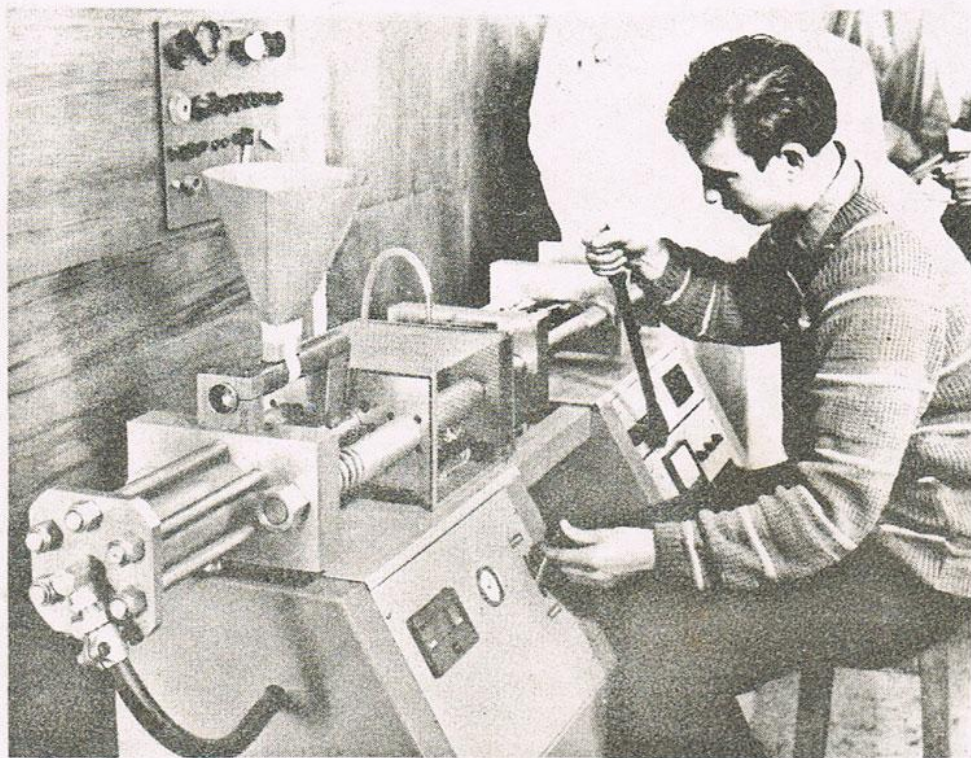


# RADIO INFORMATION BULLETIN

NEW ZEALAND POST OFFICE

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MARCH, 1965



Number 16

### COVER PHOTOGRAPH

Our cover photograph depicts the Development Workshop's **newly constructed** Injection Moulding Machine being operated by a Junior Mechanician of the Workshop staff.

The development of this unit was the work of the Senior Technician-in-Charge of the Development Workshop Mr R.E.Berry, and he and his staff constructed the machine in the 4th Floor workshop.

It replaces an outmoded old hand-operated unit built by the Radio Technician staff many years ago.

The new machine meets an essential requirement in the work of the Section, and is used to produce a numerous variety of plastic mouldings, mainly in small quantities, and for which local and overseas manufacturers were not interested in quoting or producing because of the small quantity requirement and small profit return.

Some of the more important mouldings being produced and serving widely varying applications are listed below.

1. Six types for casting epoxy resin transformers.
2. Insulator for ground plane aerial.  
(Aerial no longer in service).
3. Wheels for standing wave trolley.
4. Ping spreader for feeder lines.
5. Six different mouldings for the aerial switching console at Makara.
6. Moulding of right angles B.P.O. connector.  
(Large quantities of these have been produced for N.Z.B.C.).



7. Plastic module for N.Z.B.C. T.V. camera cable to enable easy movement on studio floor.
8. Three mouldings for modification kits (330) for BPO 706 telephones.
9. Marconi HM 100 type terminal strips for mod. kits and codesenders.
10. Insulators for coaxial hybrids in use at Mt Eden, Auckland.
11. Plate cap mouldings for 866A, valves etc.
12. Misc. flat compression washers.
13. Moulded inserts for Philips 7kW transmitter 3-phase isolating switches.
14. Measuring cups for mixing epoxy resin ingredients.
15. Moulded cleat for HM1 cable stock item.
16. Moulded cleat for  $\frac{1}{2}$  in. plastic hose stock item (Just completed order for 500).
17. Moulded cleat for UR65 cable stock item. (Just completed order for 1500).

It will be seen from this wide variety of mouldings ~~that~~ this fine machine is doing an excellent job.

#### 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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1. RADIO SECTION

(a) Development Workshop

Again we welcome our new boys on the staff and wish all success to them and also those who have been transferred to other sub-sections.

Brian Rickerby came out of the African bush safe and sound and is with us again.

Recent projects include the production of:-

1. Wide-band receiving aerial transformers.
2. Aerial distribution panels for Chatham Islands.
3. Receiver test units for land mobile base sets.
4. Transistorised oscillator/level meter units for Transmission Section.
5. Modification of 250 telephones for press-to-talk operation.
6. Miscellaneous racks and common aerial harness for Torbay/Great Barrier Island link.
7. Apparatus for training school including a phase-shift sideband exciter for demonstration purposes.
8. 2,000 coaxial cable cleats for Main Store stock.
9. Reconditioning and modification of miscellaneous equipment.

Further work is being carried out on the Napier-Gisborne radio link equipment, including (in conjunction with Trunkline Sub-Section) a detailed design analysis of coupling systems for common aerial working.

Etched printed circuit boards by the silk-screen method are being produced for items 3 and 4.

Item 8 refers to plastic mouldings produced on the injection moulding machine depicted on the front cover of this Bulletin.

(b) Laboratory

The main item of news concerns the flood of test equipment in for acceptance testing. Items received over the past few months include Dumont and Telequipment oscilloscopes, Marconi signal generators, power meters, trans-rec test sets, output meters and V.T.V.M.s, Advance signal generators and audio oscillators, Avo valve characteristic meters, Sprague interference locators and Sony portable T.V. receivers. New equipment for the Laboratory includes a Tectronix time - mark generator, Hewlett-Packard clip-on D.C. milliammeter, Avo valve characteristic meter, Marconi 50-ohm, 100-watt power meter and two transistorised transmission measuring sets.

A Lenkurt test bay now occupies a corner of the Laboratory in readiness for module repair to commence. To date, however, spare parts have not become available.

At present Keith Surridge is on loan to the Trunkline Sub-Section to assist in Microwave waveguide installation and testing and has been replaced by Max de la Haye recently returned from 12 months' leave overseas. Tony Horsfield, after being with us for several weeks following a term in Antarctica, has now departed for the United Kingdom on 12 months' leave.



(c) General Services Sub-section

Awarua Radio Reconstruction

Considerable work is being done in the Sub-section in planning the reconstruction and modernisation of various Post Office radio installations. Preliminary work is now well under way concerning the establishment of a new Receiving Station at Awarua Radio and the reconstruction and conversion to unattended remotely controlled operation of the transmitting station. The receiving station is to be built at a point approximately three miles south of the present site, far enough away to eliminate harmful interference due to the increasing industrialisation of Invercargill and the proposed high tension power line to the aluminium smelter at Awarua Radio.

Changes at Himatangi

To enable the S.S.B. transmitters to meet the new frequency tolerances of 15 ppm a highly stable frequency generating installation comprising master oscillators and synthesisers is to be installed. This equipment along with the transmitter drive units will be housed in an electrically screened drive unit room formed by adding an extension to the existing instrument room.

(d) Impending Retirements

Radio Section

| <u>Name</u>                     | <u>Due date of retirement</u> |
|---------------------------------|-------------------------------|
| (a) A.F.Smith, Chief Techn. (R) | 30th June                     |
| (b) G.Askey, Insp.Techn. (R)    | 30th September                |

District Staff

- |     |   |            |
|-----|---|------------|
| (a) | J. McLaughlan, Radio Inspr.<br>Hamilton         | 30th June  |
| (b) | D.C. Shaw, Superintendent<br>Auckland Radio     | 30th June  |
| (c) | D. Shearer, Superintendent<br>Wellington Radio  | 30th June  |
| (d) | P. Hewlett, Snr. Radio Inspr.<br>Auckland       | 30th Sept. |
| (e) | C.H.C. Littlejohn, Supervisor<br>Auckland Radio | 30th Sept. |

(e) Staff Training

Sixty-six Radio Technician trainees and five Radio Inspection Trainees attended courses held at the Radio Mechanician Training School during 1964, and of these the top trainees from each of the stages were, in order of merit -

Stage 1

|                  |                               |
|------------------|-------------------------------|
| Stewart, I.L.    | Christchurch                  |
| Crawford, E.     | Engineer-in-Chief's<br>Office |
| Lennison, W.P. ) | Engineer-in-Chief's           |
| ) equal          | Office                        |
| Stevens, M.W. )  | Engineer-in-Chief's           |
|                  | Office                        |

Stage 2

|                 |                     |
|-----------------|---------------------|
| Gow, I.L.       | Awarua              |
| Lambert, M.G. ) | Engineer-in-Chief's |
| ) equal         | Office              |
| Crook, D.G. )   | Napier              |



Stage 3

|                 |                               |
|-----------------|-------------------------------|
| Briggs, M.O.    | Hamilton                      |
| Christensen, G. | Engineer-in-Chief's<br>Office |
| Reveley, A.D.   | Christchurch                  |

Congratulations to these boys.

It is also appropriate to extend a welcome to all the newly recruited trainees who have joined the Radio Section. You will all be aware that we have training school facilities in Wellington and we will be looking forward to meeting you later in the year.

Your instructors for the courses will be -

Mr C.W. Glavin (Senior Instructor)  
Mr I.M. Grant (Instructor)  
Mr A.L. Edgington (Assistant)

(f) Wit and Wisdom

- (a) Age. The old believe everything:  
the middle-aged suspect  
everything: the young know  
everything.
- (b) Action. Get good counsel before  
you begin: and when you have  
decided, act promptly.
- (c) Bore. A person who talks when  
you wish him to listen.

- (d) Building. Never build after you are five and forty; have five years income in hand before you lay a brick; and always calculate the expense at double the estimate.
- (e) Conduct. The integrity of men is to be measured by their conduct, not by their professions.
- (f) Idleness. Some people have a perfect genius for doing nothing, and doing it assiduously.

(NOTE: If you have a half hour to spare don't spend it with someone who hasn't).

- (g) The following letter was received in reply to a radio licence reminder:-

My Radio 'Pacific' wants 2 new valves. 1 silvery one and 1 glass plain one. If you can send some one with them or have them sent out to me, then I'll pay the licence. It has not played since end of June, 1963.

## 2. FROM THE WHANGAREI DISTRICT

- (a) Suitable local premises have been leased for the establishment of a local Radio Depot. Some internal building alterations and construction are required. The position of Radio Technician/s have not yet been advertised.
- (b) Good progress is being made with the installation of microwave radio equipment at the Kamo and Brynderwyn stations.
- (c) Erynderwyn V.H.F. base station, established five months ago, is now catering for 20 subscribers on 2 channels. This station is giving very good coverage over an area which includes Dargaville, Whangarei, Ruawai and Wellsford.



Further channels will be required at Brynderwyn to cater for the expected applications for service from contractors engaged in Marsden Point power station project over the next two years.

Parahaki V.H.F. station has grown rapidly over the past  $2\frac{1}{2}$  years from two channels to the present 10, which cater for 53 subs (including two exclusive). The proposed move from Parahaki to Maunu Mt of all channels except 115A taxi, and 111A public utility, will give coverage over the Waipu, Dargaville, Kaikohe, Whangarei areas, and an increase in applications will follow as a result of this greatly improved coverage.

- (d) The site testing at Ohacawai and Mangamuka Gorge for V.H.F. base stations to service Kaikohe and Kaitaia areas is almost completed. The Ohacawai site appears most promising.

- (e) Television growth in this district is considerable. The present figures are as follows:

|                                |      |
|--------------------------------|------|
| Number of translator stations  | 4    |
| Number of mini translators     | 17   |
| (Plus 4 currently under trial) |      |
| (Plus 3 proposed)              |      |
| Number of T.V. licence holders | 5442 |

3. FROM THE AUCKLAND DISTRICT

(a) Auckland Radio Depot News

Microwave Installation:

Main news from the north at this time is that the long-awaited microwave installation between Auckland and Whangarei is almost complete. Commissioning tests are under way at the time of writing, no doubt the toll rooms at each end will be overjoyed with the great increase in circuits available.

Present Auckland - Whangarei toll services (31 channels) are now quite inadequate. Two installation teams from the depot working under the direction of Bob Bundle from Wellington had the Whangarei, Brynderwyn and Moirs Hill stations completed early in December, the Auckland terminal in the new Airedale Street Telephone Centre was held up due to initial trouble with the tower construction. The 130-foot tower with its dish is now quite a landmark in the city. Installations at Moirs Hill and Kamo (Whangarei) were done by Neville Gregory, Ian Shearer and Neil Denize, the Auckland and Brynderwyn stations were installed by Eric Luffy, Barney Wallis and Graham Gruzelier.

The Brynderwyn and Moirs Hill works teams were plagued with flies from the adjoining bush, constant use of aerosol fly sprays would give peace for a few minutes but they swarmed back again in undiminished numbers. The Brynderwyn tower is also a conspicuous landmark on the main Whangarei highway but Moirs Hill is three and a quarter miles and eighty seven bends to the west of the road near Warkworth. One of these corners is now well signposted as "Bobs Bend" in memory of an incident involving the filling out of the well known Ty. 367. The Auckland terminal



alarm system is extended to the Radio Depot and is being installed in a room above the depot workshop, on the second floor. V.H.F. control, monitoring, etc., is also to be done from the same room. This will allow the workshop to accommodate two more standard size work benches.

V.H.F. Services:

Work is proceeding with eight more channels in the "low" V.H.F. mobile band at Mt Eden and also additional channels at Pukekohe, Whangarei and Brynderwyn. The last-named station uses a room in the microwave building for V.H.F. mobile services. The first channel in service there provided coverage over such a wide area that the demand has really mushroomed. The second channel has just been installed and already there are subs. awaiting service on a third channel. Technicians who know the Mt Eden V.H.F. stations are probably saying "where are they putting all these new channels?" We sometimes wonder ourselves, but the removal of the old Western Electric gear which has served Great Barrier Island residents for the last 15 years will provide some relief, as will the retirement of the last two 48/52 type sets on the Police band. With their removal, the last of these type sets will be the four installed at Parahaki, Whangarei. A trigger channel is being put in at Mt Victoria, Devonport, to operate a new Auckland Power Board base station which we are to install at Clevedon which will cover the southern

area of sprawling Auckland.

(b) Auckland Radio:

The excellent reception obtained using "Redifon" receivers on the small ships band at this station was demonstrated a few months ago when the operator picked up a "Mayday" call from a small coastal boat aground on a reef at the south east end of New Guinea at 10 p.m. New Zealand time. The operator logged the call as a matter of routine but when the call went unanswered and was repeated a second time with still no reply he gave a call on the off chance that we might be heard. A thankful operator on the ship heard ZLD and passed particulars to him, these were then relayed to Sydney Radio per 500 kc/s and their actions resulted in the rescue of the ship's crew. The 25 year old transmitter made by Collier and Beale is still going strong and is remarkably free from breakdowns. The hostel originally built for the station staff is now no more, only a patch of weeds and rubble and a block of garages remain to mark the spot. Many technicians throughout the country will have mixed memories of their stay there. Civil Aviation personnel have also started to move out from their houses at the station to the new airport at Mangere.

(c) General:

Other recent doings in Auckland include a radiotelephone link using A.T.E. country sets from the eastern end of Waiheke to the Kerridge tourist resort of Pakatoa Island. Unfortunately the length and quality of the cable and land line available from that part of Waiheke to Auckland degrades the service to below what is usually obtained



with this equipment. A similar installation at Mt Victoria station, Devonport, to Pakahi Island gives the farmer and quarry owners direct dialling in to the Auckland telephone system. The annual charge of £600 odd per year proves that the service is worth it to the subscribers.

As a result of a demand for V.H.F. mobile service being created in the Kaikohe area by salesmen from an Auckland manufacturer a team from the depot comprising Ian Shearer, Peter Moore and Bruce Harding and with assistance from the Whangarei radio inspectors branch surveyed the area. Coverage obtained was well up to expectation so we expect a further "branch Office" to be established soon. Latest modifications to the Transport Dept 40 Mc/s Tait gear were carried out with a minimum of inconvenience to them by doing the work in the early evening hours. Our training G.E.C. 5-channel sets are also being checked out thoroughly before they go into service from Torbay to Port Fitzroy on Great Barrier Island. The provision of the extra lines needed from Torbay to Auckland is also under way.

New staff arrivals are Wally Turvey who achieved the almost impossible by getting back to Auckland, and Bruce Harding from New Plymouth depot. Frank Edkins senior, comes in as recorder, in place of Ces Ericsson who died suddenly late last year. Barry Wallis is helping out on loan to the Hamilton radio depot, where

the staffing position must be serious we can ill afford to do with any less staff.

(d) Auckland Radio Inspectors

The work of this branch is similar in nature to that of the fourteen other Radio Inspector districts, but on account of the greater population concentration the volume handled is proportionately greater. The staff consists of one Class Special II, one Class I, three Class III, four Class IV, two Class VI and six trainees.

Television interference occupies much of our time and last year over 3600 complaints were handled. The new 100 kW transmitter at AKTV2 is expected to be in operation about mid-1965 and the greater field strength should provide a better service in the Auckland city area. It may well be that our efforts then need to be concentrated in the more remote areas.

Broadcast interference complaints have in recent years shown a decline but approximately 600 were dealt with in 1964.

The number of ship stations licenced continue to increase and now exceeds the 1000 mark.

106 candidates for the Amateur Operators' Certificate were examined in 1964 and 250 for the C.R.T. and Radio Telegraph Operators' Certificate.

In November we moved from the cramped quarters at the C.P.O. to more spacious accommodation at Reid House



in Hobson Street.  
4. FROM THE NAPIER DISTRICT

Napier Depot.

VHF Mobile Services.

Expansion in this field still continues with the installation of new channels becoming a permanent feature of our activity.

While we are still not providing much competition for Auckland with their multiplicity of channels, we now have sufficient to know what they mean when they talk of intermodulation troubles. Apart from several minor intermods we have a beauty from two trunkline channels and a mobile channel causing interference on a Taxi channel. It had to occur on a Taxi channel of course.

It does appear that the mixing of trunkline and mobile services in the one building may not be very desirable. Kahuranaki will soon have 14 trunkline aerials on about 20 masts, all gathered around the mobile aerials and the thought that they will all be potential sources of intermodulation is rather terrifying.

The establishment of a fixed control station for Napier subscribers working through Kahuranaki is nearing completion and the resultant elimination of 10 db cable loss and varying levels of cable crosstalk will be a welcome improvement. At present Napier subscribers work through the Hastings fixed control station.

This Hastings station has also seen some expansion with four additional aerials, and much pushing back of walls to allow more channels to be squeezed in.

It is with some pleasure that we observe the start of the trunkline building at Gisborne which will eventually allow the removal of Kaiti VHF from the present hole in the ground. Too much equipment in insufficient space has made working conditions in this station very trying during this summer weather.

#### VHF Trunkline Services.

The long postponed Gisborne to Napier link is at last under way and with Peter Munro and Dave Chittenden on the job it is thought that this link may be ready before the winter. While this does seem an unusual approach to the matter it is very commendable. It is surprising how pleasant these jobs can be when you don't have to fight the winter weather.

#### HF/MF Services.

The ever present IMR beacons at East Cape and Portland Island still have a beep beep in the air but some difficulty has been experienced with faulty chronometer alarm mechanisms. Most of these units are now showing considerable wear and are proving less reliable than the chronometer they are supposed to be protecting. It is interesting to hear that we are soon to receive an electronic type of alarm for trial in this position and we hope it solves our problems.

Radio telephone circuits to East Cape have recently been greatly improved by the erection of two 3 wire dipoles in a situation well-removed from the mains generators which radiate a very high level of interference from their automatic regulating gear. Previously communication with ZPD and ZLW was sometimes marginal at the East



Cape end of the circuit, but now difficulties are experienced with QRM from overseas traffic.

#### Radio Depot.

With a Telemex frequency meter to hand and the knowledge that several other desirable instruments are soon to be received the test equipment situation is very pleasing. While we may have our difficulties with test equipment shortages it is enlightening to observe what the average radio firm uses to carry out their maintenance. The situation might be better than you think; our local servicemen are very envious of our equipment anyway.

A further point of some interest has been an approach from two secondary schoolgirls wishing to be Radio Technicians and it is felt that this may be a means of meeting staff requirements. While one did not have the necessary educational qualifications she had the potential to be a useful technician.

#### 5. FROM THE PALMERSTON NORTH DISTRICT

##### Himatangi Radio

##### Staff

Several staff changes have taken place since the issue of the last Bulletin. Arthur Cheshire has vacated the chair as Officer-in-Charge and moved on to Head Office as Inspecting Technician. We wish him well in his new position and welcome in his stead, George King (ex Makara). Lindsay Gibbs and Ron Gibson recently left us on transfer to Makara Radio and New Plymouth Depot respectively. Noel Beech also joined us, on promotion from Makara.

#### Himatangi - Irirangi V.H.F. Link

The completion of the above link has been brought nearer by the issuing of specifications and work orders for the installation work. The base equipment is on hand and antenna construction will commence with the arrival of the aerial equipment from stock.

#### Aerials

Other aerial work in hand includes modifications to the Islands quadrants to enable these aerials to be lowered and maintained as separate units. At present it is necessary to lower the whole quadrant assembly of four in order to work on a single aerial.

The existing rhombic antennas on the Southern V.H.F. link are to be replaced with three-wire assemblies to bring this link up to standard practice for this equipment.

An extension to the present aerial switch system is under way, to enable the R.C.A. transmitter (serial No. 945) to have access to the U.K. rhombic for the proposed Noumea service.

#### Equipment

Private contractors have commenced the complete renovation of the seven original station houses. Before long, the settlement should present a much brighter appearance.

A recent visitor to the station was none other than Jack Hogan, who not only signed the visitors book, but exhibited the same old characteristics so well known to many.



### Radio Depot

#### Staff:

Alan Bennett has left us and is now in Auckland taking a missionary course. After two years' training he hopes to obtain a technical position with an overseas (Church) shortwave station.

Two juniors were employed in January.

#### Training:

Another series of S.T.C. microwave courses has started and we look forward to meeting the staff from other districts.

The Marconi 48-channel equipment courses have finished and the equipment has been sent to Napier to form part of the Napier - Gisborne link.

#### Land Mobile Service:

Full type A facilities will be provided for three Saddle Road Station channels shortly and should prove popular with local subscribers.

Post Office services are now operating from the Marton (Mt Ashcroft) and Otaki (Pukehou) stations. Full surveys of these stations are now being carried out.

Reconstruction work is in hand at the Wanganui Station and the taxis channel has been converted to 2-frequency working by replacing the type 52 with Tait equipment.

Nine channels of Tait equipment have been installed in our area recently but we have yet to form definite opinions on its performance. This will not be hard to do as there are no spares on hand to replace the working sets.

6. FROM THE WELLINGTON DISTRICT

(a) Makara Radio

A new channel of Marconi Single-Side-Band receiver HR24 equipment has arrived and the maintenance staff are now eagerly awaiting a chance to acceptance test and install it. The HR24 will be used in conjunction with telegraph equipment, still to arrive, to accommodate incoming Sydney telegraph signals in the event of the COMPAC cable failing in this section.

The COMPAC cable has failed twice in recent months and Makara Radio has swung efficiently into the breach within minutes each time to continue the COMPAC service. Both these failures were, we understand, not actual cable faults but power supply difficulties in Honolulu. The COMPAC cable has certainly made an inroad in the services normally provided by Makara Radio, but this has not (as has been suggested) made life any less busy at this station because the receivers and auxiliary equipment must be kept in a state of constant readiness and so be able to be pressed into service without delay in the event of a COMPAC cable failure.

The Cook Strait Power project is causing us some concern at the moment. The overhead D.C. power lines pass within a mile or so in direct line of sight from the Makara Radio aerial system and so far whenever full



voltage (500,000) tests have been undertaken, radio interference is heard between 450 kc/s and 2500 kc/s. The interference does not appear to be caused by corona and does not sound like normal power interference but sounds very much like a square wave generator producing a 50-100 c/s pulse. The N.Z.E.D. is still testing and making adjustments so that so far we have not experienced any more than 4-5 minutes of full voltage interference at any one time. Half voltage single pole tests (250,000v.) have been conducted for several hours on various days and moderate radio interference has been experienced between 480 kc/s and 530 kc/s.

The Broadcasting station at Quartz Hill, Makara, is closer to the overhead D.C. power lines and has reported hearing radio interference as high as 7 Mc/s when a full voltage test was in progress.

To lessen the likelihood of corona interference in this area, the N.Z.E.D. has doubled up on the number of conductors (normally two conductors of approximately 2 in. diameter on each leg) on the overhead lines for at least 5 miles along the route past the two receiving stations, so we hope no interference will occur from this source.

On the face of things, it looks as though there will be noticeable interference to the 500 kc/s and Small Ships' services.

(b) Radio Depot

Most of the staff have enjoyed the seasonal holidays and have returned refreshed and full of vigour and enthusiasm. Eight new members have joined forces, three transferees from Radio Section, Wellington last, and five recruit trainees.

We are pleased to see the contractors have erected the microwave tower at Wrights Hill and the rigging staff have been busy sinking earth rods for the earth system. Two members of the staff are to attend the microwave school to be held at Christchurch in March.

Both Normandale and Colonial Knob have again been damaged by lightning recently when pad-switching units were put out of action, the resistors having been reduced to powdered carbon. In all cases service was restored without undue delay. The affected subscribers were patient and understanding. At Colonial Knob a section of underground cable was damaged and also the fuse mountings on the M.D.F.

We were pleased to have been able to offer assistance to the telegraph exchange staff when trouble was experienced with some transistorised equipment. The faulty equipment was repaired and service resumed.

(c) Radio Inspectors

Radio Examinations

The first week in November, 1964, was for radio inspectors a busy one, as also



was the same time in May, 1964. It is the first Friday of these months that the written sections of the Radiotelegraph Operator's Certificate and Certificate in Radio-technology examinations are held, the practical and oral sections being taken earlier in the week.

The number of candidates who sat the examinations during 1964 were -

|               | <u>1st RTO</u> | <u>2nd RTO</u> | <u>1st CRT</u> | <u>2nd CRT</u> |
|---------------|----------------|----------------|----------------|----------------|
| May 1964      | 4              | 2              | 50             | 38             |
| November 1964 | 7              | 8              | 83             | 55             |

In addition to the above, 61 candidates were examined for their Amateur Radio Operators' Certificates during the months of March and September, 1964. 23 candidates will be sitting the examination to be held in March, 1965.

Furthermore, 67 Restricted radio-telephone operators' certificates were issued to ship and coast station personnel and 20 radiotelephone operators' permits were issued to operators of land stations on frequencies below 30 Mc/s.

#### Television translator stations

Recently transistorised low-powered battery operated type of television translator equipment (mini-translators) appeared on the market. This equipment is now in use throughout the country by individual television viewers who, because of their position in relation to the main television station, are unable to receive satisfactory reception.

Reports from Whangarei, where a large number of mini-translators are in use, indicate that reaction between them is resulting in complaints of television interference. There has also been evidence of similar trouble during tests in the Wellington district.

At present, translators are in operation at Naenae, Stokes Valley, Paremata, Pukerua Bay, and another is under test at Waikanae.

#### Testing of appliances.

Importers, manufacturers and retailers are being visited periodically for checking and testing of such of their stocks as may cause radio and television interference in excess of the limits. Following tests, the equipment is either approved for sale and use or information supplied to the suppliers as to methods to be adopted for satisfactory suppression. In order that this information may be obtained, radio inspectors must experiment with various types of filters which at times necessitates the dismantling of the equipment. This service is extended to private individuals who have been detected using noisy equipment or who desire a check of their household and workshop appliances in need of suppression. 373 tests have been conducted in the last year at Te Aro.

#### Radio and Television interference investigations

At present 210 new complaints of



interference to television reception are received per month and in addition to these 24 complaints of interference to broadcast reception are lodged monthly. Most of the interference to television reception is caused by arcing H.T. insulators, refrigerator butter warmer thermostats, appliance motors of the commutator and brush type and from transmissions on adjacent channels. Broadcast interference is caused by electrostatics, rectification, external cross modulation hum modulation, Hawkins Hill Radar Station, H.F. welders, refrigerator thermostats and inadequate aerial and earth systems. Listeners still fail to realise that a radio receiver is only as good as the aerial and earth system on it.

#### Ship surveys

36 surveys of vessels for compliance with the Shipping Radio Rules 1954 or International Convention for the Safety of Life at Sea, London, 1947 were carried out during the year 1964 and 5 so far this year. This work is carried out for the Marine Department.

In addition to the above, about 245 non-compulsorily equipped vessels are inspected annually by our radio inspection staff.

#### Aircraft stations

This office is also responsible for the inspection and licensing of 22 aircraft.

### Land stations

Post Office V.H.F. radiotelephone service. To date there are 63 channels in operation in the Wellington District through stations located at Wrights Hill, Colonial Knob, Pukerua Bay, Normandale, and Naenae. A total of 1655 mobile stations are licensed to date.

Private V.H.F. land stations. In this district at present 27 licensees are operating private services with a total number of 137 stations.

### Private M/F service

37 private stations operate on medium frequencies. These licensees require coverage greater than that available on V.H.F. channels.

In addition to the above eleven government departments operate a total number of 210 land stations on V.H.F. and medium frequencies. Of these the Department of Civil Aviation, Police Department and Transport Department have 167 stations in operation.

### Citizen Stations

With the production and availability of low-cost Citizen Band radiotelephone sets in this country there has been increasing interest shown by the public, government departments and public utility concerns in the use of this type of equipment for their short range communication needs. In this District 182 licenses have been issued so far.



Non-type approved sets brought to New Zealand by returning tourists are causing some concern. Recently such a pair of unlicensed stations were detected by a radio inspector being used to control an aquatic sporting event. The unauthorised callsigns "Penguin" and "Seal" were being used.

7. FROM THE RADIO DEPOT, CHRISTCHURCH

Staff

Since our last notes Chas Dickey has transferred to Class V at Makara and Allan MacLean to Class V at the recently established Depot at Timaru. We welcomed John Parker as Class V from Wellington. Two juniors have so far been taken on this year, Vincent Hamlin and Raymond Hooper, both of whom are shaping up well. Congratulations to all on their appointments.

Staff for normal day-to-day work will be depleted with a team away on installation of the Wellington - Christchurch - Dunedin Microwave system due to commence early in April.

Trunkline

The installation of microwave equipment is due to commence early April of this year. To date, buildings are very near completion with only finishing work to be done. In some cases power equipment has been installed with other stations following close behind.

A school is being established at this Depot for Microwave training, the first to be of 12 plus instructor which will severely tax the available accommodation. Alternative and suitable

accommodation is not easy to find so it is to be hoped that the overcrowding of our training room will not be serious. Subsequent schools of a lesser number will be adequately catered for.

With the inauguration of the microwave system, the future of the existing 48-channel Marconi system, which runs parallel to the northern section, will be in doubt.

#### Alpine Radio

Over the past months we have been busy effecting a change to new equipment at the Hermitage and at alpine huts in the Mt Cook National Park. This has resulted in full employment in maintaining the alpine sets and modifying them to stand the rigours of alpine conditions. The new base set for the Hermitage is in the process of being installed.

#### V.H.F. Land Mobile

Mt Alford, near Methven, is now operating 8 channels from a temporary building with 4 channels controlled from a temporary installation in the Ashburton Carrier room and press-to-talk type - 706 phones. Additional channels are to be provided at Mt Alford and Ashburton and 2 channels initially are to be controlled from Cashmere in Christchurch and possibly 4 from Timaru.

Mt Alford gives coverage from North to South Canterbury, and to date customers are very pleased with results. Accommodation exists in the microwave buildings at Cashmere and Ashburton for a limited number of V.H.F. channels and these will ultimately be used for trigger controls. A permanent building at Mt Alford will complete the installations in permanent buildings.



### General Services

In this Depot's area the West Coast has the greatest density of general services in the form of MF and HF radiotelephones and emeradios. Westport supports a Decca Radar installation and ship/shore installations. In Canterbury, the Rakaia valley settlers have an HF radiotelephone with the base installation at the Methven Post Office. One marine navigation beacon at Godley Head at the entrance to Lyttleton harbour is maintained by this Depot. Considerable work in connection with the installation of new equipment at the Chatham Islands has bogged down due to lack of transport to and from the Island.

The Alpine installation at the Mt Cook National Park will come under the Timaru Depot following the installation of new equipment referred to previously.

### 8. FROM AWARUA RADIO

Since our last report we welcome Jack Piper from Wellington Depot and Charlie Roe, Recorder. More recently we have farewelled Ashley Keith on transfer to Christchurch Depot, and Peter Miller who has transferred to the 4th Floor, Radio Section. We are pleased to have newly-recruited trainees Noel Blair, Dale Spittle and Bob Walker on the staff. The staffing position is now acute and prospects for an early improvement are not very hopeful.

Three additional V.H.F. Land Mobile channels have been commissioned at Bluff Hill making a total of sixteen, including Police and Transport Dept equipment, and the end of last year saw two more channels placed in service at Gore, which brings the total there to eight. Two single-frequency

channels operated from the Invercargill C.P.O. will be removed from service by 31st March, and simultaneously a regrouping of Public Utility subscribers will have taken place. As it may be some time before Bluff Hill has line control, the triggering facilities at the Invercargill C.P.O. will continue in service. With the installation of a Channel 1 repeater at Mt Hedgehope television station, interference on Police and Transport Dept channels at Gore and Bluff Hill resulted. With co-ordination of N.Z.B.C. and Post Office staff this problem was resolved, with Post Office equipment found not to be at fault. A further land mobile station is planned for the Lumsden - Te Anau area, and survey work was completed towards the end of last year. Authority has been given for the installation of equipment in a station to be built on White Hill in the North Range, and roading work to the site has commenced. Survey work will commence shortly to establish suitable sites for a V.H.F. radio bearer circuit between Stewart Island and Invercargill. This will utilise Country Sets with a view to replacement with multi-channel bearer equipment at a later date.

Three Philips communications receivers Type 8R0 501/01 have recently been placed in service at Awarua, and with improved B.F.O. injection they have been well received by the traffic staff. An extensive transmitter renovation programme has started with the re-painting of the R.C.A. 2 $\frac{1}{2}$  kilowatt transmitter. During December of last year the L.T. and H.T. batteries at the receiving station were removed from service. As an interim measure emergency power for the distress watch receivers has been provided by the installation of a 24V D.C. / 230V A.C. motor alternator, pending the possible development of a transistorised inverter unit. The



installation of a 35 line P.A.B.X. unit is now being undertaken and should be in operation in March. The lathe and oxy-acetylene welding outfit are now in use and have appreciably extended workshop facilities. A recent addition to the vehicle fleet was a long-wheel base Landrover Station Wagon, which proved most reliable during survey work in the Lumsden-Te Anau area.

In January an inspection of the two G.E.C. five-channel systems between Ramparts and West Arm was carried out by A.H.Cheshire, Inspecting Technician.

#### 9. Next Issue

It is planned to make the next issue of the Radio Information early in August 1965. Would districts please note and let us have material for this issue not later than 26th July.