as mentioned in the previous Bulletin.

We await now, of course, the filling of the Class V vacancy brought about by the promotion of Brian Gibb.

General

Day-to-day work is being maintained with special consideration being given to speed and ease of operation of all facilities in a Compac cable emergency. To this end the patching panel has been completely redesigned and alteration work is now complete.

It is felt that the effort has been fully worthwhile, it taking less than ten minutes to provide full radio facilities to the United Kingdom via Vancouver at the time of the recent Alaskan earthquake. Circuits operating were two 2-channel T.O.R.s one T.E.D. and two phone channels.

Himatangi - Irirangi V.H.F. Link: The route for the above link has been site tested again. This was found necessary as the original site test was carried out on a frequency now occupied by land mobile services.

The new frequency, somewhat higher than the original, was tested over the same route (Himatangi - Mataroa - Waiouru) and from all accounts results are satisfactory.

The link, however, does not appear much nearer completion as much work remains to be done. Cable laying is under way but antenna construction has not even started. It does appear that many months will pass before the installation is fully operational.

Training School for Marconi HM 100 Equipment

About half of our technical staff have now attended either the primary or refresher courses available on the above apparatus.

Rumour has it that we can, in the not too distant future, anticipate the installation of a considerable amount of new medium power transmitting equipment to provide for new services and to replace other aging transmitters that will very shortly no longer meet the requirements of modern telecommunications.

Considerable building alterations are envisaged and much of the existing equipment rearranged to make more floor space available. It does appear

that we could be in for an extremely busy and interesting period.

6. RADIO DEPOT, WELLINGTON

Phototelegraph Terminal

The reconstruction of the Wellington Phototelegraph Terminal which is being carried out at the present time will provide improved facilities for the reception, transmission, and relaying of both internal and overseas "PIX" traffic. To permit the maximum flexibility, separate rooms will be provided for the "operating" and "photographic processing" functions, these may then be carried out independently without the present limitations imposed by the use of a one-room terminal.

In view of the improved circuits available through COMPAC and the expanding internal network it is expected that usage of the Post Office phototelegraph facilities will increase greatly in the future.

It is intended that the reconstruction work be completed prior to the commencement of the Tokyo Olympic Games in October, 1964.

Wellington - South Island microwave link

The outer sheathing of the Wrights Hill microwave terminal building is now complete and the contractor is carrying out the interior partitioning and lining work.

Paraparaumu - Kapiti Island radiotelephone link

After approximately 17 years of Post Office use the vintage V.H.F. ARC5 equipment previously used to provide a telephone circuit between Paraparaumu and Kapiti Island has now been honourably retired. This circuit is now provided by A.T.E. "Country Set" equipment, working and standby sets being held on the

island.

7. RADIO DEPOT, BLENHEIM

Depot Building

An endeavour is being made to secure suitable temporary premises pending the construction of a permanent depot, however, building accommodation is difficult to obtain and so far no suitable premises have been found.

Microwave Buildings

Steady progress is being maintained with the microwave building construction at Jamies Knob and Ward, both stations now being visible from the main highway. Weather conditions in the province have been reasonable and have not affected roading or construction to any degree.

Marconi 48-channel

The No. 1 system terminal equipment at Seaview is at present receiving particular attention in an endeavour to achieve the required S/N - 68db in preparation for "White Noise Tests". Our present best is - 66db. All procedures and tricks learned at the Palmerston North Marconi course have been employed and still the two negative quantities remain hidden. Investigations continue.

Stephens Island

A cut-over to 230V A.C. will shortly be made at Stephens Island. This will necessitate wiring changes for the coding equipment at present operating on the station 110-volt battery supply. An old armoured underground cable which supplied the alarm circuit to the residences has finally given up and a new overhead line is now being constructed using the existing telephone pole line.

The Brothers Island

A Marlin 75 is to be installed at The Brothers Island to replace the Marlin 15. Communication between The Brothers Island and Picton has not been reliable with previous low power equipment and it is hoped that the Marlin 75 will prove satisfactory.

French Pass

A break in the French Pass/D'Urville Island submarine cable necessitated urgent action to restore telephone service. Modified A.T.E. Country Set Battery units were installed and are giving an 8 a.m. to 5 p.m. service.

The recent birth of twins in a remote part of D'Urville Island brought this radio link under sharp criticism through Press channels and it appeared that medical aid was unable to be obtained due to a failure of the radio link. The report was incorrect and the link was operating normally during this emergency.

8. CHRISTCHURCH CONTRIBUTION

Staff

Since our last notes we welcome Robin Holdsworth who has returned to his home centre from Hamilton as a Class IV. Jim Whitney has left for England on a year's special leave. What with RMTS - special schools - leave of various forms - honeymoons (yes, Chas Dickey has entered the realms of matrimonial bliss) our time book is very much in the red. The obvious result is that our middle ranks are sorely depleted throwing a much larger responsibility on the juniors who are doing mechanics duties. We welcomed the addition of one Class IV (Robin Holdsworth) and one Class V (Braddon Smellie) to our establishment. Murray Cotton also gained a Class IV in his

position of assisting the Engineer (Radio).

V.H.F. Land Mobile

Since the virtual completion of Mt Pleasant as a replacement for the original site at Cashmere there has only been the steady increase in channels and subscribers. The old building at Cashmere is now a shell with only two single-frequency channels operating and the effort of reconstruction in 1958 and of maintaining equipments under very difficult circumstances is now only a memory.

Mt Alexander in North Canterbury is now operating from the new building providing considerably more room to move in than with the temporary hut. A new station is being established at Mt Alford, just behind Methven, initially in the temporary building ex Mt Horrible, Timaru. The road has been cut but unfortunately as the winter months are upon us now the weather in the high country is expected to cause some holdups with outside plant and building.

Initially, Ashburton is to be a trigger control station for Mt Alford and the racks of equipment have been built up in the Depot and are ready to be installed in the Ashburton Carrier room until such time as the Ashburton Microwave building is ready for occupation.

Recently this Depot, in order to reduce noise and congestion created by V.H.F. Land Mobile testing in the main workshop and to provide room for the extension of test facilities, removed the test equipment racks into another room in the depot building and set up a small staff headed by a Class V officer to effect all fault clearance and maintenance of the V.H.F.

Land Mobile service in the metropolitan area together with the complaint/fault recording. The results have been beyond expectations in improving working conditions and the service to subscribers. Staff are rotated at intervals to keep all staff up-to-date with the land mobile services. The previously noisy main workshop is now considerably quieter, as is the testing and monitoring, resulting in greater efficiency all round.

Trunk line

The Marconi, 48-channel system remains passive and worked to the limit. The maximum working of this system and the introduction of Telex has increased many times the non-technical aspect of maintenance and fault clearance work which involves staffing remote stations overnight.

Work on providing access roads and buildings for the projected microwave system is proceeding. All stations now have access roads, and buildings are in various stages of construction. No fun doing outside work in high country at this time of the year!

Timaru Show

At a recent show in Timaru a "Country" set was set up as an active display as part of the Post Office exhibit. It was connected to the automatic exchange providing a fully automatic telephone connection which attracted a fair amount of interest.

9. FROM INVERCARGILL

The A.W.A. Marine Radio Beacon transmitter at Puysegur Point is now operating from the 230-volt generating plant recently installed at this station. A rectifier unit delivering 110 volts D.C. at 12 amps was placed in service on 10th June and the old

110-volt battery plant is to be removed from service.

A second 5-channel, G.E.C., V.H.F. link at Ramparts-West Arm was brought into service during May, giving telephone circuits to the contractors for the spiral access tunnel and slot telephone facilities for the workers employed on this section of the Manapouri power project.

Further land mobile site-testing has been carried out at East Peak and High Hill at Gore, and Bald Hill in the Longwoods Range and a comprehensive survey of possible wide-coverage sites in the Southland district is, therefore, nearly completed.

Work is proceeding steadily with the change-over to the new Urban Mobile V.H.F. building at Bluff Hill. Cable and aerial work is nearing completion and the inside installation is progressing well.

Frequent staff changes have taken place during the past few months and we welcome Ashley Keith, Brian Flynn and Boyd Brown. Recent transfers include Lin Scott, Allan Hardie with John Gray soon to depart for Makara.

A recent visitor to the district was Mr A. Elton, Radio Section, who carried out an inspection of the urban mobile V.H.F. installations in Southland. It is felt that visits of this nature are well worthwhile, giving an enlightened insight into the mutual problems encountered and assisting in the co-ordination of effort between Radio Section and District Staffs.