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Tribute to Shakespeare--April 23

Special Programmes Prepared by Main Stations

MOST likely when John Shakespeare attested the entry, "Gulielmus Filius Johannis Shakespeare" in the baptismal register of Stratford-on-Avon, with the mark that, "he had to himself like an honest plain-dealing man," it was not for want of pride in his heroically-sounding name, but rather that he had not been "so well brought up that he could write his name," and so came not within fear of the penalty of "hang him up with his pen and ink-horn about his neck," which the mild laws of Jack Cade imposed upon so superfluous and dangerous a degree of knowledge.

The father could not then know that that son should make his name resound more widely through the world by means of that same art of writing than ever it would have done had all his ancestors matched that first one whose acts no doubt first gained the name. Nor could he have imagined that through the same son his native town (of whose good fame he, as an alderman, was no doubt equally proud) should become for generations after he was gone a gathering place of men from countries of which he had never heard. This has, however, come about, and the name of Shakespeare is as dear to the heart of true Anglo-Saxons as that of the protector saint on whose feast-day the great poet was born.

To the British, Shakespeare is as much the great Englishman as the great poet, an embodiment of the national characteristics, and the feeling we have for him forms part of our patriotism. He holds a place in our respect akin to that of a national hero, and disloyalty to the King would be as light an offence as disrespect for Shakespeare. Great knowledge can only intensify such a feeling so truly national is Shakespeare, so well does he agree with our character.

THE 23rd of April is Shakespeare's birthday, the greatest day in all the history of the world. We who speak Shakespeare's tongue little know what we owe to him. So accustomed have we become to the language he created, that we wot not how often we speak his thought. We even quote him without knowing it, and nothing that we can say is without its debt to him. Here we are in a British community, the farthest outpost in the British Empire, and on Shakespeare's birthday we are preparing a night with the great bard, to be put over the air. Over the air where men will listen thousands of miles away, and we wonder did Shakespeare know anything about wireless. He whose glowing words will be flying through the air, what did he know about wireless? His prophetic soul knew many wonderful things and he has told us about them. In the first part of Henry IV, Act III, Scene I, Glendower says to Mortimer,

"And those musicians that shall play to you
Hang in the air a thousand leagues from
hence,
And straight they shall be here; sit and
attend."

And so we say to the people in Australia on the night of Shakespeare's birthday, "Sit and attend."

IS it merely a coincidence that Shakespeare was born on St. George's day? What matters it? St. George was the more honoured. That Shakespeare died on St. George's day 52 years after, is perhaps merely another coincidence. Again St. George was the more honoured. St. George was a foreign adoption, but belonged to England as her patron saint; Shakespeare was born in England, but belongs to the world as its greatest seer. Nothing that this world ever produced was as great as Shakespeare. He left us a heritage that cannot be overstated; the radiant gems of the most beautiful soul that ever lived and loved, and moulded into a language, the imagery of action and thought.

Remove from the world all that we owe to Shakespeare, and the blanks they would leave in our minds would form ten thousand empty spaces. The collected thoughts of the bard, with the thoughts they have produced, would make up the sum total of nearly all the books in the world. He found our language expressed in three thousand words, and left it enriched by seven times that number. Into every one of these old and new words, Shakespeare breathed the breath of life, and words became living souls. He created

great characters to express them, and every character walked the stage of life, in love, in hate, in desire, in ambition, in action. Nothing is dragged in by the heels to fill up, but every word expresses a purpose in its proper place. Shakespeare created pictures, statues, monuments, thrones, courts, kings, landscapes, countries, oceans, and last but not least, yea, greatest of all—men and women. His wisdom is not so much set forth in a book, but is spoken out of the mouths of living, pulsing, breathing men and women, who convey his wisdom to the ear, rather than the eye. If St. George was a saint, Shakespeare was a patriot—the greatest English-

patriotism of Henry V, and Falconbridge, the self effacement and loyalty of Kent, the purity of Isabella, the cleverness of Portia, the devotion of Jessica, and the dutiful faithfulness of Cordelia. 'Twas Shakespeare who drew for our imagination the ambition of Wolsey, the foul treachery of Edmund, the unnaturalness of Goneril and Regan, the malice of Iago, the self-will and vanity of Lear, the pompous ignorance of Pistol, the dire revengefulness of Shylock, and the boastful cowardice of his greatest comedian, Falstaff. We get all these from Shakespeare, yes, and infinitely more than these, and he will never fail us.

He is the voice of our Empire that will never die, and will be a ringing call that shall be answered by every British heart, wherever British hearts beat true.

"O, England, model to thy inward greatness,
Like little body with a mighty heart."

"This England never did nor never shall,
Lie at the proud foot of a conqueror,
But when it first did help to wound itself."

When Kings and thrones have passed from the earth, he will sit enthroned in the hearts of men, as the greatest, truest patriot that the world has ever listened to.

SAMPLES of all this, on St. George's day will 2YA give to you. Just scattered gems, here and there, from the hoarded treasury of Shakespeare's mine of wealth untold. Of his one hundred songs will be sung some of the gems. The music that has been written to illustrate tragedy and comedy will be played. Mark Antony will grieve over Caesar again; the fair Portia, in all her delightful merriment will describe her suitors; the charming bantering Rosalind will poke fun at her mooning Orlando; the calm and dignified Brutus will tell the lean and hungry Cassius a few home truths; the first gravedigger from Hamlet will indulge his humour. That she-wolf, Queen Margaret, will once again mock the Duke of York, and set a paper crown upon his head, Queen Catherine will plead her cause and duty before her bluff King Hal, with the subtle Wolsey looking on. All for Shakespeare's birthday. The wireless he dreamed of will carry his winged words to the uttermost parts of the earth, and so we Britishers in this far distant outpost will listen-in to this fellow Shakespeare of whom it was said:—

"Shakespeare is too great a theme. I feel as though endeavouring to grasp a globe so large that the hand obtains no hold. We who would worthily speak of the great dramatist should be inspired by 'a muse of fire that should ascend the brightest heaven of invention'—he should have 'a kingdom for a stage, and monarchs to behold the swelling scene.'"

—Byron Brown.

Shakespeare

The folk who lived in Shakespeare's day,
And saw that gentle figure pass
By London Bridge—his frequent way—
They little knew what man he was.

The pointed beard, the courteous mien,
The equal port to high and low—
All this they saw, or might have seen,
But not the light behind the brow.

The doublet's modest grey or brown,
The slender sword-hilt's plain device—
What sign had these for prince or clown?
Few turned, or none, to scan him twice.

Yet, 'twas the King of England's Kings:
The rest, with all their pomps and trains,
Are mouldered, half-remembered things:
'Tis he alone who lives and reigns!

—Thomas Bailey Aldrich.

man—the world's greatest poet. No king or prelate, be they ever so great, could have done him honour. 'Twas he who honoured them. Unknown to us, he is deep in our souls; every day we speak the language he created; every day we unknowingly speak his thoughts. He it is who is always with us in the heights and depths of human thought and action. He gave to us the dainty Ariel, the womanly charm of Rosalind, the self-sacrificing friendship of Celia, the loving loyalty of Antonio, the barbaric jealousy of Othello, the duplicity of Macbeth. He set up for our admiration the generosity of Antonio, the profundity of Hamlet, the

New Points For Listeners and Dealers-- By "Meter"

The aim of this section is to give listeners information of new and interesting devices and sets on the local market. It is free of advertising intent or influence and to the best of our ability will convey only absolutely reliable statements. Names, prices and sources of supply are mentioned for the benefit of readers and to save individual inquiry.

THROUGH the courtesy of the National Electrical and Engineering Co., Ltd., Wellington, I have been enabled to test one of their Fada 415 B cone loudspeakers with an electro-magnetic drive, which, it is claimed, reproduces all frequencies faithfully. It has been my experience to test over a dozen different makes and types of cone speakers since the advent of that type of reproducer, and I have been unconvinced from my preference for a high-class standard large loudspeaker of the horn type. My preference was not due to any prejudice, but was always based on a desire for faithful tone reproduction. It came, therefore, as a surprise to me to discover in the tone of the Fada cone a remarkable approximation to fidelity right along the whole gamut. The deep tones of the bass were mellow and resonant, and the shrill treble tones were clear and true in timbre. The operating principle of a cone speaker is widely different to that of the horn type, which depends upon the vibrating medium of a small disc. The cone type of loudspeaker depends upon a distinct principle of sound amplification. The loudness of a sound, at a given distance from its source, may be increased by increasing the amplitude of the vibration (increasing the actuating forces), or by increasing the area of the vibrating diaphragm. The cone accomplishes its object by substituting its larger surface for the small diaphragm, which is the source of sounds in the horn type of speaker. Such a large vibrating surface disturbs a much larger volume of air than is possible with the diaphragm, so that the amount of energy reaching the ear is increased without the use of amplifying horns. The material of the cone must vibrate in numerous irregular segments if it is to amplify all the elements of the complex tones. The higher the frequency of a note sounded, the smaller must be the vibrating segment. Since the factors of texture and elasticity, generally speaking, establish a limit to which the segments may be reduced, such a vibrating cone cannot usually amplify sounds whose frequencies pass a fixed upper limit, if it is at the same time to amplify the bass notes, for which it is especially suitable. The absence of the upper partials in sound reproduced by some cone speakers gives them the peculiar "empty-barrel" effect. The Fada Company, however, employ a special fabric which is evidently of a texture and elasticity which overcome the general infirmities of many cone speakers. The Fada cone also proved decidedly sensitive, which is a virtue in New Zealand, where reception of the long-distance stations of Australia is so much

in vogue. The Fada 415 B cone speaker is retailed at £12 10s.

MAGNAVOX COMPANY RECOVERS.

THE Magnavox loudspeaker of the electro-dynamic type made quite a hit in New Zealand when it was introduced a few years ago, for it certainly marked a new departure in radio reproduction. The Magnavox Company, which is a Californian concern, however, experienced a rather precarious existence for reasons not apparent at this distance. The merit of their goods was undisputed, but evidently business is not always won solely on the merit of one's wares. News has just arrived from San Francisco that according to a published report:

"Magnavox is staging a real comeback. This little company that was a sensation several years ago, and which subsequently fell by the wayside, has fought its way back to solid footing, and an inspection of the company's returns revealed one of the most interesting bits of pluck that Western financial history has recorded."

"The story is told in the fact that Magnavox, in the last six months of 1927, earned at the rate of 25 per cent. on par despite the fact that it was being reorganised, had not attained its momentum, and was still suffering from previous errors in judgment."

The semi-annual report, just released, shows a current position of 4 to 1, with net liquid assets of \$58,892 dollars. Current assets totalled 477,197 dollars, compared with current liabilities of 118,304 dollars on December 31, 1927. Sales of the company in the last half of 1927 were 498,507 dollars; expenses, including all charges, were 347,938 dollars, and net profit available for surplus totalled 90,568 dollars, or equal to 12½ cents for the half-year period on the one dollar par value stock.

The company is manufacturing 600 loudspeakers daily, in six weeks behind in its orders, is shipping to every point on the globe monthly, is providing its loudspeaking units for the finest receiving sets manufactured, is employing 250 people, and has more than 500,000 dollars in unfilled orders on hand."

OVERLOADING VALVES.

A LARGE percentage of the distortion, in most radio receivers, even when a "C" battery is employed, is caused by overloading the valve in the last stage of audio amplification. When valves of the 201A or 112 type are used, the only ways to reduce the distortion may be to substitute a larger valve or to decrease the volume; but with valves of the 171 and 210 types, the distortion can usually be remedied by correctly adjusting the grid-bias voltage ("C" battery) on the last stage. The instruction sheets, which are packed with the valve, give approximately values of grid-bias voltage suitable for use with various plate potentials; but, in order to make sure that the valve is not being overloaded, it is necessary to connect a milliammeter in the plate circuit of the last valve. If there is no appreciable movement of the needle of the milliammeter when loud signals are being received, the grid is correctly biased. On the other hand, when the needle of the meter oscillates as the intensity of the signal is increased, the valve is being overloaded, and the bias must be increased or decreased, as the case may be. If it is impossible to prevent the needle from oscillating by any adjustment of the grid bias, this fact indicates that too much volume is being obtained from the amplifier.

The meter used for this purpose should have a range from 0 to 25 milliamperes, and the maximum fluctuation of the plate current should not be greater than 10 per cent. of the total current. In the case of the 171-type valve, the plate current should be 20 milliamperes with a plate potential of 180 volts, and the correct grid bias is approximately 40 volts.

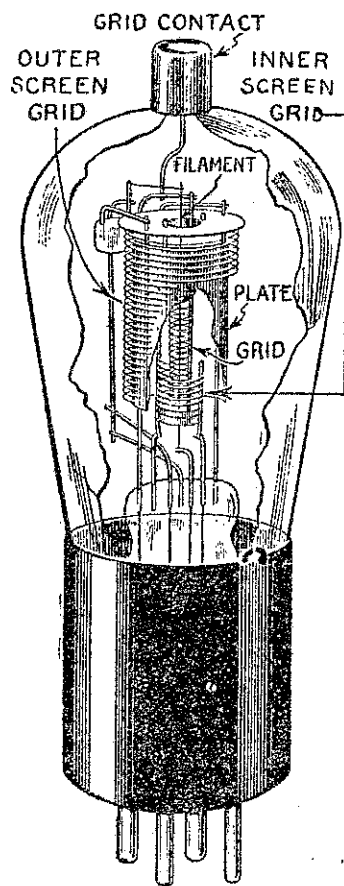
THE "HUM" BOGEY.

OCCASIONALLY traders are called upon to answer the question whether such-and-such a "B" battery eliminator causes a hum to emit from the loudspeaker, and the same question as to the audibility of hum from electrified sets and A.C. valve sets is now current. While there are efficient eliminators, electrified sets and A.C. valve sets which do give out the very faintest hum I have interested myself to the extent of ascertaining just how much a vestige of a hum affects broadcast reception. I have found by several experiments that the faint hum disappears completely when a broadcast station is tuned in, no matter how weak reception is. This peculiarity has been obtained with equipment of different makes submitted to me for testing. Further, testing with an ordinary battery-supply set I found I got more hum from the "carrier" wave of certain Australian stations than when I operated the new equipment which works without batteries, but obtains its electrical supply from the house-lighting system. This is a phenomenon which must not be ascribed to the greater sensitivity of the battery set, for the battery-less equipment proved doubly sensitive. No, this talk of hum is easily silenced by actual demonstration. On the other hand there are, of course, certain lines which

are inherently bad offenders where humming is involved, but, speaking generally, the radio trade in New Zealand are wide awake to these infirmities, and are displaying good discretion in selecting their lines. Anyhow, private persons who feel disposed to be caught by enticing advertisements appearing in American radio journals lauding the alleged efficiency of certain low-priced "B" eliminators should hesitate before sending their good money abroad on a sheer gamble. One of these low-priced "B" eliminators recently imported by a Wellingtonian drowned all distant reception with its hum and had to be discarded. In contrast the better quality lines recently tested by me proved an unqualified success, and, as previously stated, the hum never once obtruded.

THE EXPONENTIAL HORN.

RADIO traders in New Zealand should sit up and take notice of the "exponential horn" type of loudspeaker which is now in the boom stage in the United States. I have lately put this type of loudspeaker through prolonged tests, and it has emerged from them triumphantly. There is no patent covering the exponential horn, which is merely indebted for its remarkable volume



This sketch shows the internal construction of the shielded grid valve which is now exciting so much interest.

and delightful tone to its shape, the expansion of the horn from the loudspeaker unit to its large bell being made according to scientific principles. It is truly astonishing to hear how faithfully this horn reproduces all pitches of musical notes. The rumble of a grand organ deepest note and the high-pitched piping of a piccolo receive equal expression. One can only describe the experience of hearing one of these exponential horns as "thrilling." A brass band playing at the 2YA studio seems by magic to be transferred from the studio to one's sitting room. The timbre of the instruments is reproduced with striking fidelity and neighbours were deluded into believing that the band was in the vicinity. Now, this is a lot to say for a loudspeaker which comprises only a large composition horn curled up somewhat like a bugle and fitted with a regulation loudspeaker unit of a type which has been in vogue for years. "Meter" ventures to prophesy that the "exponential horn" is going to have a big run in New Zealand, and radio traders will advisedly make inquiries about them. A few of the larger type, which "Meter" prefers, have been snapped up in the Wellington market, and at the moment buyers will have to wait some weeks before a few more will arrive. And I know of other types of loudspeakers, which are of the electro-dynamic type, and of a make quite new to the New Zealand market, now on the water so that connoisseurs of good tone will have more than one new type from which to select. For my part, if the good name of broadcasting is to be preserved, I would condemn all inefficient loudspeakers to the corporation destructor. More harm to broadcasting than anything else is due to "tin-pot" loudspeakers. It would seem that many people in a community are as "tone-deaf" as others are colour-blind, judging from the satisfaction they profess to obtain from their loudspeakers. One of the saddest experiences imaginable is to hear a listener proclaim the supremacy of his own "tin-pot" loud-

distorter over a loud-speaker which is acclaimed by the world. This has been my experience on more than one occasion. I feel sorry for these people, and I feel sorry that they are able to inflict an injustice to broadcasting on their guests whose appreciation of the difference between good and bad tone is quite normal. There is room for good missionary work in the loud-speaker department.

THE ETHOVOX LOUDSPEAKERS.

The British loudspeakers of the horn type have a well-deserved reputation for purity of tone, sensitivity and freedom from distortion, and in these characteristics the Ethovox stands out prominently. I have heard several of these speakers lately under varying conditions, and coupled to sets of various types, and I can safely state they were a pleasure to listen to. The deepest tones and the tones of the highest pitch were reproduced with a distinctive mellowness which must make a strong appeal to lovers of music. The Ethovox is a triumph of British faithfulness of workmanship, and one need not wonder at its popularity. This speaker is about 26in. in height, and the bell has a diameter of 15in. There is a system of adjustment for extra sensitivity on weak signals or, on the other hand, for prevention of "chattering" when the volume is considerable. The Ethovox horn is of metal with mahogany colouring, and the swan-neck is gracefully curved from the base to the flair. There are rubber pads on the feet of the Ethovox to prevent them scratching polished surfaces. This speaker is made in two types—2000 ohms and 750 ohms—though identical in outward appearance. The latter type is more suitable for use in conjunction with power valves. Both lines are retailed by Messrs. Tolley and Son Ltd., Wellington, at £5 5s., and at that figure are exceptional value.

TO CURE DISTORTION.

RADIO dealers and service men have many opportunities of performing "missionary" work in the course of their business. The position would not be exaggerated if one said that there are thousands of radio sets in New Zealand which are utterly out of date, yet these sets could be modernised by a relatively small expenditure. Small, obsolete audio-frequency transformers are not capable of faithful reproduction, and many of the complaints that reception is distorted are due to this cause. The substitution of only one transformer—in the last stage—would work wonders providing the new transformer is of high-grade and of correct ratio. Then, also, many sets are being operated without a "C" battery, an omission which is fatal to good reproduction. No wide-awake service man should pass over a receiving set with these deficiencies without explaining to the owner the urgent need for reform. Not only does reproduction under these disabilities do an injustice to the broadcast station, the vocalists, and the instrument-fanciers, but to radio as a whole, and, so, indirectly the trader is affected. Not long since an English lady vocalist took successful action against a gramophone company for marketing a record of her singing which, owing to the poorness of the record, was a travesty of her vocal art. Her reputation was involved, and the Court decided in her favour. One can easily conceive the annoyance and disgust which some broadcast vocalists would express if they heard the reproduction of their voices from some of the archaic radio sets sprinkled around New Zealand. There is a crying need for reform, and it is in the interests of the trade and the owners of these sets that the position should be explained to the latter.

A.C. OR BATTERY SETS.

LAST year many people hesitated to buy light-socket sets, because of the contention that this type of instrument was in the experimental stage. Those who visited the recent Sydney Radio Exhibition found about 30 per cent. of the new sets were electrified (says the Sydney "Wireless Weekly"), and the other 70 per cent. designed to operate with batteries. The exhibitors say that those desirous of purchasing batteryless receivers need not fear that the 1928 circuits are in the experimental stage, or that this type of set will require too frequent servicing. They contend that the development of new alternating current valves, and improvements made in rectifier valves, have made practical the building of dependable light-socket sets.

"However, it would be well for radio purchasers to be guided by the advice of a merchandiser's oracle which recently sounded a warning to dealers, advising that they should proceed with utmost caution in stocking alternating current receivers. 'Consider the system employed, the construction of the unit, and the integrity of the manufacturer,' is the suggestion. This is excellent advice to follow, not only for dealers, but for the public buying any type of radio set, whether it be electrically or battery operated."

"It is expected that next year the percentage of electrical sets will be greater. However, there is no doubt that there will be a large demand for battery-operated receivers for many years to come, because the electric facilities are not available in every

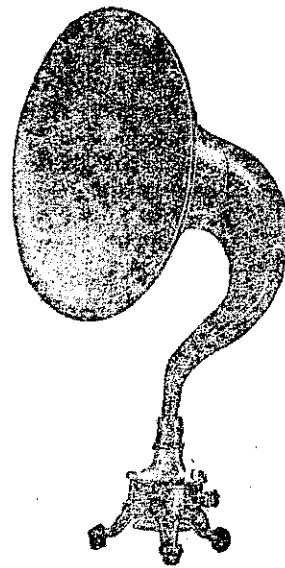
home. The great advantage of the light-socket set is in the fact that its power supply is available by the snap of a house lighting switch. Furthermore, there are no batteries to charge or replace, and the power supply is constant. The advantages pointed out for the batteries are "pure direct current, steady, quiet, noiseless, uniform operation, taking nothing from and adding nothing to radio reception—no line troubles or blown-out fuses can stop reception—you need never miss a single concert from a battery-run receiver."

CAUSES OF NOISES IN A SET.

If a client complains of excessive noises in his set, the service man should not forget to go over all soldered connections, and valve prongs should be examined for corrosion. The first important factor for getting the best results from a receiving set is soldered connections. Every point should be carefully cleaned and then securely soldered. Aerial joints should be carefully soldered and a proper earth or earth clamp installed. There are at least twenty-two contacts in a five-valve set which cannot even be soldered. Twenty of them are valve prong contacts, and the other two are the battery switch and the rheostat. Dirt on any one of these will be a fruitful source of noise. Many valves have solder (lead alloy) on their base prongs. This solder rubs off on to the socket contacts, oxidises, and makes a high-resistance noisy connection. The battery switch is often liable to "dirty up" after continued switching, and must be cleaned. The same with the rheostat. A dirty switch or rheostat contact causes noise in a receiving set.

COMPLAINING of the extent of jazz programmes sent out by broadcasting stations, United States Senator Smith, of South Carolina, declared he was tempted to offer an amendment to the pending radio measure to ban jazz music over the air.

THE CELEBRATED ETHOVOX LOUD SPEAKERS



This is the well-known Ethovox Loudspeaker which has become so popular because it reproduces speech and music with such remarkable purity and freedom from distortion. Its tone is deep and mellow, and it will deal with considerable volume. The demand for this model is so great that we have been able to effect economies in manufacture, and so reduce the price. The instrument is 26 inches in height, and the diameter of the flair is 15 inches. The magnet-system is adjustable. Rubber stands on the feet prevent the loudspeaker damaging delicate surfaces on which it is placed. The graceful mahogany-coloured swan-neck and flair give the Ethovox a handsome appearance.

Ethovox 2000 ohms, with Metal Horn
Price £5 5s. 0d.

Ethovox 750 ohms, with Metal Horn
For use in conjunction with
Power Valves.
Price £5 5s. 0d.

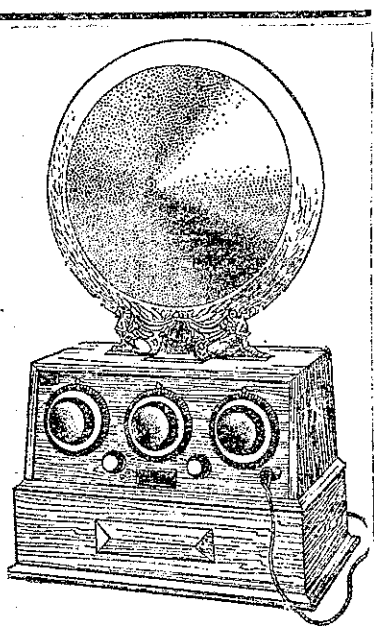
The Ethovox is manufactured by Messrs. Johnson & Phillips, Ltd., Charlton, London.

If not obtainable at your Radio Dealers please write to the New Zealand Representatives—

TOLLEY & SON, LTD.,

Electrical Engineers,
26 HARRIS ST., WELLINGTON.

Branches at:
Arauc Avenue, Auckland; Water Street, Dunedin; East Litchfield Street, Christchurch.



High or Low by the Flick of a Switch!

No troublesome plug-in coils; simply press a switch and your "Courier" Set is changed over in a second from broadcast wavelength to low wave reception! Here is a marvelous 4-valve set well built of the finest parts obtainable and guaranteed by the makers.

The "Courier"
"Brings tidings from afar."

The "Courier" 4-valve set sells for £27 10s. 0d. complete with accumulator; dry B and C batteries, phones, aerial, valves and 15-inch diameter O'Neill cone speaker. The results of the "Courier" will delight you.

Obtainable at your Radio Dealers, or if you cannot secure, write the makers who will see that you are supplied.

Wholesale only from:
J. Wiseman & Sons Ltd.
MANUFACTURER.
ALBERT ST., AUCKLAND.

How to Rate the Power of Radio Stations

(By Carl Dreher in "Radio Broadcast.")

BEFORE broadcasting appeared to amuse and vex the world, radio engineers were concerned with the power of wireless telegraph transmitters. These, in 1916 and thereabouts, were mainly of the spark type, consisting essentially of a motor generator feeding 300-cycle alternating current to a high tension transformer, which charged a condenser in connection with a suitable spark gap and oscillating circuit, and so ultimately produced high frequency oscillations in a radiating antenna. Such sets, in America, were rated in terms of energy input to the primary of the step-up transformer. The most popular size of set for ship-to-shore work was rated at 2 kilowatts on this basis. Possibly 15 per cent. of this energy got to the antenna, which therefore received something in the neighbourhood of 300 watts of radio frequency power. The set designers of that day preferred to talk about input to the transformer, for one reason which was obvious—the greater ease of measuring power at a commercial frequency and low voltage, and another reason which their self-esteem probably did not allow into the upper stories of their consciousness very often—the fact that 2000 watts sounded more impressive than 300, and did not illuminate the miserable over-all efficiency of the transmitter too unsparsingly.

The Germans, however, with that tactless thoroughness which has given rise to various emotions in other peoples, were already rating their radio transmitters in terms of radio-frequency power in the antenna—"Turn-Kraft," as they called it, which, literally translated, means "Tower-Power." When a German said he had a 250-watt radio set, he meant that it could put that much energy into a suitable antenna. In the United States, when radio telephony came into its own, we adopted this basis of grading transmitters. Practice in this regard is not uniform all over the world, however.

This is pointed out by Captain P.

P. Ekersley, chief engineer of the British Broadcasting Company, in an article on "Power: a Vexed Question," in the "Radio Supplement" (London) for March 5. Ekersley gives the following table for a "Standard 1½ Kilowatt Set":—

Point of measurement.	Power.	Used by
Total high tension input to set from transformers.	6 kw.	Some Continental organisations.
Power to anodes of oscillating valves.	1.5	British and all members of the Geneva Bureau for comparison purposes.
Power to aerial.	1.0	American and some Continental.
Meter-amperes.	300	Governments and scientific bodies.

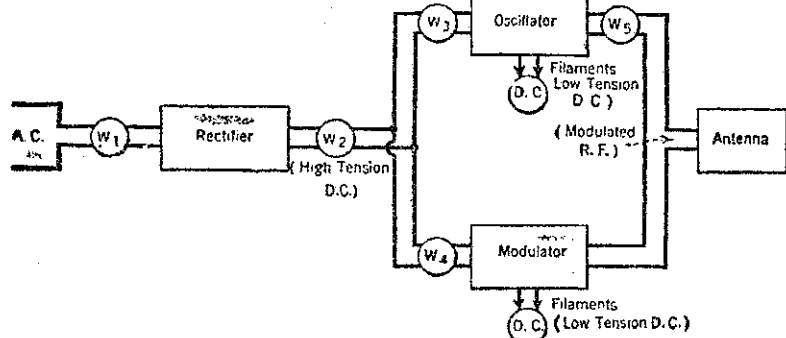


Diagram to illustrate accompanying article.

When Ekersley speaks of a "standard" 1½-kw. set, he means the British standard, of course. The British rate their sets on the basis of power delivered to the plates of the oscillators. As tubes now go, their efficiency in converting high tension direct current into radio frequency oscillating energy is about 60 per cent. Thus the power delivered by the oscillators to the antenna is about two-thirds of that received by the plates, or working in the other direction, if we multiply the output of the oscillators by 1½ we get the high tension input. It follows

that to convert the power of an American station to the British standard, we must multiply by a factor of 1.5, while if we wish to rate British stations according to American practice we must multiply the nominal power by 0.66.

To me the American-German method of expressing power seems more logical. The output is what counts. The ultimate energy (radiated energy) is very difficult to ascertain, thus we are unable to follow the really scientific procedure of expressing the power of the station in terms of that quantity. The next best thing is to work in terms of radio-frequency power in the antenna. The antenna current may be measured with reasonable accuracy, and the resistance of the antenna at a given frequency is likewise determinable. (The power equals the square of the current multiplied by the resistance—a law not confined to antennas. If telephone stations are

ed. For example, we talk about a 0.5-kw. electric heater or flat-iron, this being the power absorbed by the heating element. In such cases the power consumption, which determines the operating expense, as well as the effect on the supply circuits, is the chief quantity of interest to the user.

To show how the power varies, we may analyse the actual conditions in one modern station at an arbitrary power level chosen for illustration only, and considerably below the full power and rating of the station. Fig. 1 will aid the reader in following the energy transformations involved. We start with the rectifier, which consists of 12 tubes fed from an ac. source, suitable alternating voltages being applied to plates and filaments. The first wattmeter, W1, reads 185 kw. The output of the rectifier is about 11 amperes dc. at 9300 volts, corresponding to 102 kw. on the d.c. side. This high tension power is split equally between the oscillator and modulator frames of the set. Thus, W2 being 102 kw., W3 and W4 will each equal 51 kw. As W3 is the plate input of the oscillators, the British rating of the set at this level would be 61 kw. Assuming 66 per cent. efficiency, the oscillators deliver 33.6 kw. of radio-frequency energy (W5). This would be the American power rating of the transmitter for the illustrative output power we have chosen.

Another factor, however, must be taken into account. The oscillators and modulators require filament current, which in this case is in the form of d.c. Each tube takes 45 amperes at 15 volts, or 0.675 kw. If eight oscillators and 12 modulators are used, the former absorb 5.4 kw. and the latter 8.1 kw. for filament heating alone.

The total power consumption of the set is 135 kw., a.c., and 19.5 kw., d.c., adding up to a total of 154.5 kw. The mean r.f. power delivered to the antenna is 33 kw., an approximate power efficiency, overall and for this particular adjustment, of 20 per cent. Of course we must take into account, in comparing this figure with efficiencies of other machines, that we require at least as much energy to modulate the carrier as to produce it in the

first place. Another element which prevents the over-all efficiency of even the best modern radio transmitters from attaining a more respectable level is the fact that several units must function in tandem, owing to the peculiar nature of the machine as a whole. The rectifier has an efficiency of about 75 per cent., and the oscillator of 65 per cent., which are middling good performances in the field of energy transformation. Taken together, however, they drop somewhat below 50 per cent. Then when we add the burden of filament heating, and the large energy consumption of the modulator, we ruin the efficiency of the transmitter considered as simply an energy transformer. But to consider it in this way alone is meaningless. It is as much as to say that a beautiful and healthy woman is useless because she is a poor piano mover. We rate such a woman by her physical beauty; we rate a modern radio telephone transmitter by its acoustic beauty, i.e., fidelity of reproduction. Efficiency in the narrow sense is allowed to go hang, very properly.

However, as energy is sacrificed apparently so recklessly in the best broadcasting stations, that is the more reason for not rating them at any intermediate stage, when the question of range and power is being considered. If power ratings in radio are to be made uniform internationally, therefore, the radio-frequency power delivered to the antenna would seem to be the most valid basis of comparison.

The metre-ampere product as an expression of the effective range of stations takes the radiating qualities of the antenna into account, and is hence a step in advance of power ratings in terms of mere watts. Even then, however, we must consider percentage modulation, as Captain Ekersley points out, and as yet no one has worked out a rigid formula including this variable. Practically, as probably most stations run their modulation around 80 per cent. peaks, this factor cancels out in many instances, leaving metre-amperes or watts in the antenna as a valid basis of comparison between transmitters the frequency of which does not differ too widely.

MESSAGE TO LISTENERS

Mr. R. Leslie Jones, hon. secretary of the Wellington Amateur Radio Society, on the eve of his retirement from the secretaryship, has issued the following statement to the listeners of New Zealand:—

On the eve of my retirement from the position of hon. secretary of the Amateur Radio Society, Wellington, I would like to offer a few suggestions in regard to the question of broadcast listening.

Without in any way presuming to know all there is to know about New Zealand broadcasting I feel a word from myself will probably clear the air a great deal.

The work I have been carrying out for listeners throughout New Zealand has necessitated a daily close study of the past, present, and future of radio matters. I look upon the past work for radio as a labour of love entirely, and I hope my efforts will bring forth fruit for future listeners.

Many long hours of close scrutiny into the broadcasting business has been necessary, and frequently I have had to make a decision and stick to it.

No one has any idea of the enormous amount of work which the Wellington society has done for listeners in New Zealand, and they never will honestly realise what our president, Mr. J. H. Owen, has done.

The society is entitled to the credit for having kept the Broadcasting Com-

pany up to the mark, and I am delighted to say to the New Zealand listeners that, in my humble judgment, the company is honestly endeavouring to do its best to meet the wishes of the vast body of listeners throughout the Dominion. I for one have said and written some very strong remarks about the company and its affairs.

I believed, and still believe, there was just cause for action on behalf of the listeners. Still, we must be reasonable now, and give credit when and where it is due; and I place on record the fact that the general manager, Mr. A. R. Harris, is, in my judgment, fully alive to the fact that listeners will demand from him the best possible service that can be obtained for the limited capital available with which to provide the broadcasting service.

I have been in very close touch with the company and its staff for some considerable time, and am now convinced that the past activities of the Wellington society, and for that matter all societies, throughout New Zealand have not been in vain.

Taranaki complains that 2YA cannot be heard to advantage; Wanganui says 2YA comes in good; someone else will say some other station comes in good. What can we do?

The suggestion is made that 2YA should test out on Auckland's wavelength. With this idea I heartily agree, and I hope the test will take place shortly. It must be remembered experts decided upon the existing wavelengths with full consideration to

Australian wavelengths; and we must not forget that important point.

Wellington possesses a very fine transmission station, supplied by the Standard Telephones and Cables, Ltd., and as time goes on various improvements, or, rather, a better understanding of the apparatus, will be obtained by the engineers responsible for the control of the station. It must be borne in mind that every piece of mechanism requires experimenting with, and I have no doubt but what even better results will be obtained from 2YA.

The service is not perfect, the transmission likewise, but perfection comes with knowledge and usage.

Listeners will find the coming winter months full of real pleasure from broadcasting, and I advise everyone who has not provided his home with a receiving set to get busy, even if it be a modest crystal. I urge all farmers to provide themselves with a receiving set, as they are the ones who will receive the greatest benefit from radio broadcasting.

Farmers who have not listened-in on their own set have no idea at all of the enormous benefit to be derived from listening-in.

I confess I have made a hobby of radio, and have received untold benefit therefrom; and radio is available, practically speaking, just when you feel like listening-in. If you don't want it, just leave your set turned off—surely that is simple enough.

I admit the Government should make it possible for licensees to pay half-yearly, or even quarterly, if desired. No doubt this will be rectified shortly.

"All things come to those who wait." We have not waited very long, surely? A few short years, and now we hear from all over the world.

My final message to New Zealand listeners is: Support your local listeners' society; if not a member, join to-day. Your local society deserves your support, and much good will come from your so joining.

R. LESLIE JONES.

EARTH-BOUND RADIO

HEAVISIDE LAYER THEORY.

In accepting the Heaviside theory of wireless transmission, scientists have precluded the possibility of getting in touch with any of the planets through the medium of the radio waves now used.

The Heaviside theory holds that there is a layer above the atmosphere, impenetrable by radio waves, that reflects these waves back to the earth, and it is through the acceptance of this theory that scientists have accounted for the freakiness of the short-wave transmissions, whereby signals are heard over tremendous distances, but are inaudible a few miles from the sending point.

The attempt to listen-in for Martian signals was made this year, just as it was made last year, when the planet was comparatively close to the earth, and nothing of scientific importance was expected to develop from the tests. The recent peculiar blanket that has smothered radio reception in the east has led to the experiments in most of the cases, it was said. The blanket has been attributed both to the nearness of Mars to the earth, to the aurora borealis, and to other unknown causes.

CANBERRA A "DEAD SPOT" HINKLER AND THE MOTH

RECEPTION VERY WEAK.

It has been found that Canberra, the seat of the Federal Government, is almost a "dead spot" for radio reception. Canberra is 207 miles from Sydney, and is thus within the range of both Sydney and Melbourne stations, yet owners of even five and six valve sets complain of bad reception, in which fading and static play no small part. Interruption is also very troublesome, but this can be accounted for by the huge powerhouse at Eastlake, and also to the power lines running about Canberra. Further, the innumerable electrical machines used in road-making and excavating are likely to cause trouble. Several well-known personages at Canberra have smashed their wireless sets, or returned them, in disgust, and one official of the Federal Capital Commission smashed his five-valve set to pieces, and bought a pianola. Incidentally, his set was constructed specially to suit Canberra conditions.

There was a dramatic interruption at 420G, Brisbane, during the time Lieutenant Bert Hinkler was speaking, some few nights ago. A moth, attracted by the bright valves, crossed a safety gap, and short-circuited the high tension supply. The station was off the air for a few moments, and the director of the station explained to Mr. Hinkler what had happened.

When the station was started up again, and the microphone was switched on, Hinkler remarked that he did not intend to say much about that moth, but could not help remarking that an Avro-Avian had much better habits, and would not have done a thing like that. The secret of the joke lies, of course, in the fact that the "Moth" is another type of light aeroplane, a contemporary of the Avro-Avian.

A complete receiving set in a hand ring is being marketed in America, priced at 5s. Headphones are unnecessary.

WHAT'S RIGHT IN RADIO?

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L. H. WRIGHT CO.

The right shop for Accessories and Expert Radio Service. One and Two-stage Amplifiers (guaranteed), English Loud-speakers, at £2.

153 Willis Street, Wellington.

'Phone 23-147.

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Large Stocks Carried by

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is Passing you by!

KING 5-VALVE NEUTRODYNE SETS, complete with

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BROWNING-DRAKE SETS, made to order. Amplifiers,

Crystal Sets, Speakers, in large variety.

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RADIO ENTHUSIASTS

THE MOST DEPENDABLE BATTERY THAT MONEY CAN BUY IS THE

EXIDE

As installed at the 2YA Station, Wellington.

We have Batteries in all sizes from 9/- each.

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EXIDESERVICE STATION,
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PUBLISHED WEEKLY.

Printed Tuesdays to permit of effective distribution before the week-end, with full copyrighted programmes for the succeeding week. Nominal date of publication Friday.

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Rate of Subscription: Single copies, 3d.; Annual Subscription (if booked), 12/6, post free; normal rate, cash in advance, 10/-. post free.

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Schedule of Advertising Rates available from all advertising agents in New Zealand, or write: "Advertising Manager," Box 1032, Wellington.

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No responsibility is accepted for blocks, stereos, etc., remaining unclaimed after last use, beyond a period of three months.

A. J. HEIGHWAY,

Managing Editor,

"The N.Z. Radio Record,"

P.O. Box 1032.

Dominion Buildings, Mercer Street, Wellington.

FRIDAY, APRIL 20, 1928.

CHURCH BROADCASTING.

For over fifty years John Wesley travelled the highways and byways of Britain to preach the Gospel. In that time he addressed innumerable meetings and preached countless sermons, driving home the message he had to deliver. To-day by means of wireless broadcasting, one speaker in a fifteen-minute address before the microphone can reach more people than did John Wesley in the whole course of his lifetime. That is an arresting figure used by the Rev. H. R. L. Shepherd, the prominent vicar of St. Martin-in-the-Fields, in an article on church broadcasts in the "Radio Times." In this article he recalls the trepidation with which the first broadcast service from this church was undertaken, and cites the protests that were received from other churches at a broadcast during church hours. The day for those protests has passed away—although now no services are broadcast from this church at hours other than eight in the evening so as not to interfere with others—and those who formerly protested are now themselves eagerly using the same means of reaching the multitude and spreading the Gospel.

"The broadcast service is an established fact," states the article, "and, together with the Sunday night Epilogue, is perhaps the most generally popular feature of the week's programme."

"Does broadcasting cheapen religion? I wonder what people mean when they talk about cheapening religion. I take it for granted that the provision of wireless services for invalids, the bed-ridden, and the aged, to say nothing of the busy mother of a large family, needs no advocacy. The evidence is altogether in its favour. But what about the ordinary able-bodied man and woman? Is there, when all is said and done, any essential difference in the message of Christian ethics when it is heard by one man in a pew or by another sitting at his own fireside?"

"No doubt some are inclined to stay at home to listen rather than to attend church; but there are many, as I know, who have determined as a result of broadcast services that they ought to link themselves up with their church or chapel."

"I wish it was possible to quote from the letters which have been received. I can only say that if an impartial judgment were made, it would be found that religion itself has been enormously widened in its appeal by the religious services that have been broadcast from various churches and from the studio itself. I do not find any evidence that those who join in these services reverently and sing the hymns in their homes are losing any sense of what the Cross means, or of the obligations of the Christian profession."

"In broadcasting, Christianity has, perhaps, the greatest instrument for conversion that has been given to it since Jesus Christ proclaimed it, and it would seem to me not only amazingly foolish but strangely faithless not to acclaim as a gift of God this new instrument that the religious sincerity of those who control broadcasting has allowed the churches to use, and has persistently encouraged them in using."

"The task before the church to-day—a task that it must perform or lose its very raison d'être—is to get the message of Christ across to those who are still outside His influence. The people who go to church already, who have gone there regularly nearly every Sunday of their lives, are people for whom we may be thankful but about whom we must surely cease to worry. The important people, the ones whom we must consistently have on our consciences, are those who, for one reason or another, do not hear what Christ stands for in life; what are His values and standards, and how they may be practised in the rush and bustle of these new and modern days. These are the people who so often misunderstand Christianity, who only connect it with church-going and the careful observance of what are called religious duties, and who have failed to see that it is something vastly bigger and different, not indeed easier but far more difficult, that it makes far sterner demands on men, and that it is a way of life, and not in the first instance a philosophy or a body of theology, or a system of credal statements."

In facing the situation in New Zealand, the broadcasting administration has sought the co-operation of the churches themselves in determining the detailed procedure of church broadcasts. Committees are in process of formation in all centres and an allocation of time satisfactory, we understand, to the interests concerned, has been determined on in Christchurch and Auckland. This has meant some concessions on the part of certain interests. The outcome can only be regarded as satisfactory by all who wish for the best use of the opportunity presented, and in that position the committees have already justified their formation as entrusting the detailed administration of this service to those most intimately concerned.

SPORTING

NEXT WEEK'S ATTRACTIONS

RACING—RUGBY—BOXING.

Monday, April 23:

Marlborough Racing Club's Meeting—2YA.

Saturday, April 28:

Wellington Trotting Club Meeting—Hutt Park—2YA.

Rugby Football—Athletic Park—2YA.

Rugby Football—Eden Park—1YA (subject to competitions having commenced).

Boxing—Gillespie v. Leckie 4YA.

1YA CHURCH COMMITTEE

PROPORTIONS ALLOTTED.

The first meeting of the 1YA Church Service Committee was held in Auckland on Friday last and was attended by the Rev. H. M. Smyth, representing the Church of England; the Rev. W. D. Morrison-Sutherland, representing the Presbyterian Church; the Rev. Edward Drake, representing the Methodist Church; the Rev. Lionel B. Fletcher, representing the Congregational Church; Mr. D. Donaldson, representing the Church of Christ; the Rev. Ernest Nicholls, representing the Baptist Church; Mr. S. J. Hayden, station director at 1YA; Mr. Culford Bell, announcer at 1YA; Mr. W. J. Bellingham, musical director; Mr. C. S. Booth, of the administrative department of the Radio Broadcasting Company of New Zealand, Ltd.

The station director, Mr. S. J. Hayden was elected to the chair as members of the committee were anxious to retain their voting power on the floor of the meeting.

Certain alterations to the constitution and rules were duly carried.

Considerable discussion then ensued on the question of representation, two of the strongest denominations desiring proportional representation instead of one representative for each church.

After a good deal of discussion it was finally agreed to give the committee as at present constituted six months' trial.

Little difficulty was experienced in arranging the proportion of each denomination for broadcasting during the year, and this was finally decided upon as follows:—

Anglican, first Sunday in each month.
Presbyterian, second Sunday in each month, except November. During this month the Presbyterians will not broadcast.

Methodist, third Sunday in each month except September, January, and May.

Baptist and Congregational, alternate on each fourth Sunday.

Church of Christ, second Sunday in November and the third Sunday in September, January, and May.

The proportion is as follows:—

Anglican	12
Presbyterian	11
Methodist	9
Baptist	6
Congregational	6
Church of Christ	4

Totalling forty-eight Sundays, leaving the four-fifths Sundays in the year vacant for such churches as the committee may allocate.

The committee in allocating the proportion of broadcasting Sundays stressed the desirability of co-ordinating the Sunday broadcasts of the four stations, and it has been left to the company to endeavour to arrange some scheme by which overlapping would be avoided.

NEW JAPANESE STATIONS

Six new high-powered stations are to be on the air in May or June, according to a letter from Japan. Details are as follow:—

Location.	Call letter.	Wave-length.	Output power.
Tokyo	JOAK	345 m.	10 k.w.
Osaka	JOBK	400 "	10 "
Kioto	JOJK	353 "	10 "
Kumamoto	JOKE	360 "	10 "
Sakai	JOKE	390 "	10 "
Sapporo	JOIK	361 "	10 "

To prevent interference with radio reception in the neighbourhood, the United States Federal Radio Commission have issued a request that battery chargers be operated after midnight and in the morning hours. Interference with programme reception caused by these chargers is one of the chief sources of complaints received by the commission. While that body has no authority to prohibit operation of battery chargers during the hours of programme broadcasting, it has followed the policy of taking up the matter directly with the individual who is responsible, and in nearly every case has obtained co-operation.

BRITISH RADIO GOODS

A bit better quality:
A bit cheaper;
In short "a job!"
You get them from:

HARTLE & GRAY,
CUSTOMS ST., AUCKLAND.

MARCONI'S LATEST

"IMPORTANT NEW DISCOVERIES"

WILL THEY AFFECT BROADCASTING?

MILLIONS of broadcast listeners throughout the world may be immediately affected by any new revolutionary discovery in radio. Therefore particular interest attaches to the following Associated Press message published in the United States daily newspapers:—

Naples, Italy, March 19.

Marconi has arrived in Naples from London, and will shortly go to Rome, where he will consult Premier Mussolini concerning important new discoveries in the realm of wireless.

Just what bearing Marconi's "important new discoveries" will have upon broadcasting remains to be seen. A month has elapsed since the above news was circulated and no further announcement has been made.

A NEW FEATURE AT 1YA

PLAYS AND COMEDY SCENES.

Arrangements have now been completed with Mr. J. F. Montague, the well-known producer and elocutionist, to present regularly a number of modern comedies, and also comedy scenes from the comedies of another generation. The first of these plays, a one-act comedy, "Bobbie," will be presented



Mr. J. F. Montague.

—Schmidt Studio, Auckland.

ed on Friday, May 4, and on the following week, Bernard Shaw's brilliant one-act comedy, "How he lied to her Husband," will be given. These will be followed later by scenes from "The School for Scandal" (Sheridan), and by the Trial Scene from the "Pickwick Papers," and later again by other plays, including a three-act comedy and a powerful dramatic play, "Campbell of Kilmohr" (J. A. Ferguson), together with a delicious one-act modern comedy, "Just Fanny." Mr. Montague's long experience as a player and producer is a sufficient guarantee of the excellence of these productions.

YANKEE BROADCASTING

sage from Washington, dated March 12, says:—

"With an amendment proposing a drastic change in the existing broadcasting system—equal distribution of stations among the States on basis of population—the House passed a Senate Bill to-day to extend for one year the life of the Federal Radio Commission."

"The measure now must go back to the Senate for consideration of the House revision. Under its present grant the Commission would cease to exist on Thursday."

"The House approved the amendment by a vote of 296 to 133. This vote found the membership split along country and city lines, the former supporting the proposal to distribute stations according to population."

"Two other changes in the Bill were adopted. They provide reduction of the term of broadcasting licenses from six to three months, and other stations from one year to six months, and elimination of a provision whereby the Commission could be continued by appointment of its members."

CHILDREN'S HOUR AT 3YA

INTEREST OF THE PUBLIC

COMMITTEE TO HELP WITH WORK.

A well-attended conference of representatives of organisations interested in children's welfare was held in the studio at 3YA on Thursday afternoon, April 12. There was a general "round table" discussion on this splendid branch of the Broadcasting Company's service, the company being the recipient of many complimentary references. It was unanimously agreed that a committee would be set up to render all the help it could.

The chairman was Mr. E. J. Bell, the doyen of the uncles of 3YA. Mr. A. R. Harris (general manager of the Broadcasting Company) and Mrs. A. R. Hall (principal of the children's department) were also present, as well as the following: Miss Batey, representing St. Saviour's Orphanage; Miss Chaplin, representing the National Council of Women, Canterbury; Miss Cardale, representing the Society for the Protection of Women and Children; Miss Boyle, representing the Girl Guides; Miss Hervey, representing the Mothers' Union; Miss A. M. Bentham, representing the Y.W.C.A.; Miss L. Cowan, teacher of elocution; Miss A. Warren, Aunt May of 3YA; Miss M. Hall, Aunt Pat and organiser of the children's department at 3YA; Brother Hendrick, representing Marist Brothers and the convents; Mr. Clark, representing the Headmasters' Association; Mr. Rule, representing the Presbyterian Orphanages; Mr. G. D. Dickson, representing the Junior Internationals; Mr. A. J. McIlwainey, representing the Y.M.C.A.; Mr. L. Slade, station director at 3YA; Mr. C. Carr, announcer at 3YA and Uncle Sam at 3YA.

Another conference will be held on May 1, when the members of the committee will be appointed.

WHEN STATIONS CLASH

A SYDNEYITE'S DILEMMA.

New Zealanders have reason to be thankful that there are not two powerful broadcast stations transmitting simultaneously in the same city. It would not be an easy matter on many sets now in use to tune out one station and hear the other. A correspondent writes to a Sydney paper:—Dear Sir, I recently purchased a wireless set; with much pride it was installed, and I settled myself in a comfortable chair, earphones in place, and commenced to twirl the different knobs.

Stations came fast and furious. What I heard was something like this:

"Station 2FC, Sydney. Mr. Gopops will now speak on... 'the night I bid thee farewell'... at the Flemington saleyards... I can honestly say without prejudice... cod fish sold for 8s. per basket... aaaaand while these pale moon gleamed above... Baracic got a headlock on Mikel, with a mighty heave of his shoulders... Mr. De Valve will sing, 'The Lass with a Delicate Air'... one of our most promising fillies... In connection with 3LQ's competition... the Newtown Band will play, 'Just We Two'... followed by a description of the motor racing... from the Manly Band Rotunda 2BL, Sydney, broadcasting, we are... changing over to... 'The Bonnie Bunch of Loch Lomond'... while the price of lead remains at nineteen pounds ten... and I will say in conclusion... God Save the King... good-night, good-night... Yours, etc., H. Mason."

Speedwriting

The NATURAL SHORTHAND

Learn the New System of Shorthand. NO NEW SYMBOLS—use the alphabet you already know—80 words per minute in a few weeks.

The School of Shorthand,
P.O. Box 684, DUNEDIN.

The Better Parcels Service By Rail

A little inquiry, by telephone or otherwise, will satisfy you that your railways give the cheapest, quickest and most reliable.

Parcel Service

EXAMPLES:

3 lbs., any distance, either Island, 6d.
7 lbs., 50 miles, 6d.; any distance, either Island, 1/-.

Communicate with the nearest Station-master, District Manager, or Passenger Agent for full particulars.

On Short-wave

SPLENDID RECEPTIONS

DIFFICULTY OF SECURING DATA

Mr. F. W. Sellens, Northland, writes: Reception since last writing has been very good on the short wave from most stations heard, but on several evenings static was too bad for listening.

Saturday, April 7.

2XAD came in at splendid volume and modulation. As is usual on Saturday afternoon the Palmolive people were responsible for the musical programme, the station closing down at 8.30 p.m. (our time). As an experiment, I took the speaker to the telephone and rang up 2YA, where it was heard strongly and clearly enough, so they said, to re-broadcast after being amplified.

3AR, a Canterbury amateur, was heard testing at good strength.

JOAK was on the air again on about 55.5 metres this time; the short-wave call sign was not heard.

6AG, Perth, announced that he is testing on most evenings after 11 p.m., West Australian time, but sometimes from 6 p.m. or 6.30 p.m. till 7 p.m.

RFM put on some very good music.

Sunday, April 8.

3AL and 3AR, both of Ashburton, were testing early in the afternoon. When 2XAF was first tuned-in, organ music was being relayed, and later on dance music from Albany, New York, was enjoyed. They signed off at 11.58 p.m., E.S.T. Reception was very good speaker strength.

Monday, April 9

On tuning-in for 3LO's regular Monday morning transmission at 5.55 a.m. it was announced that 3ME, the Amalgamated Wireless Company's experimental station, was testing. The test sounded like driving nails; that was all that could be heard. At 6 a.m. they "changed over" to 3LO, who put on a good gramophone programme lasting till just after 8 a.m. Reception was excellent, but fading was bad at times.

Just prior to 3LO starting, 2NM—call not heard, but on his wave-length was transmitting some sacred music; afterwards he was apparently re-broadcasting 3LO, Melbourne, as on tuning from one to the other the same items were on, but the English station got very weak as time went on.

At 2 p.m. I tuned-in 2XAD, who were then relaying the "Atwater Kent Radio Hour." Two songs, "Little Boy Blue" and "Love's Old Sweet Song," followed by the Atwater Kent Orchestra were the concluding items of the "hour." After asking for comment on the programme and giving the names of the artists for next Sunday's "hour," it was announced that the programme would be continued from New York. A sacred drama was heard from here, representing the Crucifixion and afterwards the Resurrection. The title of next week's play is "The Feast of Belshazzar." The station closed down at 11.47 p.m., E.S.T.

Tuesday, April 10.

RFM in the evening had a lot of talk, as usual.

2HM, New South Wales, came in very strongly, talking to 4NW, Queensland.

Wednesday, April 11.

Just before 5 a.m. on about 47 metres "Achtung! Achtung—" was heard, followed by a few words, and then nothing else but noise.

PCJJ was at its best; reception was quite good, speaker volume.

5SW started with Big Ben, followed by a talk by Mr. — Robertson. They were not so loud as of late. During the evening static was too bad for listening.

Thursday, April 12.

5SW started with their station announcement: "This is 5SW, of the British Broadcasting Corporation, Chelmsford, England. You will now hear the clock from London." After Big Ben struck 7 p.m., Lord — spoke under the auspices of the League of Nations of Canada. Musical items followed, and later on a football talk was given with advice about practice, etc. At 7.15 a.m. the wireless orchestra commenced the evening's musical programme.

About 10.45 p.m. on about 67.5 metres a station which I took to be RFM was heard. The voice was similar to the regular speaker, but as the wave-length was different than usual, and I did not hear the call, I could not be certain. Static was too bad to listen more than a few moments.

COMPLETE set of short wave coils, tuning from 18 to 150 metres, with mounting base and diagram.

32/6. Post Free. These coils are British-made, with No. 16 enamelled wire, air wound, and are the best short-wave coils we have yet seen.

RADIO HOUSE,

165 Victoria St., HAMILTON.

Friday, April 13.

PCJJ was again very good; they carried on till 6.35 a.m., when the Dutch National Anthem concluded the programme.

When first tuning in 5SW when they were testing with 2XAD, a musical item was on the air from the latter station, and heard quite well from 5SW. As 5SW and PCJJ were both transmitting at the same time, I compared the volume, and found that the Dutch station was at least three times as strong as 5SW. The modulation of both was very good.

The regular test from Chelmsford commenced at 6.30 a.m. with the clock, followed by a talk on "Music and Theatre." Musical items were heard later.

Hard to Get Reliable Data.

The following taken from the latest issue—April, 1928—of "Radio News" (U.S.A.), shows how hard it is to secure information in reference to short-wave stations:—

"Radio stations in many parts of the world are now broadcasting on short-wave lengths (i.e., below 200 metres), but because most of their transmissions are still only of experimental nature, 'Radio News' has found it difficult to obtain, even from the stations themselves, accurate information about their operating frequencies, hours of broadcasting, etc.

"Readers owning short-wave sets are therefore requested to report to 'Radio News' any strange short-wave broadcast (not code) stations they may hear, giving the wave-lengths as closely as they can guess the figures from the dial settings, by comparing the latter with the settings for such consistent transmitters as KDKA, WGY, and WLW. These reports can be written conveniently on the backs of postcards.

"Radio News' will publish the data it receives for the benefit of the many people who have built short-wave receivers and wish to be informed about everything they can expect to hear with them."

1YA PROGRAMMES

TWO POINTS OF VIEW.

The following letters forwarded to the headquarters of the Broadcasting Company illustrate two points of view:

The first letter says: "I must express my intense disgust at this afternoon's programme. Is it not enough to have the main portion of Sunday evening's programme taken up with religious services, without giving us a Sunday school service in the afternoon as well? I look forward to the leisure of Sunday afternoon to listen to the usually excellent selection of gramophone items. One has the pleasure of not hearing jazz and other non-musical vulgarities, even if one has to put up with so-called sacred music, some of it too sloppy to be worth hearing. Why should we be bombarded with sermons from uncultured speakers, who murder English, and who are altogether too tedious, nasal, and ignorant to be borne?"

"And now, after being told with boring repetition that we must renew our licenses so as to assist the company in putting on better programmes, you send us all to Sunday school—a place from which all sensible people escape as soon as they grow enough mind to act on their own responsibility. May I ask you rather an impertinent question? Would you, were you not engaged in working for the Broadcasting Company, elect to spend your Sunday afternoon in a Sunday school? Could anyone force you to? On the other hand, you may like Sunday school, but thousands do not."

"If this Sunday afternoon discipline is of your doing, it is on a par with the so-called literary excerpts you punish us with during the week. I know there are some people who like that mountebank Chesterton, and even adore (strange as it seems) that pious fraud Dr. Frank Crane, but a little variety could be supplied to please those who don't. When one considers the wide field of English literature, it is amazing that you should confine your readings to the garbage corner. Why not have a 'Hornet's Penny Story' now and then? Hundreds of women (and men) adore them—wallow in them, and you must try and please all those who pay their thirty shillings."

"My three children simply won't take the trouble to listen to the bedtime stories—they took a sample or two and said it was 'all rot,' telling lies about sweets in the radio cabinet, etc. I am just giving you the candid opinion of normal children (not yet in their 'teens'). It may be the opinion of other children, if one only knew. I suppose it is because they have never been to Sunday school that they can't stand sloppy trash and palpable lies. It is not much use parents trying to inculcate the habit of truth-telling in their children if 1YA does its best to make lying attractive."

Another Angle.

T.W.: "This is not a complaint, but an expression of appreciation of the general standard you have attained to in 1YA programmes. As the average listener does not bear in mind that all tastes have a right in claiming to be catered for, then the general satisfaction to-day is high praise."

"I am in a position to touch the pulse of the public, and there is general satisfaction. Occasionally a night is struck when we think the programme rather rotten—well, that must be the other fellow's night!"

"One of the most marked recent improvements you have made is in the reproduction of disc records. The result could not be clearer if the orchestras were playing in the local studio. For instance, 'Liebestraum' put on first item on Saturday afternoon a fortnight ago was wonderful. Records give you world range for your programmes, and now you are in the position to present the illusion of having the world's best orchestras and bands at 1YA."

SHAKESPEARE NIGHT



From 3YA on Monday, April 23, in connection with Shakespeare night, Professor J. Shelley, of Canterbury College, will deliver a paper on "The Plays of Shakespeare."

PHOTOS BY RADIO

A SUCCESSFUL TEST

The first practical test of the Cooley "Ray-foto" apparatus, a system of broadcasting photographs by radio, was made on a recent morning between 8 and 9.30 o'clock over Station WOR, Kearney, New Jersey, U.S.A., on 242 metres. One of the official observers, who intercepted the photographs on a Cooley receiver in Queen's Village, said that from his viewpoint the first test was to be considered a success.

Austin G. Cooley, inventor of the device, personally gave instructions to the observers over WOR's microphone. Fifteen pictures in all were transmitted, taking about two and one-half minutes each.

"Three methods were used in the first test," said the observer. "The first, or acoustic, where the output of a speaker connected to the 'converter' was placed before the microphone of the station; the direct method, where the transmitter was connected by wires to the converter which was worked direct from either a positive or negative film of the picture; and the phonograph method, where the picture or message was reproduced direct from that record."

Mr. Cooley issued a statement saying that the demonstration was a preliminary test.

"These," he said, "are necessary technical tests prior to the official public test, the date of which is to be announced. So far our results have been entirely satisfactory."

On a previous afternoon a picture of Mayor Walker, of New York, was transmitted from the WEAF station at Bellmore, L. I., to receivers in the WEAF studio at 711 Fifth Avenue, New York, and the home of Dr. A. N. Goldsmith at 450 West End Avenue, New York, by means of photo-radio apparatus invented by Dr. E. F. W. Alexanderson of the General Electric Company. The Cooley tests, similar to the Alexanderson tests, utilised standard radio receivers in conjunction with special facsimile transmitting and receiving apparatus in the picture broadcasts.

WHEN you are out of solder, small joints can often be soldered by using ordinary tinfoil with the usual fluxes. Care should be taken, however, to get enough foil melted down to complete the job, as owing to its lack of thickness there usually is very little metal present.

N. Z. RADIO LISTENERS GUIDE-1928-9

FOR LISTENERS AND PROSPECTIVE LISTENERS.

The need for a handy and reliable Guide for Listeners and prospective listeners has been apparent to us for some time, and the writers and experts associated with the "Radio Record" set out to compile a work specially to meet the needs of New Zealand listeners.

The co-operation of the trade was sought in making the information to be given as full and reliable as possible. This has been willingly given, and as a result we predict the work on publication will prove of outstanding value to both listeners and prospective listeners in giving them guidance in the selection and care of sets and batteries, and all other information necessary to successful and enjoyable reception.

A very wide range of information will be covered in the work, the aim having been to produce an outstanding volume.

Important Sections Will Be :

Introductory and General.

Principles of wireless, selection of receivers, operation of sets, care of batteries, valves, etc.

Servicing of Sets.

This section is particularly designed to help the amateur listener, more especially the man distant from aid. It is the work of a thoroughly competent radio expert—a member of the Institute of Radio Engineers—and in itself will be well worth the price of the book.

Short Wave Section.

A special section is devoted to short wave reception, with a special list compiled by Mr. F. W. Sellens, of short wave stations heard in New Zealand, and their hours of transmission so far as they are known.

Glossary of Wireless Terms.

This is another feature of the work that will be particularly useful and popular. A great deal of trouble has been taken to see that this list is at once complete, accurate, and prepared in a popular style. The result is a very exhaustive and useful compilation—far the best we have seen in any work.

Constructional Section.

This section represents a complete range of activity for the constructor, from the humble crystal to the extensive range of the four-valve or the great mystery and attractiveness of a short wave receiver. Every point given is backed by experience, and the fullest reliability can be placed upon all details in letterpress and diagrams.

Other Main Features Will Be :

- (1) Stations and their wavelengths available in New Zealand—comprising Australia, New Zealand, America and Canada, and in the East.
- (2) Very complete and valuable tables of valves and their uses, covering all principal known valves on the New Zealand market. Of outstanding value, not only to constructors, but to all set owners.
- (3) Special illustrations of wireless equipment.
- (4) Popular articles on Fading, Howling valves, and all aspects of Radio up to the most recent developments.
- (5) Illustrations of stations in New Zealand, with articles.

ORDER NOW FROM YOUR DEALER — PRICE 2/6.

The Guide will be of 164 PAGES, approximately nine inches by six, printed on good paper, with a handsome cover in gold, black, and stipple.

It is now in the hands of the Printer, and will be available in approximately 6-7 weeks' time.

THE N.Z.

RADIO

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Arrange for a demonstration TO-DAY

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From the Woman's Point of View.

By VERITY.

TO-DAY AND TO-MORROW

That Dunedin remembers how, in the Botanical Gardens, Dame Ellen Terry planted a tree in the secluded Shakespeare plot, wherein are grown by the loyal elect many of the shrubs and trees that are mentioned in the plays. While the tree was being manipulated, it chanced that one small and earnest worshipper overbalanced himself and fell from a bridge into the stream below; and, on final cheers being given for the illustrious visitor, sweetly she said: "... And another cheer for the boy who fell off the bridge and didn't cry!"

In addition to her tree-planting exploit, Miss Terry presented a garden seat as a memento, and some seeds of that gentlest of all flowerets, the white violet. Many years have come and gone since that day of sunshine, much water has flowed beneath the bridge of disaster; but the mulberry tree has grown and flourished under the wise care of that artist of the garden, Mr. Tannock; and recently a box of its wood was made and sent to England for the acceptance of the great, sweet actress, whose friendly looks and words are cherished in the memory of those who lined up on the garden paths, as she left on the arm of Mr. T. W. Whitson, that enthusiastic president of yesteryear of Dunedin's Shakespeare Club, who, in his day, did much towards the encouragement of a love of the plays and the cause of literature in general.

Dame Ellen and the Microphone.

Dame Ellen Terry is extremely nervous before the microphone. About five years ago she broadcast Shakespeare from 2LO. Lord Gainsborough, chairman of the old B.B.C., and Lady Gainsborough went down to the studio to hear her, and Dame Ellen had her daughter Edith in the studio for moral support. Lord Gainsborough, who was in the waiting-room with her for half an hour before the broadcast, thought he had never seen such a bad case of microphone nerves. She kept on reading over little extracts from her speech, fidgeting with her book, and tapping her pencil. Every now and again she would dash into the studio to have a look at the microphone.

The Birth of Jazz.

How many people know how the term "jazz" originated? "Jazz" was born in Schiller's Cafe, New York, where "the boss" had hired a negro musician to amuse his guests. This negro played various instruments, singly and together, mostly placid and melancholy tunes. When, however, he was warned with liquor he began to tackle the instruments one after the other, with more rhythm than tune, blowing into one, banging another, kicking a third, and so on—all very gay and original and cacophonous, but, most noteworthy of all, with a dizzying rhythm and counter-rhythm which were the embryo of modern syncopation. This was the primitive negro love of rhythmic sounds, and, becoming fashionable, was widely imitated. The name of this syncopator was Jasbo Brown. Hence "jazz."

From "The Better Way."

A certain rector went to see a parishioner. She was a charming old dame, one of the chief characters of the village, and the rector looked admiringly at her. In spite of her ninety odd years, that calm face showed no sign of worry or anxiety. "My dear lady," he asked slowly, "what has been the main source of your vitality and sustenance during all these years of your earthly pilgrimage? What has appealed to you as the chief basis of the wonderful vigour of your mind and body, and has been to you an unfailing help through trials and sorrows? Please tell me, that I may forward it on to others." The old dame pondered a moment. The rector thought that he would find here a good subject for a sermon. Ah! she was about to speak. She raised her eyes, dim with years, yet bright with sweet memories, and answered shortly, "Victuals."

The Retort Courteous.

During the war a certain man directed a clockmaker to call for a grandfather clock which was in need of repair; but the clockmaker was so busy that he was never able to come, so at last, in desperation, the grandfather's owner unhooked its pendulum, and heaving up the clock on his shoulder started off for the shop.

At the first corner he collided violently with a lady and sent her flying. She gave him a withering look; but all she said was, "I wish you'd wear a wrist watch!"

Colour and Fabric.

"Fabric and Fashion" was the subject of a lecture given to women recently by Miss Marceline D'Alroy, at Harrods Ltd., Knightsbridge, London. Through the medium of her clothes, asserted Miss D'Alroy, woman expresses her personality and individuality, and in an interesting and original manner she proceeded to demonstrate, with the aid of some of the new season's fabrics, how important it is that line, colour, texture, and design should be carefully studied by the woman who wishes to be perfectly dressed.

A round line conveys an impression of youth; a straight line is conducive to a formal, conventional appearance, while lines running at angles give one a sophisticated appearance. The psychology of colour, too, is of great importance, for, according to Miss D'Alroy's theory, the body immediately reacts to the particular colours in which it is clothed—red being the life colour, blue signifying truth, and yellow, love. Black she holds to be an entirely unfriendly and unalluring colour, though quite smart, and, for most occasions, perfectly correct to wear.

It is not of paramount importance in early youth to study line, colour only at that stage of one's existence being the thing that matters. An older woman must consider both line and colour; a still older woman, line and the texture of the material chosen; while to an old woman the texture of the fabric is most important of all.

Speaking of Mother Eve, Douglas Jerrold suggested that she ate the forbidden fruit that she might have the pleasure of dressing.

"THE BETTER WAY"

A COMPETITION FOR HOME-MAKERS.

MONTHLY PRIZES.

All women whose homes are to them a source of abiding interest and delight, have their own treasured secrets of housekeeping: It may be an unusual recipe, a scheme for brightening an uninteresting room, a labour-saving notion, an idea for decorative work, a dress or toilet hint, or a pet economy. There is always a special method of performing various household tasks—the "better way." "The Radio Record" offers a prize of half a guinea each month until further notice for "Better Ways" from our women readers. The right is reserved to publish any entry not awarded a prize on payment of a fee of 2/6.

Entries must be written in ink, on one side of the paper only, and the name and address of the competitor should be written on the back of each entry.

The May "Better Way" competition closes on May 11, and the result will be announced on the women's page on Friday, May 18.

All entries to be addressed:

C/o "Radio Record,"

Box 1032, Wellington.

Country readers are advised to post their entries early to ensure their being in time.

The Letters of Annabel Lee

My Dear Elisabeth:

Privileged is Wellington just now to have the opportunity of seeing a fine collection of pictures by English artists, brought to this Dominion by Mr. E. Murray Fuller, and on view at the Art Gallery, Whitmore Street. Lovers of art will be well advised to stand not upon the order of their going, but go at once. Interesting it is to see the Italian Peasants of Mrs. Laura Knight, quite lately elected a Royal Academician; virile work with life, colour, movement, and also the quality possessed by some humans, of leaving an indelible impression upon the memory even if seen but once. How delightful is the Sydney Thompson corner, giving us more glimpses of Concarneau the beloved, and glowing with the colour of which he is a master. Many people liked the "Pierrot Beguiled," by W. E. Webster, the dainty darling of which fascinates many more than poor Pierrot. Of the two by Frances Hodgkins, I preferred "Ebbing Tide," the other being somewhat puzzling to those who admired Miss Hodgkins' early beautiful work. Lucy Kemp-Welch's horses are such dear, companionable beasts that one longs to stroke them; but for a kind of shimmering glory and sheer loveliness of painting and pose, the "May Morning," by Harold Speed, is, in the opinion of many, the most beautiful picture in the collection. At the Private View on Friday some delightful frocks were worn, one of an elegance most enviable being decorated with a veritable sunburst of crystal and diamante. That friend in need, the black gown, was much to the fore, one quite perfect in line being worn by a recent arrival from England, who, accompanied by her mother, was lucky enough to have some chat from Mr. Chas. Wilson on the merits of the different pictures. A society hostess, who follows the one true light of Art in all branches, wore black satin, with a successful touch of that ermine which always bestows a distinctive touch. It was pleasant to see Lady Stout among the crowd, and one felt she would appreciate the great work on exhibition by women painters, as she has always worked valiantly for the cause that lacked assistance for many years—a better chance for our sex. Two landscapes by A. Heaton Cooper were lovely and wistful as a dream, and always had a small knot of admirers; as also

did one highly praised by Mr. Wilson in his brief opening speech, the magnificent "Autumn," by Arnesby Brown, priced at 250 guineas, and well worth it.

A statuesque Juno, swathed around and about with Geranium-red ring velvet, swishy train lined with gold tissue, ornaments of rich and rare crystals, dark hair parted Madonnawise, her smile divinely sweet as of yore, Miss Amy Evans played havoc with our hearts at her first concert on Saturday evening. The large audience was all intelligence and discrimination, and accorded applause of the rapturous variety to both the visiting singers. Not a cough was heard, not a chair was scraped throughout, Mr. Fraser Gange being in great voice. Delightful artists these, the rendering of the lovely fragment "Duna" exquisite enough to bring tears to the eye of the least susceptible. Fire, declamatory force, restraint, allied to the beautiful baritone of his, are the attributes of Mr. Fraser Gange; he and Miss Evans proving so charming about encores that the audience hardly realised how rapacious it was. A song of Wales by the Welsh singer was interesting and beautiful; and her interpretation effective in dramatic and devotional numbers on the finely-selected programme; but perhaps the song that reached our hearts most successfully was a beguiling invocation of Celia, in which the singer's voice was very lovely. The youthful pianiste played a Brahms Waltz and some Chopin very delightfully indeed, and is by way of being that rare bird, a perfect accompanist.

How great the vogue of crystal, by the way, and how miraculously it gives just the right touch for decorating what used to be called our person, or the greater adornment and equipment of hearth and home, Earrings, clasps and brooches for our delight make insistent appeal with skilful workmanship and design of the subtlest. Many and varied appear flowers and furbelows, the former ranging from the "lilies and languors of virtue" to the "roses and raptures of vice"; and assuredly their like was never grown on land or sea. What wicked-looking posies some of them are, to be sure. Inanimate things to take upon themselves at times import of the most dire. Par example, a big brass safety-pin innocently reposing on the floor of the apartment of mere man, or a

The Long Arm of Coincidence.

"When living at Akaroa, New Zealand, in 1875, I was called home to England," says an English writer, "and I went from O'Kane's Bay in the steam launch to Lyttelton to secure a berth on board the sailing ship Lady Jocelyn. On leaving again for O'Kane's Bay in the launch I saw a tall bearded man on the wharf staring hard at me (I also was bearded), and I stared back at him until we were well out."

"Soon after I sailed for England in the Lady Jocelyn, going round the Horn and reaching Gravesend in one hundred and one days. A few days later I went to town to get some new clothes, entered a tailor's shop, where I had never before been, and there was my bearded man being measured for a suit."

"He had come to England across South America. We recognised each other at once; we had been together seven years previously at a Crammer's on Woolwich Common."

Tiny Tucks.

Pin tucks, which have enjoyed a vogue for some time past, are more popular than ever. Some of the Paris dressmakers are using tiny tucks only as a media for decoration and line. A delightfully simple model for street wear is of green kasha with wee vertical tucks on the jumper hem, jacket sleeves, and tiny upstanding collar; the jacket fastened at the throat with a darker green ribbon, and swung loosely to show the belt fastened at the natural waist line with a dark green buckle. The skirt had three flat pleats at each side, and was built on a yoke that had V points back and front.

Begorra!

Mr. Cosgrave, President of the Executive Council of the Irish Free State, has only one grievance against American interviewers—they persist in representing him as using the word "Begorra." Nobody acquainted with educated Irishmen needs to be assured that Mr. Cosgrave does not bespatter his conversation with "begorras." But it would be as much as a New York reporter's job was worth for him to fail to introduce this epithet into an Irish interview. Stage Irishmen have exclaimed "Begorra" since time immemorial, and doubtless the reporters decided that Mr. Cosgrave had merely been guilty of an oversight, which was their duty, in all friendliness, to rectify.

New Hankies.

The new whim of wearing a handkerchief on the wrist is rather a pretty one. It is only a scrap of fabric, but much fine handwork goes into the making. The colour chiffon hankies of the past few seasons have been substituted by muslin and lace; some of them are mere wisps with an intricate drawn-thread hem, and others have Valenciennes or Irish lace let in.

Cauliflower Soup.

1 large cauliflower, 1 Spanish onion, 1 teaspoon parsley, 1oz. butter, 1 pint milk, 1 pint cold water or stock, 1/2 teaspoon pepper, 2 stalks celery, 1oz. flour, 1/2 teaspoonful salt.

Method: Remove the flower from the stalk of cauliflower and wash well in salt and cold water. Peel and slice onion, wash celery, put vegetables in pan with either stock or water, and bring to boil. Remove scum and simmer 1 1/2 hours. Rub through a wire sieve, melt butter in pan, add flour, and cook for a second or two. Add milk and stock, and stir till boiling. Season to taste and serve in a hot tureen. Sprinkle the top with chopped parsley. If water has been used for soup, 2 yolks of eggs can be added at the end after boiling the soup, care being taken not to curdle it.—Miss Christian, 2YA.

A Hint for Starch-making.

The "coons" of America, renowned as good washer-folk, make starch as follows:—To one quart of starch add one heaped teaspoonful of lard, which place in a bowl with starch before pouring on the boiling water. Stir until melted. It will be found that—(1) The iron passes along freely without coating. (2) Articles to be ironed are much more easily handled and pulled into shape. (3) The life of washed articles is greatly increased.

Cocoanut Macaroons.

1 tin Highlander sweetened condensed milk, 1/2lb. cocoanut. Rub the cocoanut into a bowl, mix to a paste with condensed milk; grease a baking sheet and dredge with flour; make the mixture into small heaps with a spoon on the sheet. Bake very slowly for 30 minutes.—Miss M. Christian, 2YA.

Date Muffins.

1/2lb. stoned dates, 1 egg, 4oz. butter, little salt, 1 cupful milk, 2 teaspoons baking powder, 1/2lb. flour, 3oz. sugar. Method: Chop dates, cream butter and sugar with salt, then add the egg, milk and flour to make a light mixture, beat well and add dates and baking powder. Put into greased saucers and bake in a very quick oven for 20 minutes.—Miss M. Christian, 2YA.

To Save Darning.

Much annoyance is often caused by holes in the toes of socks or stockings. This can be prevented by sewing on to them a piece of chamois leather the shape of the upper half of the toes. Cut the leather in almost a half-circle about two inches deep and four wide for a man's sock or stocking, and sew on neatly. Backs of old wash-leather gloves may be used. Wash in usual way, rubbing in a little soap to keep leather soft. No inconvenience is caused by the patches, and much darning is saved.

How to Soften Hard Water.

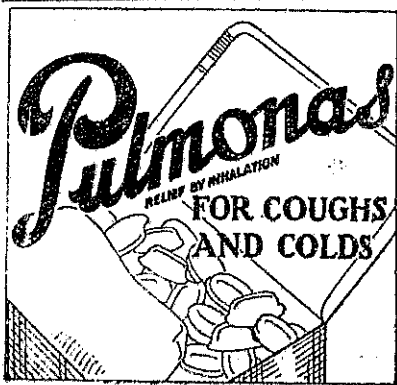
Hardness is generally due to the presence of calcium (or lime) salts in the water. They are readily removed by the addition of a little washing soda, borax, or ammonia. Rain water, "the finest cosmetic," is practically free from dissolved solids. It has been distilled by the sun from the seas and great lakes of the world, and has condensed in the upper atmosphere out of contact with appreciable amounts of solid matter. It is thus able to give an immediate lather with soap without the formation of any curd or precipitate.

Amber Pudding.

2 cups sponge cake crumbs, 2 table-spoons white wine, 3 slices tinned pineapple, 4 yolks of eggs, 1 cup of pineapple juice. Sieve sponge cake crumbs, cut pineapple into small pieces, pour pineapple juice over crumbs, mix in pineapple, and beat in egg yolks slowly, one at a time, and stir well. Place in a buttered mould and steam 1 1/2 hours. Serve with whipped cream.

Revenged.

The up-to-date young woman was approached by a sharp-featured old lady, who said, "Young woman, do you realise that a man had to kill an animal to get you that fur coat?" "The animal is revenged," said the young thing. "I had to make my husband's life not worth living to get it."



Some Features of Next Week's Programmes

Attractive Shakespearean Programmes Specially Arranged

SHAKESPEARE NIGHT AT 1YA

1YA will celebrate the Bard's birthday on Tuesday, April 24, as the 23rd is a silent night with that station. This will enable enthusiasts who have the necessary equipment to listen in on both nights.

1YA station has made special arrangements with Mr. J. F. Montague to supervise and direct the programme for Shakespeare Day, and he will be assisted on the musical side by Madame Irene Ainsley, who will present some of the choicest gems from Gounod's opera "Romeo and Juliet," and, in addition, Madame Ainsley herself will sing "Orpheus With His Lute," and there will be a number of other specially chosen vocal numbers appropriate to the occasion. Instrumental numbers and incidental music will be contributed by the Bosworth-Hemus-Towsey Trio, who will present "Three Dances from Henry VIII" (German), and Quilter's "As You Like It" music. Ina Bosworth (violinist) will play "The Admirals Galliard" (Mozart).

On the dramatic side listeners-in can safely look forward to an unexampled treat, for Mr. Montague has taken pains to prepare a striking and varied programme, with a strong comedy element, including the "Dogberry" scenes ("Much Ado") and the "Gravedigger's Scene" ("Hamlet"), in both of which Mr. Alan McIlwain will appear, and Mr. Montague himself will appear in the latter scene, which will also include Mr. Montague Steele, as Hamlet. Mr. Culford Bell will present "Mark Antony's Oration," and he will appear with Mr. Montague in The Tower Scene from "Henry VIII." Some beautiful scenes (with musical settings) will be given from "Twelfth Night," the performers being Miss Mary Day, an accomplished reader with a beautiful voice, Miss Iris Andrew and Mr. Alan McIlwain.

Another very striking feature will be the great scene from "Macbeth," in which Lady Macbeth receives her husband's letter. Miss Daphne Knight, one of the most gifted elocutionists in New Zealand in tragic work, will undertake "Lady Macbeth," and she will be supported by Mr. Leslie Dakin. Other performers will include Miss Phyllis Torrey, Miss Kathleen Harvey, Mr. Helfrey, Mr. Ernest Snell, and numerous others.

The producer, Mr. Montague, says he wants to convince the public that Shakespeare is by no means such a dull doer as most people imagine him to be, and judging from his past wonderful record he is likely to succeed. He not only knows his Shakespeare, but he can always get the best from his associates on these occasions. Somehow he manages to imbue them with his own wonderful enthusiasm and verve.

On Wednesday, Anzac Day, 1YA will be on the air at 10 a.m. when the announcer will begin his description of the ceremonial march of the returned soldiers and representatives of the various public bodies to the Cenotaph.

After describing the impressive service at the Cenotaph, 1YA will then broadcast the memorial service from the Auckland Town Hall, which will conclude at approximately 12 noon. At 7.30 p.m. a special church memorial service will be broadcast from St. Matthew's Church, the Rev. Grant-Cowan being the preacher, and Mr. Philpott the organist.

The chief contributors to the vocal section of Thursday evening's programme will be Mr. Barry Coney's Quartet. The quartet numbers will include "The Forester" (by Sterling) and "The Laughing Chorus" (by Root). Contralto solos will be given by Miss Martha Williamson, her numbers being "Shepherd's Cradle Song" and "Ye Banks and Braes." Mr. H. Barry Coney will be heard in Wagner's "Prelude Song" and in "Peter Warlock's Fancy." Miss Dorothy Yound (soprano) will sing Little's "A Farewell" and "The Great Awakening" (by Kramer), while Mr. George Barnes's tenor voice will delight listeners in "Ay, Av, Av" (by Friere), and "Santa Lucia," a Spanish ballad. On Thursday lute solos will be rendered by Mr. Victor Bedford, including a fantasia from "Il Trovatore" and "Berceuse." The Bosworth-Hemus-Towsey Trio will play the "Finale" from 3rd Trio by Haydn, and "Solvia Ballet Music" by Delibes, while Mr. Towsey himself will be heard in Rachmaninoff's famous "Prelude in C Sharp Minor."

Catering for the lighter side of Thursday's programme, the Snappy Three will harmonise in several popular songs, rendered in their inimitable style. Mr. Culford Bell will give his usual fortnightly talk on "Great Authors," while orchestral music will be relayed from the Maestric Theatre, the orchestra being under the capable baton of Mr. J. Whiteford-Waugh.

The vocalists for Friday evening will be Madame Mary Towsey's Quartet, comprising Miss Gwyneth Evans, Mr.

AS the ideal underlying broadcasting in New Zealand is informative entertainment, it is very fitting that the anniversary of the birth (and of the death) of Shakespeare should be the occasion for special programmes which will delight the ears of all and help to spread the knowledge of the incalculable debt which the whole world owes to the great Elizabethan dramatist.

At three stations—1YA, 2YA and 3YA—exceptionally fine musical and dramatic entertainments will be broadcast. The programme is scheduled for Monday, April 23, at 2YA and 3YA, and for Tuesday at 1YA.



Miss Lucy Cowan, whose work as an elocutionist and interpreter of Shakespeare is well known.

—Webb, photo.

John Bree, Mr. Reginald Newbury, and Madame Towsey herself. They will be heard in a variety of solos, duets, and quartets, their concerted items including "The Lost Chord," by Sullivan, and "Softly Fall the Shades of Evening," by Hattori. Mr. Tom Harris, the well known elocutionist, will render Noyes's great "The Highwayman," and two short humorous numbers, "On the Strips" and "Alphonse." Piano trios will be played by the Bosworth-Hemus-Towsey Trio, including a selection from "Samson and Delilah." The finale from a Grieg Sonata for piano and violin will be performed by Miss Ina Bosworth and Mr. Cyril Towsey.

On the lighter side of Friday's programme will be heard a combination new to 1YA studio. This will be The Internationals, a quartet comprising piano, saxophone, banjo, and trumpet, and will be heard in various popular numbers, including an arrangement of a selection from "Faust."

On Saturday, the Lyric Quartet will again entertain listeners with their usual variety of quartets and solos, while Mr. Allan McIlwain will continue his mirth-making. Mr. Ernest Thomas will include among his bass solos, "Myself when Young" (by Lehman), and in conjunction with Mr. Herbert Richards will sing Sargeant's "Watchmen, What of the Night." "My Dreams," by Tosti, will be among Mr. Herbert Richards's items, and Mr. Arthur Ripley will sing "Molly Dear," by Low. Included among the quartet numbers will be "A Sailor's Chorus," "But She Didn't," and "Plantation Melodies," as arranged by the Lyric Quartet. Included on the same programme will be the well-known Bohemian Trio, who will render several vocal and instrumental items, among which will be "High, High, High up in the Hills," and "Annabella Lee." At the conclusion of the studio concert, dance music will be relayed from the Dixieland Cabaret, where the famous Internationals are directed by Mr. Clyde Howley.

St. David's Church will provide the Church service to be broadcast on Sunday evening. Following the church service, the Municipal Band, under Mr. Christopher Smith, will render a programme of appropriate music.

SHAKESPEARE AT 2YA

Combining with Mr. Byron Brown, the producer of the dramatic portion of the entertainment, will be the Ariel Singers, who will be responsible for the vocal section of the musical programme. The great dramatist's poems have nearly all been used as song lyrics by some of the world's greatest musicians, thus helping to prove the old dictum that poets combine the arts of the painter, the historian, and the musician. On this occasion, some of the lesser known numbers will be presented, with a view to increasing their popularity. Composers such as Sir Henry Bishop and Roger Quilter, both famous for their Shakespearean works, afford a good example of old and new treatments of familiar words, whilst the duet arrangement of "Orpheus with his Lute," by Charles Wood, Professor of Music at Oxford University, is a thing of beauty, well worth hearing.

Three very fine quartets will be sung by the Orpheus Quartet on Tuesday—"Long Ago," "It was a Lover and his

Lass," and "The Lark now Leaves his Watery Nest." Miss Lily Mackie will sing Schubert's fine "Evening Boat Song"; and Mrs. Alice Harris the wonderful aria from "Madame Butterfly," "One Fine Day." With Mr. Arthur Coe, she will sing "The Night Hymn at Sea," and Mr. Arthur Coe will sing "Farewell to Summer." Associated with the quartet will be Mr. Lad Haywood, with his Italian mandolin, and Mr. Stanley Warwick, elocutionist, while there will also be a short organ recital by Mr. H. Temple White.

On Wednesday station 2YA will be "on the air" to broadcast on relay the Anzac Day Memorial Service. The service will be held at the Town Hall, and will commence at 3 p.m.

The quartets to be sung by the Clarion quartet on Thursday are "Winter Song" (by Bullard), and a fox trot, "Lucky Day," arranged by Mr. Len Barnes. There will be the well-known trio, "Farewell" (by Silcher). Mr. Will Hancock sings, "I'll sing to you," and, with the quartet, "The Young Recruit," which is a fine marching song. Mr. Ray Kemp will sing "Bleanore" and "Song of the North Wind." Mr. Frank Skinner's numbers will be a new arrangement of "Who is Sylvia?" and the ever popular "Take a Pair of Sparkling Ryes." The instrumental music will be provided by the Municipal Tramways Band, under the baton of Mr. T. Goodall. Miss Violet Wilson, a young elocutionist, will also contribute to the programme.

The histrionic portion of the evening will be particularly strong, the elocutionists being Mr. Byron Brown, Miss D. Vanier, Mr. J. Watchman, Mr. Barton Ginger, Mrs. Martyn Williams, Mrs. Burgess, Mrs. Theo. Hills, and Mr. S. Tingey. It will be the strongest combination of elocutionists who have yet appeared on one night at 2YA.

Between the singers, the elocutionists, and the instrumentalists, listeners will be able to sample all the chief plays of Shakespeare and will derive an appreciation of the works of the great dramatist such as many have never enjoyed before.

In Mr. Byron Brown, a great authority on Shakespeare will come to the microphone, and he can be relied upon to give a delightful lecture on "Shakespeare and St. George," both of whose days fall on April 23.

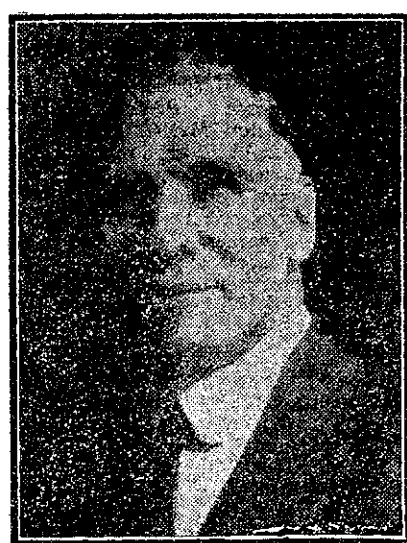
One of the most striking scenes will be the Quarrel Scene between Brutus and Cassius, as enacted by Mr. Byron Brown and Mr. Barton Ginger. Another of a different type will be "Rosaland's Banter of Her Lover, Orlando," by Mrs. Burgess and Mr. Byron Brown. Listeners will also hear Portia's noble pleading in "The Merchant of Venice," Mark Antony's oration over the body of Julius Caesar, Queen Margaret's scorn of the Duke of York, Queen Katherine's defence, and the merriment and wisdom of the first grave digger in "Hamlet."

THE IMMORTAL BARD AT 3YA

LISTENERS at 3YA may look forward on the Festival of Saint George to an evening of Shakespearean drama presented by Miss Lucy Cowan and her company of players, with a quintet of fine instrumentalists, and Madame Gower Burns's Grand Opera Quartet in solo, duet, trio, and ensemble support.

Professor J. Shelley, already familiar to Christchurch play lovers in his admirable Canterbury College productions, will give an address on the plays of Shakespeare, many of which, in addition to those of Ibsen, Shaw, Synge, Dunsany, and others, he has produced in different universities throughout England.

Of the Grand Opera Quartet, Madame Gower Burns (soprano), whose songs from Shakespeare have so often given brilliancy to professional productions in prominent cities throughout New Zealand, will record in the vocal role of Juliet from Gounod's setting to the play "Romeo and Juliet," in "The Waltz Song," also in a duet with Mr. Harold Prescott (tenor), as Romeo. Mr. Prescott has sung before Their Royal Highnesses the Prince of Wales and the Duke of York, and lately has been heard in the title role of "Faust" in prologue and finale to the film production of "Faust." On this occasion at 3YA he will impersonate Othello in vocal argument, with



Mr. Byron Brown, the well-known elocutionist and exponent of Shakespeare.

—S. P. Andrew, photo.

Mrs. Aline Harper (contralto) as Emilia, and Madame Gower Burns as Desdemona, from Verdi's operatic music set to Boito's "Othello" libretto. During the spoken dialogue Mrs. Anne Harper will sing the famous "Willow Song" to the music by Coleridge Taylor, a haunting melody in keeping with Desdemona's mood.

Mr. Bernard Rennell, the grand opera baritone, well known on the air in "Charities Unlimited," and as a member of the Christchurch Operatic Society, has the sunny role of "Mercutio" in Gounod's "Romeo and Juliet," and discourses upon Queen Mab and her little vagaries with lovers and other fond dupes of fancy.

In the dramatic scenes from Shakespeare's plays Miss Lucy Cowan, in both tragedy and comedy, has with her Mr. J. F. Cannell as King Henry the Fifth, rallying his soldiers at Harfleur to renewed action in the name of "England and Saint George." Mr. Cannell is a championship winner in elocution, and has previously taken part in amusing sketches before the microphone.

Mr. Ronald Foster (Don Pedro in "Much Ado About Nothing") is a holder of championship and scholarship medals, and requires no introduction on the radio. Mr. Dick Wills (Leonato) has achieved successes in recital and play reading. Mr. Charles Clayton (Claudio) enters on his first introduction to listeners, as does Miss Ivy Fowler (Hero), a scholarship winner. Mr. Bert Goodland (Benedick) has previously entertained the invisible audience, and in addition to scholarship and other wins, gained the L.T.C.L. diploma in elocution before the age of 17. Mr. Harold Prescott this time both speaks and sings Balladazar, and Miss Gladys O'Connell, A.T.C.L. (Beatrice) will be remembered by many. Miss Ida Cooper (Margaret) will again appear, and Mrs. Hugh McLeod (Ursula), already established by her clear enunciation, completes this comedy cast.

Mr. Frank Foster (Cardinal Wolsey), with Miss Cowan as Queen Katherine in "Henry the Eighth," has been rewarded with success in oratorical display.

Miss Maiona Juriss, A.T.C.L., a well-known speaker, leads the comedy with Mr. Dick Wills (Orlando), in "As You Like It," while Miss Olive Braisher (Celia), (Senior Trinity College, elocution) again appears before the microphone.

The impudent proposal of Petruchio in "The Taming of the Shrew" is voiced by Mr. J. F. Cannell, and Miss Lucy Cowan replies as Katherine.

Miss Phair Thompson, L.T.C.L., a new speaker, taking the part of Desdemona in "Othello," is also a successful pupil of Miss Lucy Cowan's Dramatic School.

While a very happy choice in regard to artists has been made in regard to the musical as well as the dramatic side, equally fine will be the instrumental music, which will be played by a quintet composed of Mr. Harold Beck, Miss Irene Morris, Miss Aileen Warren (all well known as the present studio trio), with Mr. J. Laurian Beck (violin) and Mr. Joseph Mercer (viola). The five will make an exceptional combination.

Miss Lucy Cowan, who is presenting the Shakespearean programme at 3YA in honour of Shakespeare's birthday and the day of his death, also the day of St. George and old England, has the honour of being the first teacher of elocution in New Zealand granted registration with the Minister of Education. Her numerous and continued successes with pupils of every grade, both young and older, in Trinity College examinations and various competitions, mark a high idealistic diligence throughout her tutorial career, while her personal successes show an unbeaten record in Shakespearean recital.

On Anzac Day 3YA will be given over entirely to memorial services. In the afternoon there will be a relay of the citizens' memorial service in King Edward Barracks, to be conducted under the auspices of the Returned Soldiers' Association.

In the evening from 7.30 to 9 there will be a broadcast of the service conducted by the Christchurch Ministers' Association in St. Paul's Church. The chief speaker will be Rev. J. Robertson, M.A., of the Oxford Terrace Baptist Church, and late chaplain with the Australian Forces.

There will be much variety in Thursday's programme at 3YA. A miscellaneous collection of solos, duets, and quartets will be sung by Mr. A. G. Thompson's Dulcet Quartet, Miss Winifred Smith, the well-known elocutionist, Mr. Roy August (ukulele), Mr. Harold Beck, and the Studio Trio are also on the programme.

The songs to be sung by the members of the Dulcet Quartet—Miss Nellie Lowe, Miss Mary Shaw, Mr. T. G. Rogers, and Mr. A. G. Thompson—will comprise a number of favourite songs.

Light musical comedy will be the feature of Friday's concert at 3YA. The piece from which excerpts will be taken will be the "Arcadians," and the vocalists will be Miss Frances Hamerton's Melodious Four. There is much delightful music in "The Arcadians."

Besides the items from the comedy, there will be many other bright pieces broadcast on Friday. On the elocutionary side, Mr. W. H. Moses has three amusing contributions. The Beresford Banjo Band will play minstrel melodies, and other popular ditties. Selections by the Studio Trio will include an old Irish air.

(Continued on Page 14.)

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NOTES AND COMMENTS

(By "Switch.")

IN America "P" batteries are still greatly in vogue for short-distance reception, as the eliminators have certain disadvantages for short-wave work. The best eliminators frequently intrude a background of hum on short-wave reception, though inaudible on the ordinary broadcast receiver.

A CORRESPONDENT writes to the New York "Radio News," kicking against the extension of the chain system of broadcasting. He says: "Nightly there are 25 stations in one chain. Formerly, we had a diversity of 25 different programmes from those stations—who cares whether it is the highly-paid artists from New York that entertain us? Many times I have thought that undiscovered nincompoops provided better entertainment than those headliners played by the chains. Let freedom of the air go unchallenged. I'm sorry I am not a business man, but I am down among those wage earners where money counts."

TO prevents its scaplanes, when forced down in flight, from being without means of communication, the United States Navy will equip them with short-wave transmitters having hand-driven generators for an emergency. The standard frequency will be 8770 kilocycles, corresponding to 34.19 metres.

IN Gothenburg, Sweden, a new solution for the apartment-house aerial problem has been found, by the suspension of a metal ring in the courtyard of a multiple dwelling. It is held tightly by steel wires; and the radio aerials, to the number of fifty, are attached to it—by insulators, of course—and to the tops of the neighbouring roofs. Each is of the T-type, with a lead-in from the centre; and the assembly is said to resemble a gigantic spiderweb. A charge of about £1 is made for connection to this system. Incidentally, it may be said that the European custom of depending upon one station for entertainment, as only the local can be received consistently with crystal sets, probably makes for less interference than would be thus caused in an American apartment neighbourhood.

A FAN who attempts to use the audio circuit of his radio receiver as an amplifier for phonograph music often finds it inconvenient to remove the detector tube each time he desires to insert the plug from the pick-up unit in the detector socket. This may be avoided by mounting an additional vacuum-tube socket on the baseboard of the set, and connecting it in parallel with the detector socket. With the receiver arranged in this manner, it is necessary only to turn out the filaments of the detector and R.F. tubes, by means of a rheostat on the front panel, and insert the plug from the phonograph in the extra socket.

AT Zeese, about 20 miles south of Berlin, Germany, a broadcast station was recently opened, capable of transmitting with an aerial power of 120,000 watts. The aerial is kept with a fixed tension by a heavy weight hung on pulleys. The wave-length employed is 1,350 metres.

A VACUUM-TUBE transmitting set using a small amount of power, and operating on a wave-length of 7500 metres, and five receiving sets, responding to only one wave-length, control the street-lighting system of Glens Falls, New York State. Street lamp-lighters in that town, like a buggy-whip socket on an automobile, are now out of date. A low-powered valve transmitter, not very dissimilar to the transmitting sets that bring music and speech to our homes, feeds a carrier-current or radio-frequency wave along wires leading to the receiving stations. There radio receivers tuned to that single wave-length, or frequency, respond to the radio wave and, in turn, electric switches are tripped, relays operated, and street lamps lighted.

WELSH members of the English Parliament have united in a demand on the British postmaster-general for the establishment of a broadcast station in Wales, devoted exclusively to programmes in the Welsh language. It is represented that this would be a great stimulus to the sale of radio sets in Wales, as well as of cultural value.

THE filament of a valve is designed to give best results at a definite voltage or current, and at this value, a certain length of life for the filament is obtained. If the valve is operated at a filament voltage higher than the rated value, the electron evaporation is greatly increased, with little, if any, useful gain; but the life of the filament is very greatly reduced. Some filaments do not actually burn out when the voltages are exceeded, but they become "deactivated"; that is, the useful material has disappeared from the surface of the filament. This may often be restored by turning on the valve with somewhat above normal voltages on the filament, and with the plate ("B") battery temporarily disconnected; but prevention is much easier than a cure.

A WAY to eliminate A.C. hum caused by nearby socket-power and other electrical devices, is to shield the troublesome wire with sheet tin or lead-foil, such as comes with friction tape. Cut it into lengths, two inches wide, and wrap the wire with it; then wind over the foil a length of No. 18 bare wire, which is connected to the ground.

Sunday, April 22

1YA AUCKLAND (333 METRES)—SUNDAY, APRIL 22.

3 p.m.: Afternoon session—Selected gramophone items
4.0: Literary selection by the announcer.
4.8: Further selected gramophone items.
4.30: Close down.
6.0: Children's service, conducted by Rev. George Jackson.
6.55: Relay of evening service from Pitt Street Methodist Church.
8.30: Relay of Municipal Organ Recital from Town Hall by Mr. J. Maughan Barnett.
9.30: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, APRIL 22.

11 a.m.: Relay of special Anzac Day service from St. John's Presbyterian Church. Preacher, Rev. J. R. Blanchard. Organist and choir-master, Mr. C. W. Kerry.
12.10 (approx.): Close down.
6.0: Children's service, conducted by Uncle Ernest and assisted by the Thorndon Methodist Choir.
6.55: Relay of evening service from St. Thomas's Anglican Church, Newtown. Preacher, Rev. C. V. Rooke, B.A.; organist and choir-master, Mr. Wenzel H. Collie.
8.15 (approx.): Relay of Wellington Municipal Tramways Band concert from His Majesty's Theatre.
God Save the King.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, APRIL 22.

5.30 p.m.: Children's song service, by Uncle Sam, assisted by scholars from the Congregational Sunday School.
6.30: Relay of evening service from Trinity Congregational Church. Preacher, Rev. Gardner Millar. Organist, Mr. A. M. Mill, L.A.B.
8.0: An after-church concert will be given from 3YA studio by Derry's Military Band, under the conductorship of Mr. E. C. Derry, assisted by 3YA artists, the Melodious Four.
Soprano solo—Miss Frances Hamerton, "In Verdure Clad" from "The Creation" (Haydn).
8.4: Selection—The Band, "His Majesty" (Allan).
8.10: Bass solo—Mr. T. D. Williams, "The Trumpet Shall Sound" from "The Messiah" (Handel), with trumpet obbligato by Mr. R. Ohlson.
8.14: Selection—The Band, "The Dawn of To-morrow" (Gravelle).
8.19: Contralto solo—Miss Belle Renaut, "The Birds of Bethlehem" (Davies).
8.23: Tone poem—The Band, "Finlandia" (Sibelius).
8.34: Tenor solo—Mr. Russell Sumner, "In Native Worth" from "The Creation" (Haydn).
8.38: Allegro Marziale—The Band, "La Ritarata Italiana" (Drusscher).
8.44: Soprano solo—Miss Frances Hamerton, "O, for the Wings of a Dove" (Mendelssohn).
8.48: Selection—The Band, "Humoresque" (Dvorak).
8.53: Bass solo—Mr. T. D. Williams, "My Prayer" (Squire).
8.57: Contralto solo—Miss Belle Renaut, "By the Waters of Babylon" (Dvorak).
9.1: Selection—The Band, "Young England" (Clutsam).
9.7: Tenor and bass duet—Messrs. Russell Sumner and T. D. Williams, "Watchman, What of the Night?" (Sargeant).
9.11: Humoresque—The Band, "A Lightning Switch" (Alford).
9.21: Tenor solo—Mr. Russell Sumner, "Crossing the Bar" (Willeby).
9.25: Vocal quartet—The Melodious Four, "Abide With Me" from "Woman of Samaria" (Bennett).
Close down.

4YA DUNEDIN (463 METRES)—SUNDAY, APRIL 22.

5.30 p.m.: Children's song service, conducted by Big Brother Bill.
6.15: Relay of evening service from St. Paul's Anglican Cathedral. Preacher, Rev. Canon Nevill; organist, Mr. E. Heywood, F.R.C.O.
8.0: Studio concert.
9.15: Close down.

Monday, April 23

1YA AUCKLAND (333 METRES)—MONDAY, APRIL 23.

SILENT DAY.

2YA WELLINGTON (420 METRES)—MONDAY, APRIL 23.

12 noon: Relay of Marlborough Racing Club's meeting at Trentham (by permission of the club).
6 p.m.: Children's hour.
7.0: News session, market reports, and sports results.
7.40: Lecture—Mr. H. C. South, "Books: Grave and Gay."
8.0: Chimes of the General Post Office clock, Wellington.
A Shakespearean evening of song, music, and recital, arranged by Mr. Byron Brown.
8.1: Instrumental trio—Studio Trio, "Dance" from incidental music to "Othello" (Coleridge-Taylor).

8.5: Vocal quartet—Ariel Singers, "Tell Me Where is Fancy Bred" from "Merchant of Venice" (Leslie).
8.10: Recital—Mr. J. Watchman, "The Merriment and Wisdom of the First Gravedigger" from "Hamlet."
8.16: Vocal duet—Messrs. Roy Hill and J. M. Caldwell, "It Was a Lover and His Lass" (Morley).
8.20: Recital—Miss Dorothea Vautier, "Portia's Description of Her Suitors" from "Merchant of Venice."
8.23: Mezzo-contralto solo—Miss Ngaire Coster, "The Willow Song" from "Othello."
8.28: Dialogue—Messrs. Byron Brown and Barton Ginger, "Quarrel Scene between Brutus and Cassius" from "Julius Caesar."
8.34: Instrumental trio—Studio Trio, (a) "Children's Intermezzo"; (b) "Military March" from music incidental to "Othello" (Coleridge-Taylor).
8.44: Lecture—Mr. Byron Brown, "Shakespeare and St. George."
8.59: Weather report and forecast.
9.1: Vocal quartet—Ariel Singers, "Who is Sylvia?" from "Two Gentlemen of Verona" (German).
9.6: Recital—Mr. S. Tingey, "Mark Anthony's Oration over the Dead Body of Caesar" from "Julius Caesar."
9.10: Tenor solos—Mr. Roy Hill, (a) "Take, O Take Those Lips Away" (Quilter); (b) "Heidi Ho, the Wind and the Rain" (Quilter).
9.17: Recital—Mrs. Martyn Williams, "Queen Katherine's Defence" from "Henry VIII."
9.22: Vocal duet—Misses Jeanette Briggs and Ngaire Coster, "Orpheus With His Lute" (Wood).
9.27: Dialogue—Mrs. Burgess and Mr. Byron Brown, "Rosalind's Banter of her Lover, Orlando," from "As You Like It."
9.33: Bass solos—Mr. J. M. Caldwell, (a) "O, Mistress Mine," from "Twelfth Night" (Yates); (b) "Blow, Blow, Thou Winter Wind" (Quilter).
9.40: Instrumental trios—Studio Trio, (a) "Morris Dance"; (b) "Shepherd's Dance"; (c) "Torch Dance" from "Henry VIII Dances," by Edward German.
9.50: Recital—Mrs. Theo. Hills, "Queen Margaret's Scorn of the Duke of York."
9.55: Vocal quartet—Ariel Singers, "How Sweet the Moonlight Sleeps" from "Merchant of Venice" (Bartholomew).
10.0: God Save the King.

3YA CHRISTCHURCH (306 METRES)—MONDAY, APRIL 23.

3 p.m.: Afternoon concert session—Selected studio items.
6.0: Children's session—Uncle Jack.
7.15: News session.
8.0: Chimes and overture.
Miss Lucy Cowan and members of her Dramatic Society, in conjunction with the Madame Gower-Burns Grand Opera Quartet and the Christchurch Broadcasting Quartet, will broadcast a Shakespearean programme.
Professor J. Shelley, of Canterbury College, will speak on "The Plays of Shakespeare."
Vocal quartet—Madame Gower-Burns's Grand Opera Quartet, "Under the Greenwood Tree" from "As You Like It."
Shakespearean recital—Mr. J. F. Cannell, "King Henry the Fifth," Act III, Scene 5.
Harlequin owes its most stirring memory in the minds of the people to Shakespeare's description of the termination of a six weeks' siege in a burst of martial enthusiasm from King Henry the Fifth, wherein he rouses his sick and dispirited army to herculean effort, resulting in the possession of the fortress, September 22, 1415. The King urges them into action in the name of England and St. George! In the Wars of the Crusades, St. George is said to have appeared at the head of a large army, carrying a banner, with a red cross engraved upon it, and in a vision Richard Cœur de Lion was bidden to take for his battle-cry, "Saint George for England." In the year 1222 the Festival of Saint George assumed a national character, and in the reign of Edward the Third he was definitely recognised as the nation's patron saint. The Union Jack, the National Flag of Great Britain and Ireland, consists of a combination of the three crosses of St. George, St. Andrew, and St. Patrick, denoting the Union of England, Scotland, and Ireland.
Vocal quartet—Grand Opera Quartet, "How Sweet the Moonlight Sleeps Upon this Bank" from "Merchant of Venice" (Caldott).
Address—Professor J. Shelley, "The Plays of Shakespeare."
Soprano solo—Madame Gower-Burns, "Bid Me Discourse" (Bishop).
Baritone solo—Mr. Bernard Rennell, "No More Dams I'll Make for Fish" (Caliban's song from "The Tempest"), (Smith).
Excerpts from "Much Ado About Nothing," Scenes 1, 2, and 3.
Tenor solo—Mr. Harold Prescott (Balthazar), "Sigh No More, Ladies."
Cast of Characters:

Don Pedro, Prince of Arragon—Mr. Ronald Foster.
Leonata, Governor of Messina—Mr. Dick Wills.
Claudio, a young Lord of Florence—Mr. Charles Clayton.
Hero, daughter to Leonata—Miss Ivy Fowler.
Benedick, a young Lord of Florence—Mr. Bert Goodland.
Balthazar, servant to Don Pedro—Mr. Harold Prescott.
Beatrice, niece to Leonata—Miss Gladys O'Connell.
Margaret, waiting-gentlewoman to Hero—Miss Ida Cooper.
Ursula, waiting-gentlewoman to Hero—Mrs. Hugh McLeod.
(The members of the household of Leonata, Governor of Messina, conceive a plot whereby the opposing wits, Beatrice and Benedick, are brought into a mutual regard for each other.)
Violin solo—Miss Irene Morris, "La Berceuse" (Couperin-Kreisler).
Vocal quartet—Grand Opera Quartet, "Ye Spotted Snakes" from "Midsummer Night's Dream" (Mendelssohn).
Contralto solo—Mrs. Anne Harper, "When Daisies Pied" from "Love's Labour Lost" (Arne).
Instrumental quintet (Miss Irene Morris and Mr. J. L. Beck, violins; Mr. Joseph Mercer, viola; Mr. Harold Beck, cello; and Miss Aileen Warren, piano)—"Henry VIII Dances" (German).
Weather report and forecast.
Scene from "King Henry the Eighth," Act II, Scene 4, a hall in Blackfriars.

Cast:

Crier—Mr. J. F. Cannell.
Queen Katherine, wife to Henry the Eighth—Miss Lucy Cowan.
Cardinal Wolsey, Archbishop of Canterbury—Mr. Frank Foster.
Griffith, gentleman usher to Queen Katherine—Mr. Bert Goodland.
(Queen Katherine, first wife to Henry the Eighth, makes a vain appeal to retain her position, but, failing, denounces Cardinal Wolsey.)
Soprano solo—Madame Gower-Burns, "Orpheus With His Lute" (Sullivan).
Soprano solo and quartet—Madame Gower-Burns (soloist), Mrs. Anne Harper, Messrs. Harold Prescott, and Bernard Rennell, "It Was a Lover and His Lass" (arr. W. Davies).
Excerpt from "As You Like It," Act IV, Scene 4, in the Forest of Arden.

Cast:

Orlando, son of the late Sir Rowland de Boys—Mr. Dick Wills.
Rosalind, daughter of the banished Duke—Miss Maiona Juriss.



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Celia, daughter of the usurping Duke—Miss Olive Braisher.

(Rosalind and her cousin, Celia, respectively daughters of the Duke Senior and the usurping Duke, having left the Court in search of Rosalind's father, meet with the youth Orlando, whose eldest brother had banished him from the home of his late father, Sir Rowland de Boys. Rosalind, who, for protection both on account of herself and her cousin, Celia, is attired in boy's clothes, and answers to the name of Ganymede, recognises in Orlando the plucky winner of a wrestling contest with Charles the Wrestler at a former Court function, and on which occasion they had fallen in love with each other. Orlando, though attracted by a likeness to his adorable Rosalind, does not recognise her, but talks incessantly of his love for the presumably absent lady. Rosalind allows him to mimic making love to her.)

Violin solo—Miss Irene Morris, "Waltz" (Brahms).

Vocal quartet—Grand Opera Quartet, "Blow, Blow, Thou Winter Wind" (Stevens).

Instrumental quintet—"Merchant of Venice" (Rosse).

Baritone solo—Mr. Bernard Rennell, "Let Me the Caniken Clink" from "Othello" (Loomis).

Excerpts from "Othello," Act IV, Scene 3, and Act V, Scene 2.

Cast:

Emilia, wife to Iago—Miss Lucy Cowan.

Desdemona, wife to Othello—Miss Phair Thompson.

(In the castle at Cyprus, residence of Othello, General in the Venetian State. Through the villainy of Iago who desires to supplant Othello's Lieutenant, Cassio, Desdemona is wrongly accused by Othello of infidelity. Emilia philosophises over worldly possessions. Desdemona retires. Othello enters, and, in a frenzy of unfounded jealousy, murders her.)

The following song, "The Willow Song" is supposedly sung by Desdemona—

Contralto solo—Mrs. Anne Harper, "The Willow Song" (Coleridge-Taylor).

Operatic trio—Madame Gower-Burns (Desdemona), Mrs. Anne Harper (Emilia), and Mr. Harold Prescott (Othello), "Emilia's Denouncement of Othello" (from Boito's "Libretto"), (Verdi).

Pianoforte solo—Miss Aileen Warren, "Children's Intermezzo" from "Othello" (Coleridge-Taylor).

Tenor solo—Mr. Harold Prescott, "O, Mistress, Mine," from "Twelfth Night" (Coleridge-Taylor).

Scene from "Taming of the Shrew," Act II, Scene 1, in Baptista's house, Padua.

Cast:

Petruchio, gentleman, of Verona—Mr. J. F. Cannell.

Katherina, daughter to Baptista—Miss Lucy Cowan.

(Petruchio, a gentleman of Verona, is humorously fascinated by tales of the vixenish temper of Katherina, who treats everybody with the disdain she bears them, especially the men. Petruchio vows he will marry her, tames her by drastic methods. His astounding impudence results in doing so. The scene now presented deals with his first declaration in that direction.)

Extract from the opera, "Romeo and Juliet" (Gounod).

Operatic Group Cast (under the direction of Madame Gower-Burns)—

Juliet—Madame Gower-Burns.

Romeo—Mr. Harold Prescott.

Mercutio—Mr. Bernard Rennell.

(Shakespeare's noble romance, "Romeo and Juliet." Mercutio rallies Romeo upon his pensive mood. In the "Waltz Song," as composed by Gounod, Juliet enters into the spirit of the revels in her father's house. The duet describes the attraction between Romeo and Juliet.)

Baritone solo—Mercutio, "Queen Mab."

Soprano solo—Juliet, "Song, Jest, Perfume, and Dance."

Soprano and tenor duet—Romeo and Juliet, "O, Shrine of Beauty."

Vocal quartet—Grand Opera Quartet, "Good Night" (Steele).

God Save the King.

4YA DUNEDIN (463 METRES)—MONDAY, APRIL 23.

SILENT DAY.

Tuesday, April 24

1YA AUCKLAND (333 METRES)—TUESDAY, APRIL 24.

3 p.m.: Afternoon session—Selected gramophone items.

4.0: Literary selection, by the Announcer.

4.3: Further selected gramophone items.

4.30: Close down.

6.0: Children's hour—Uncle George.

7.15: News and reports.

8.0: An evening with Shakespeare, arranged by Mr. J. F. Montague.

Chimes.

8.1: Lecturette—Mr. Culford Bell, "Introductory Talk on Shakespeare."

8.7: Speech—Miss Phyllis Torpy, Lorenzo's speech, "The Power of Music" (Shakespeare).

8.11: Scene—Messrs. J. F. Montague, Montagu Steel, Alan McElwain, and Leslie Dakin, "Graveyard Scene" from "Hamlet," Act V, Scene 1 (Shakespeare).

8.18: Solo—Mr. Arthur Ripley, "Sigh No More Ladies" (Fisher).

8.21: Scene—Mr. J. Gordon and Miss Gordon, scene from "Romeo and Juliet," Act III, Scene 5 (Shakespeare).

8.26: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Three Dances" from "Henry VIII" (German).

8.32: Vocal quartet—Madame Irene Ainsley's Quartet, "Under the Greenwood Tree" (Horne).

8.36: Elocutionary—Mr. Culford Bell, "Mark Anthony's Oration" from "Julius Caesar," Act III, Scene 2 (Shakespeare).

8.41: Scene—Miss Daphne Knight, "Letter Scene" from "Macbeth," Act I, Scene 5 (Shakespeare).

8.47: Baritone solos—Mr. Ernest Snell, (a) "Mistress, Mine" (Levey); (b) "And Let Me the Caniken Clink" (Loomis).

8.52: Recitations—Mr. J. F. Montague, (a) "On Sleep" from "Henry IV"; (b) "Agincourt Speech" from "Henry V" (Shakespeare).

8.58: Weather report and forecast.

9.0: Scene—Miss Mary Day and Miss Kathleen Harvey, scene from "Twelfth Night," Act I, Scene 5.

9.8: Violin solo—Miss Ina Bosworth, "The Admiral's Galliard" (Moffat).

9.12: Contralto solo—Madame Irene Ainsley, "Orpheus With His Lute" (Sullivan).

9.16: Scene—Mr. Montagu Steel (Duke), Miss Iris Andrews (Viola), Mr. Alan McElwain (Clown), scene from "Twelfth Night," Act II, Scene 4.

9.23: Duet—Madame Irene Ainsley and Miss Irene Rogers, "I Know a Bank Where the Wild Thyme Blows" (Horne).

9.27: Scene—Mr. Alan McElwain (Dogberry), Mr. Leslie Dakin (Verges), Mr. Culford Bell (Sexton), Mr. Bankman (Conrade), Mr. Helier

(Borachio), "Comedy Scene" from "Much Ado About Nothing," Act IV, Scene 2 (Shakespeare).

9.34: Instrumental trio—Bosworth-Hemus-Towsey Trio, incidental music to "As You Like It" (Quilter).

9.39: Baritone solo—Mr. Ernest Snell, "The Pedlar's Song" from "A Winter's Tale" (Wilson).

2.51: Scene—Mr. Culford Bell (King), Mr. J. F. Montague (Gloster), "Tower Scene" from "Henry VI," Part 3 (Shakespeare).

9.56 Excerpts from "Romeo and Juliet" (Gounod), produced under the direction of Madame Irene Ainsley.

Cast:

Juliet—Miss Airini Rogers.

Romeo—Mr. Arthur Ripley.

Friar Laurence—Mr. Walter Brough.

To Shakespeare's immortal love story, the libretto hardly does justice. The ill-fated lovers, however, are given very beautiful music to sing, music which, at times, takes us back to the "Garden Scene" in "Faust." The opera has been called a "Love Duet with Interruptions."

Juliet—"Waltz Song."

Madrigal—"O Shrine of Beauty."

Romeo and Juliet—"Night All Too Blessed."

Romeo, Juliet, and Friar Laurence—"O, Smile, Fair Heaven."

Quartet—"Finale."

10.16: God Save the King.

2YA WELLINGTON (420 METRES)—TUESDAY, APRIL 24.

3 p.m.: Chimes of the G.P.O. clock.

3.1: Selected gramophone items.

4.55: Sports results.

5.0: Close down.

6.0: Children's session—Uncle Jasper.

7.0: News session, market reports, and sports results.

7.40: Lecturette—"For the Man on the Land," by a representative of the Agricultural Department.

8.0: Chimes of the G.P.O. clock.

8.1: Overture—"Washington Greys' March" (Graffula).

8.5: Vocal quartet—Orpheus Quartet, "Long Ago" (Old English).

8.10: Italian mandolin solos—Mr. Lad Haywood, (a) "Valse de la Reine" (Coleridge-Taylor); (b) "Gavotte" (Handel).

8.17: Contralto solo—Miss Lily Mackie, "Evening Boat Song" (Schubert).

8.21: Instrumental trio—Symons-Ellwood-Short Trio, "First Movement in E Minor Trio" (Parry).

8.31: Elocutionary—Mr. Stanley Warwick, "Early English History" (Wood).

8.36: Cello solo—Mr. Geo. Ellwood, "Largo" (Bounoucin).

8.41: Vocal duet—Mrs. Alice Harris and Mr. Arthur Coe, "Night Hymn at Sea" (Stafford).

8.45: Duo for two pianos—Misses Myrtle Mackay and Vera Macdonald, "Don Juan Fantasie" (Mozart-Lysberg).

8.52: Baritone solos—Mr. Ray Kemp, (a) "Old Barty" (Grant); (b) "Old English Love Song" (Allitsen).

8.59: Clarinet solo—Mr. A. H. Wright, "Come, Sing to Me" (Thompson).

9.4: Weather forecast.

9.5: Organ solos—Mr. H. Temple White, (a) "Hero's Song" (Volkmann); (b) "The Death of Ase" (Greig); (c) "Land of Hope and Glory" (Elgar).

9.20: Soprano solo—Mrs. Alice Harris, "One Fine Day" from "Madame Butterfly" (Puccini).

9.24: Instrumental trios—Studio Trio, (a) "Andante" from "Pathetique Symphony" (Tschalkowsky); (b) "Flower Waltz" (Tschalkowsky).

9.34: Vocal quartet—Orpheus Quartet, "The Lark Now Leaves His Watery Nest" (Calcott).

9.38: Cello solo—Mr. Geo. Ellwood, "Allegro Apassionata" (Saint-Saens).

9.43: Tenor solo—Mr. Arthur Coe, "Farewell to Summer" (Johnson).

9.47: Clarinet solo—Mr. A. H. Wright, "Air Varie."

9.51: Elocutionary—Mr. Stanley Warwick, "Cheese" (Jerome).

9.57: English mandola solos—Mr. Lad Haywood, (a) "Lazy Honolulu" (Sogdon); (b) "Love Will Find a Way" (Simson).

10.3: Vocal quartet—Orpheus Quartet, "It Was a Lover and His Lass" (Ambrose).

God Save the King.

3YA CHRISTCHURCH (306 METRES)—TUESDAY, APRIL 24.

SILENT DAY.

4YA DUNEDIN (463 METRES)—TUESDAY, APRIL 24.

3 p.m.: Town Hall chimes.

3.1: His Master's Voice recital.

3.30: Social notes and news.

3.40: Gramophone recital.

4.0: Address on "The Domestic Uses of Electricity," by Mr. G. J. Butcher, of Turnbull and Jones, Ltd.

4.15: His Master's Voice recital.

4.30: Close down.

6.0: Children's hour—Big Brother Bill.

7.15: News session.

7.30: An address by Mr. R. W. Marshall, of the Government Tourist Department.

8.0: Town Hall chimes. Concert by the St. Kilda Band, and items by assisting artists.

8.1: March—The band, "The Umpire" (Greenwood).

8.5: Baritone solos—Mr. Reg. Richards, (a) "Alone" (Lohr); (b) "Lady Mine" (Lohr).

8.11: Cornet solo—St. Kilda Band (soloist, Mr. George Christie), "Because" (d'Hardelot).

8.16: Recitation, Miss Anita Winkel, "He Didn't Oughter" (Herbert).

8.21: Selection—St. Kilda Band, "Gems of Irish Melody" (arr. Hume).

8.36: Contralto solo—Miss Dorothy Skinner, "A Song of Thanksgiving" (Allitsen).

8.40: March—St. Kilda Band, "Rubenstein" (arr. Bidgood).

8.45: Address—Pastor W. D. More.

9.0: Selection—St. Kilda Band, "Well Known Hymns."

9.8: Bass solos—Mr. F. C. Cooper, (a) "If I Were King" (Sullivan); (b) "They're Far Away" (Booth).

9.15: Waltz—St. Kilda Band, "Queen of Erin" (Douglas).

9.25: Recitations—Miss Anita Winkel, (a) child impersonation, "I've Lost My Dog" (Green); (b) "Twenty, Thirty, Forty."

9.35: Baritone solo—Mr. Reg. Richards, "Nelson's Gone a-Sailing" (Lohr).

9.38: Fantasia—St. Kilda Band, "Clarendon" (Greenwood).

9.44: Contralto solos—Miss Dorothy Skinner, (a) "Angus Macdonald" (Roeche); (b) "John Anderson, My Joe" (Masefield).

9.52: March—St. Kilda Band, "Machine Gun Guards" (Marechal).

9.56: Bass solo—Mr. F. C. Cooper, "Simon the Cellarer" (Hatton).

10.0: God Save the King.

Wednesday, April 25

1YA AUCKLAND (333 METRES)—WEDNESDAY, APRIL 25.

10.0 a.m.: Relay description of Returned Soldiers' March to Cenotaph and service thereat.

11.0: Relay of Anzac Memorial Service from the Auckland Town Hall.

7.30: Relay of Anzac Memorial church service from St. Matthew's Church. Preacher, Rev. Canon Grant Cowan. Organist, Mr. J. L. Phillipot.

8.30: Close down.

2YA WELLINGTON (420 METRES)—WEDNESDAY, APRIL 25.

3 p.m.: Relay of Anzac Day Memorial Service from the Town Hall, Wellington.

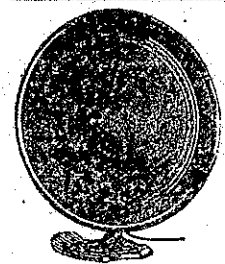
3YA CHRISTCHURCH (306 METRES)—WEDNESDAY, APRIL 25.

2.30 p.m.: Relay of Citizens' Anzac Memorial Service, under auspices of the Returned Soldiers' Association, from King Edward Barracks.

Special service with choral items by grand choir.

7.30 to 9 p.m.: Relay of Anzac Day eveningservice from St. Paul's Presbyterian Church (under auspices of Christchurch Ministers' Association).

Chairman, Rev. D. Gardner-Miller. Secretary, Rev. A. W. Stuart. Special speaker for evening service, Rev. J. Robertson, M.A.



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CHRISTCHURCH.



It is reported by the Mr. Bourne "Listener-in" that "Station 2BL has engaged Gordon Ireland, one of New Zealand's most popular radio entertainers, for a series of appearances. Mr. Ireland, who was one of the first artists to broadcast in the Dominion, is a versatile entertainer at the piano, specialising in comedy, dramatic, popular numbers, and character sketches. For six months he was with the New Zealand Broadcasting Co., Ltd., at its Christchurch station, 3YA, where his work earned him a Dominion-wide reputation. He will make his initial debut to 2BL during the coming week."

The object of soldering is to unite metal surfaces by means of a lead-tin alloy, called solder. In some work, such as tinsmithing, metals are soldered merely to fasten them together mechanically. In most electrical work, soldering is done, not only to fasten two metals together mechanically, but also to exclude air and moisture, and provide a joint which offers a very low resistance to the flow of current, and which continues to do so for an infinite length of time. The melting point of solder depends upon the proportions of lead and tin in its composition. "Hard solder" is an alloy of zinc and copper, which melts at a dull red heat. "Soft solder" contains various proportions of lead and tin, and melts at a much lower temperature. The solder used most in electrical work consists of lead and tin in equal proportions, and is commonly known as "half and half." It can be obtained in bars, wire, or ribbon.

An unusual scene was staged recently in a London courtroom, when a large instalment house dealing in radio and other equipment brought suit against 541 of its customers, who had entered into "hire-purchase" agreements, for balances due, varying from five shillings up to five pounds. Judgments were given by the presiding Magistrate for payments in monthly amounts, varying from two shillings up, according to the circumstances of the defendants.

BUILDERS of radio sets usually wish their panels engraved, to make a neat appearance, and give the cabinet a professional look. A simple method of doing this is to mark the arrows, letters, or whatever is to be engraved, on the panel with a lead pencil. A prick-punch with a sharp point is then used to go over the lines drawn, tapping lightly. With a little practice, these punch marks can be made to give the panel a fine appearance. The small holes can be filled with engraving enamel or whitening, or left as they are.

IN order to obtain long life and satisfactory service from rectifiers and condensers of the electrolytic type, it is essential that nothing but pure distilled water be added to the electrolyte. This rule is just as essential in the operation of electrolytic cells as in the case of storage batteries: for, if city water from the pipes in the house is used, the mineral contents may cause a chemical action, which will destroy the efficiency of the unit.

LIKE most neglected things, the grid-leak is a most important adjunct to the circuit, and, correctly handled, provides a systematic control over the reaction. If the leak is of too small a value, the reaction coil cannot be approached to anything like close coupling without the set going into oscillation. On the other hand, if the value is too high, it will be found that the set will go into oscillation before the signal strength has reached its maximum. Between these two extremes exists the ideal setting. A variable grid leak is almost a necessity in most modern circuits. The majority of listeners-in, and even a number of experimenters, take the value of the grid leak too much for granted; a fixed leak can only give complete satisfaction under exceptional circumstances. The only solution of the difficulty lies in the use of a variable unit, one having a range from 500,000 ohms to five megohms being recognised as covering the requirements of most valves.

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Programmes Continued

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4YA DUNEDIN (463 METRES)—WEDNESDAY, APRIL 25.

3 p.m.: Relay of Anzac Day Memorial Service from the Kensington Drill Hall.
4.30: Address from studio—"Landing on Gallipoli," Mr. J. Butel.

Thursday April 26

1YA AUCKLAND (333 METRES)—THURSDAY, APRIL 26.

3 p.m.: Afternoon session—Selected gramophone items.
4.0: Literary selection by the announcer.
4.8: Further selected gramophone items.
4.30: Close down.
6.0: Children's hour—Peter Pan.
7.15: News and reports, book review.
8.0: Chimes.
8.1: Relay of overture from Majestic Theatre Orchestra, under the direction of Mr. J. Whiteford-Waugh.
8.10: Vocal quartet—Mr. Barry Coney's Quartet, "The Forester" (Sterling).
8.14: Flute solo—Mr. Victor Bedford, "Phantasia—Il Trovatore" (Verdi).
8.19: Baritone solo—Mr. H. Barry Coney, "Prize Song" (Wagner).
8.23: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Finale from 3rd Trio" (Haydn).
8.33: Soprano solo—Miss Dorothy Youd, "The Great Awakening" (Kramer).
8.37: Tenor solo—Mr. Geo. Barnes, "Ay, Ay, Ay" (Freire).
8.41: Pianoforte solo—Mr. Cyril Towsey, "Prelude in C Sharp Minor" (Rachmaninoff).
8.46: Vocal trio—The Snappy Three, (a) "Lucky Day" (Henderson); (b) "That's All There Is" (Ager).
8.55: Lecturette—Mr. Culford Bell, "Great Authors."
9.5: Relay of Entr'acte from Majestic Theatre Orchestra under the direction of Mr. J. Whiteford-Waugh.
9.14: Weather report and forecast.
9.15: Contralto solos—Miss Martha Williamson, (a) "Shepherd's Cradle Song" (Somervell); (b) "Ye Banks and Braes" (traditional).
9.23: Baritone solo—Mr. Barry Coney, "Peter Warlock's Fancy" (Warlock).
9.27: Flute solo—Mr. V. Bedford, (a) "Berceuse" (Kohler); (b) "Song Without Words" (Clinton).
9.34: Soprano solo—Miss D. Youd, "A Farewell" (Liddle).
9.38: Vocal trio—The Snappy Three, (a) "Just Like a Butterfly" (Richards); (b) "Piano Medley"; (c) "You Don't Like It—Not Much" (Cohn).
9.47: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Sylvia Ballet" (Delibes).
9.57: Tenor solo—Mr. Geo. Barnes, "Santa Lucia" (traditional).
10.1: Vocal quartet—Mr. Barry Coney's Quartet, "Laughing Chorus" (Root).
10.5: God Save the King.

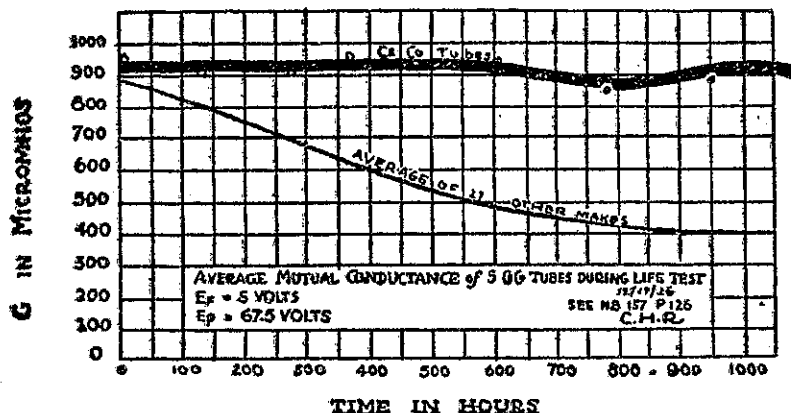
2YA WELLINGTON (420 METRES)—THURSDAY, APRIL 26.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
4.25: Sporting results to hand.
4.30: Selected gramophone items.
4.55: Sports results to hand.
5.0: Close down.
6.0: Children's session—Uncle Jasper.
7.0: News session, market reports and sports results.
8.0: Chimes of the General Post Office clock.
Studio concert by Wellington Municipal Tramways Band, under the conductorship of Mr. T. Goodall.
8.1: March—Wellington Municipal Tramways Band, "Simplicity" (Ord Hume).
8.6: Vocal quartet—Clarian Quartet, "Winter Song" (Bullard).
8.10: Baritone solo—Mr. Ray Kemp, "Eleanore" (Coleridge-Taylor).
8.14: Overture—Wellington Municipal Tramways Band, "Mirella" (Gounod).
8.23: Tenor solo—Mr. W. Hancock, "I'll Sing to You" (Thompson).
8.27: Waltz—Wellington Municipal Tramways Band, "The Bridal Rose" (Trussell).
8.33: Bass solo—Mr. J. Cooke, "A Sailor Man's a Man" (German).
8.37: Vocal trio—The Clarian Trio, "Farewell" (Sicher).
8.41: Selection—Wellington Municipal Tramways Band, "Love and Laughter" (Strauss).
8.50: Soprano solos—Miss Nora Gray, (a) "A Green Cornfield" (Head); (b) "A Song of Morning" (Cowan).
8.56: Recitation—Miss Violet Wilson, "Mrs. Paggley's Juvenile Party."
9.1: Weather report and forecast.
9.2: Tenor solos—Mr. Frank Skinner, (a) "Who is Sylvia?" (Quilter); (b) "Take a Pair of Sparkling Eyes" (Sullivan).
9.8: Grand march—Wellington Tramways Band, "Festival March" (Bantock).
9.15: Vocal quartet—The Clarian Quartet, "Lucky Day" (Henderson), arr. Len. Barnes).
9.19: Fox-trot—Wellington Municipal Tramways Band, "That's Why I Love You" (Donaldson).
9.24: Baritone solo—Mr. Ray Kemp, "A Song of the North Wind" (Head).
9.28: Soprano solos—Miss Nora Gray, (a) "Snowflakes" (Cowan); (b) "Lindy Lou" (Strickland).
9.34: Selection—Wellington Municipal Tramways Band, "Mercandante" (Round).
9.43: Recitations—Miss Violet Wilson, (a) "Quite Clear"; (b) "Nothing Suits Him."
9.50: Tenor solo and quartet—Mr. W. Hancock and Clarian Quartet, "The Young Recruit" (Kucken).
9.54: March—Wellington Municipal Tramways Band, "Odeon" (Pryor).
10.0: God Save the King.

3YA CHRISTCHURCH (303 METRES)—THURSDAY, APRIL 26.

3 p.m.: Afternoon concert session—Selected studio items.
4.25: Sports results.
6.0: Children's hour—Chuckie.
7.15: News session.

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IN Dr. Alexander's system of television recently demonstrated in America, there is a revolving disc at the transmitting end, and a revolving disc at the receiving end, both driven by motors. When the receiver is first started, the speed of its motor is far below that of the one at the transmitter, and the resultant image is a straight line of light. As the motor is brought nearer and nearer to synchronous speed, this line of light breaks up into a series of parallel lines, slanting first one way, and then the other. Then there appears a distorted image of a face, again breaking up into splashes of light and dark. Finally, when the two motors are running in synchronism, a true image may be seen on the lens.

It is seldom that such broadcasters as KDKA, Pittsburgh, and others west of the smoky city sign off because of an SOS. But the fifty-two transmitters nestled in the metropolitan area of New York go off the air immediately; because the big transmitter known as WNY, at Bush Terminal, in Brooklyn, N.Y., or that of NAIL, at the Brooklyn Navy Yard instantly endeavours to calm the other, and establish communication with the ship in distress, or with other vessels in the immediate vicinity. A 2-kilowatt "spark" transmitter is used at such times, because it radiates a much broader wave than a vacuum-tube outfit, and, therefore, is more likely to be intercepted by a greater number of stations when it broadcasts "QRT (stop transmitting), ship in distress."

IN the United States, a group of philanthropists is at work on a plan to offer free of charge to every school in the United States, the broadcast services of pre-eminent teachers to assist in the work of the faithful resident teachers. For good measure, it plans to add music and talks of outstanding national leaders, men and women who are making history. Leading educators are co-operating in the movement. With such prospects in view, and with radio receivers available everywhere, it is no wonder that schools are hurrying to install equipment. One located in Brooklyn, adjacent to New York city, is considering estimates for installing a master receiver with eighty loud-speakers in the classrooms.

A MODERATELY powered amplifier, using valves of the 112 or 171 type, with plates supplied from a 150 or 180-volt source, can, in most circumstances, give results that will satisfy the most critical. The main advantage to be expected through the use of higher power is a gain in volume, and the increased realism that comes in having, let us say, the volume of an orchestra, as it comes from the speaker, equal or exceed that of the orchestra itself. However, it is obvious that the average set-owner is not desirous of having a twenty or sixty-piece orchestra going full tilt in his or her living room. In a small room—and many rooms are small nowadays—this would be unpleasant, even painful. Therefore, an amplifier capable of giving this volume could seldom be used.

THIS leads from the wet battery, whether it be "A" or "B," will soon lie across the vents and become impregnated with the electrolyte and eaten away. When the battery is on charge the spray rapidly eats into the battery leads. One method of preventing such corrosion is to soak the leads for about a foot or two of their length in melted paraffin. For this operation a coffee can placed upon the kitchen stove is very satisfactory in impregnating the leads. The first one or two feet of the wire is simply crammed into the can of melted paraffin and allowed to remain for several minutes for sufficient penetration.

COATING radio valves with paraffin is an easy method of silencing microphonic noises and other disturbances to which some are subject. To shield valves by this method it is necessary only to heat a little paraffin, bringing it to liquid state. Pour it immediately into a small jelly glass, filling the glass to a depth of about two inches. Hold the valve to be coated by the base and insert it upside down into the glass. The displacement will cause the paraffin to rise, thoroughly coating the surface of the glass. Care should be taken not to allow the paraffin to rise beyond the top of the base. Withdraw the valve and allow any drops to fall back into the glass. This coating will quickly harden, after which the valve should be dipped again. Should any of the paraffin get on the base it may be scraped off with a knife. Do not let the paraffin get too hot. It should be poured from the pan into the glass as soon as it reaches a liquid state, and allowed to stand in the glass a minute or so before dipping.

ALTHOUGH European listeners are held strictly to payment of a fee for the privilege of owning receiving sets, in Bavaria they are allowed a week's free trial of a set purchased on approval, without taking out a license. In England, however, the radio magazines complain, a number of public functionaries seem to be of the opinion that it is an offence against the law to purchase a radio set without having a license in advance. This places radio apparatus somewhat in the category of revolvers and narcotics. Reasonable latitude is permitted in New Zealand when a prospective buyer is using a set for a few days merely on trial.

7.30: Talk on poultry by Mr. H. W. Beck, "How to Select Prospective Good Layers."
8.0: Chimes and overture.
8.8: Soprano solo—Miss Mary Shaw, "High on the Sleepy Hills" (Loughborough).
8.12: Cello solo—Mr. Harold Beck, "After a Dream" (Faure).
8.15: Tenor solo—Mr. T. G. Rogers, "When a Charmer Would Win Me" (Verdi).
8.19: Ukulele with vocal accompaniment—Mr. Roy August, "At Sundown" (Donaldson).
8.23: Humorous recitation—Miss Winifred Smith, "The Newlyweds."
8.28: Contralto solo—Miss Nellie Lowe, "Songs My Mother Sang" (Grimshaw).
8.32: Instrumental trio—Christchurch Broadcasting Trio, "Andante From Trio in E Flat" (Hummel).
8.42: Baritone solo—Mr. A. G. Thompson, "Simon the Cellarer" (Hatton).
8.46: Pianoforte solo—Miss Aileen Warren, "Nocturne in Form of Valse" (Besley).
8.50: Vocal quartet—The Dulcet Quartet, "Comrade in Arms" (Adam).
9.0: Weather report and forecast.
9.5: Overture.
9.10: Tenor solo—Mr. T. G. Rogers, "The Blue Alsatian Mountains" (Adams).
9.14: Cello solo—Mr. Harold Beck, "Minuet" (Mozart).
9.18: Soprano and contralto duet—Misses Mary Shaw and Nellie Lowe, "Where the Chestnuts Bloom" (Newton).
9.22: Pianoforte solo—Miss Aileen Warren, "Scherzo in B Flat Minor" (Chopin).
9.26: Baritone solo—Mr. A. G. Thompson, "If All the Young Maidens" (Lohr).
9.30: Instrumental trios—Christchurch Broadcasting Trio, (a) "Cantabile" (Widor); (b) "Minuetto" (Borresen).
9.40: Soprano solo—Miss Mary Shaw, "The Dreary Steppe" (Gretchaninov).
9.44: Humorous recitations—Miss Winifred Smith, (a) "Washing Day"; (b) "Cupid's Mistake."
9.49: Contralto solo—Miss Nellie Lowe, "Castill'an Maid" (Lehmann).
9.53: Ukulele with vocal accompaniment—Mr. Roy August, "There's Everything Nice About You" (Wendling).
9.58: Tenor solo—Mr. T. G. Rogers, "Lolita" (Buzzi-Peccia).
Vocal quartet—Dulcet Quartet, "Come to the Fair" (Martin).
10.5: God Save the King.

4YA DUNEDIN (463 METRES)—THURSDAY, APRIL 26.

7 p.m.: Town Hall chimes.
7.1: Request gramophone concert.
7.30: News session.
8.0: Town Hall chimes.
8.1: Light orchestral music relayed from Octagon Theatre.
8.11: Light soprano solos—Miss Dorothy West, (a) "If You Look in Her Eyes"; (b) "Going Up," from "Going Up" (Hirsch).
8.18: Humorous stories—Mr. Allan Young.
8.28: Humorous song—Mr. Chas. Rowand, "I Used to Sigh For the Silvery Moon" (Darczewski).
8.34: Hawaiian guitar duets—Messrs. Sheehy and Campbell, (a) "I Love You Hawaii" (Cortez); (b) "Aloha Land."
8.40: Humorous recitation—Mr. Carl Moller, "An Insurance Agent" (Milne).
8.46: Light mezzo-soprano solos—Miss Mollie Andrews, (a) "Romance"; (b) "In Yorkshire," from "Our Miss Gibbs" (Monckton).
8.52: Light baritone solo—Mr. J. B. McConnell, "Just Once Again" (Ash).
8.57: Weather report and forecast.
9.0: Orchestral interlude from the Octagon Theatre.
9.10: Light soprano solo—Miss Dorothy West, "There's a Brand New Hero," from "Going Up" (Hirsch).
9.14: Humorous recitals—Mr. Allan Young, (a) "Levinsky Buys a Ford" (Rose); (b) "The Ballroom."
9.21: Light songs—Mr. Chas. Rowand, (a) "Blue Bird" (Nichols); (b) "Begin As You Mean to Go On" (Lawrence).
9.30: Hawaiian guitar duo—Messrs. Sheehy and Campbell, "Silver Sands of Waikiki."
9.33: Humorous recitals—Mr. Carl Moller, (a) "A Quate So Story" (Punch); (b) "Devil May Care."
9.42: Light vocal solo—Miss Mollie Andrews, "Spain" (Jones).
9.46: Relay of orchestral selections.
9.53: Light baritone solos—Mr. J. B. McConnell, (a) "Just Around the Corner" (Von Tilzer); (b) "Smiling" (Rose).
10.0: God Save the King.

Friday, April 27

1YA AUCKLAND (333 METRES)—FRIDAY, APRIL 27.

3 p.m.: Afternoon session—Selected gramophone items.
4.0: Literary selection by the Announcer.
4.8: Further selected gramophone items.
4.30: Close down.
6.0: Children's hour—Nod.
7.15: Talk on "Motoring," by Mr. Geo. Campbell.
7.30: News and reports.
8.0: Chimes.
8.1: Overture—"Die Meistersinger," Parts 1 and 2 (Wagner).
8.9: Vocal quartet—Madame Mary Towsey's Quartet, "The Lost Chord" (Sullivan).
8.13: Instrumental duo—Miss Ina Bosworth and Mr. Cyril Towsey, "Sonata for Piano and Violin—Finale" (Grieg).
8.23: Baritone solo—Mr. John Bree, "Star of the South" (Lohr).
8.27: Recitation—Mr. Thomas Harris, "The Highwayman" (Noyes).
8.32: Contralto solo—Miss Gwentyth Evans, "I Did Not Know" (Trotter).
8.36: Instrumental and vocal—The Internationals, (a) "Faust" (fox-trot); (b) "My Idea of Heaven" (Jacks).
8.45: Tenor solo—Mr. Reginald Newbury, "Macushla" (MacMurragh).
8.49: Cello solo—Miss Lalla Hemus, selected.
8.54: Soprano solo—Madame Mary Towsey, "Se Saran Rose" (Arditi).
8.59: Weather report and forecast.
9.1: Relay of entr'acte from Strand Theatre Orchestra, under the direction of Eve Bentley.
9.17: Duet—Madame M. Towsey and Mr. J. Bree, "Love's Beginning" (Lehmann).
9.22: Recitations—Mr. Thomas Harris, (a) "On the Stairs" (Hanray); (b) "Alphonse" (Hennequin).
9.30: Instrumental trio—Bosworth-Hemus-Towsey Trio, "Samson et Delila" (Saint-Saens).
9.40: Contralto solo—Miss G. Evans, "The Woodpecker" (Newn).
9.44: Instrumental and vocal—The Internationals, (a) "Charmaine" (Pollack); (b) "Hooray! It's Ray, Ray, Raining" (Jacobs); (c) "My Blue Heaven" (Donaldson).
9.54: Baritone solo—Mr. J. Bree, "Look Down, Dear Eyes" (Fisher).
9.58: Vocal quartet—Madame Mary Towsey's Quartet, "Softly Fall the Shades of Evening" (Hatton).
10.2: God Save the King.

2YA WELLINGTON (420 METRES)—FRIDAY, APRIL 27.

3 p.m.: Chimes of the General Post Office clock, Wellington.
3.1: Selected gramophone items.
5.0: Close down.
6.0: Children's hour—Uncle Ernest.
7.0: News session, market reports, and sports results.
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Stars and Stripes" (Souza).
8.5: Vocal quartet—The Celeste Quartet, "Strike the Lyre" (Dicks and Crooke).
8.10: Hawaiian duo—Berthold and Bent, (a) "Diane" (Pollack); (b) "Adelai" (Sturm).
8.17: Soprano solo—Miss Myra Sawyer, "Down in the Forest" (Ronald).
8.21: Instrumental trio—Symons-Ellwood-Short Trio, "Second and Third Movements, Trio in G" (Rubinstein).
8.31: Vocal duet—Miss Mabel Dyer and Mr. Edgar Swain, "I Did not Know" (Gheel).
8.35: Pianoforte solos—Miss Marie Bown, (a) "Polonaise in C Minor" (Chopin); (b) "When It Rains" (Pouschnoff).
8.45: Bass solo—Mr. William Boardman, "Up from Somerset" (Sanderson).
8.48: Cornet solo—Mr. T. Goodall, "Drink to Me Only" (Fordun-Bage).
8.55: Sketch—The Two Boiled Owls, "More Hoots" (Pama).
9.4: Lecturette—Editor-Announcer, "Imperial Affairs."
9.13: Weather report and forecast.

Programmes Continued

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- 9.19: Hawaiian duo—Berthold and Bent, (a) "Caring for the Rose" (Sharp); (b) "Novelty Medley" (traditional).
9.26: Contralto solo—Miss Mabel Dyer, "A Summer Night" (Thomas).
9.30: Instrumental trio—Studio Trio, (a) "Rosamunde Ballet Music" (Schubert); (b) "Minuet" (Beethoven).
9.40: Vocal duet—Miss Myra Sawyer and Mr. William Boardman, "None So Pretty" (Brahe).
9.45: Cornet solos—Mr. T. Goodall, (a) "Scenes that are Brightest"; (b) "Pilgrim of Love."
9.50: Vocal and novelty piano number—The Two Boiled Owls, (a) "Are You Happy?" (Yellen and Ager); (b) "Breaking the Piano" (James).
9.57: Tenor solo—Mr. Edgar Swain, "In the Garden of To-morrow" (Depen).
10.1: Vocal quartet—The Celeste Quartet, "Early One Morning" (Boughton). God Save the King.

3YA CHRISTCHURCH (306 METRES)—FRIDAY, APRIL 27.

- 3 p.m.: Afternoon concert session—Selected studio items.
6.0: Children's hour—Big Brother, Peterkin, and Aunt Pat.
7.15: News session.
8.0: Chimes and overture.
Miss Frances Hamerton's Melodious Four will present musical comedy excerpts.
8.5: Vocal quartet—The Melodious Four, "Arcadians Are We" (Monckton and Talbot).
Soprano solo—Miss Frances Hamerton, "The Pipes of Pan" (Monckton and Talbot).
8.12: Instrumental trio—Christchurch Broadcasting Trio, "Trio, Andante and Presto" (Reissiger).
8.22: Tenor solo and chorus—Mr. Russell Sumner and the Melodious Four, "Back Your Fancy" (Monckton and Talbot).
8.26: Humorous recitation—Mr. W. H. Moses, "The Trial of Wing Fat."
8.30: Bass solo with chorus—Mr. T. D. Williams, "Fickle Fortune" (Monckton and Talbot).
2.34: Instrumental trios—Christchurch Broadcasting Trio, (a) "Old Irish Air" (Kreisler); (b) "Polacca" (Thomas).
8.44: Vocal quartet—The Melodious Four, "The Joy of Life" (Monckton and Talbot).
Tenor solo—Mr. Russell Sumner, "I Like London" (Monckton and Talbot).
8.52: Banjo band—Beresford Banjo Band, (a) "Minstrel Melodies"; (b) "Fun and Frolic" (Dare).
9.0: Weather report and forecast.
9.5: Overture.
9.10: Contralto solo and chorus—Miss Belle Renaut, "Bring me a Rose" (Monckton and Talbot).
9.14: Humorous recitations—Mr. W. H. Moses, (a) "The Private of the Buffs" (Hamilton); (b) "A Tamboreroa."
9.18: Banjo band—Beresford Banjo Band, (a) "What Good Is Good Morning" (Santly); (b) "Minstrel Melodies" (Darc).
9.28: Vocal quartet—The Melodious Four, "To All and Each" (Monckton and Talbot).
9.32: Bass solo—Mr. T. D. Williams, "My Motter."
9.36: Banjo band—Beresford Banjo Band, (a) "Merry-Go-Round" (Folkstone); (b) "Bonnie Scotland" (Kennedy).
9.46: Contralto solo—Miss Belle Renaut, "Bring Me a Rose" (Monckton and Talbot).
9.50: Soprano solo—Miss Frances Hamerton, "Light Is My Heart" (Monckton and Talbot).
Vocal quartet—The Melodious Four, "All Down Piccadilly" (Monckton and Talbot).
God Save the King.

4YA DUNEDIN (463 METRES)—FRIDAY, APRIL 27.

- 3 p.m.: Town Hall chimes.
3.1: His Master's Voice recital.
3.15: Afternoon tea music from the Savoy.
3.30: Studio music.
4.0: Music from the Savoy.
4.15: His Master's Voice recital.
4.30: Close down.
6.0: Town Hall chimes.
6.1: Children's session, conducted by Aunt Sheila and Big Brother Bill.
7.15: News session.
7.30: A review of the latest books, by Mr. H. Greenwood, librarian of the Dunedin Athenaeum.
8.0: Town Hall chimes.
8.1: Contralto solos—Miss Irene Hornblow, L.R.A.M., (a) "On the Sea" (Franz); (b) "When the Rooks Fly Homeward" (Rowley).
8.6: Recital—Miss Sheila Neilson, "Sigrid the Haughty" (Tennyson).
8.11: Bass solo—Mr. J. B. Macpherson, "Prologue" from "Paggiacci" (Leoncavallo).
8.16: Pianoforte solos—Miss Aroha D. Allan, L.T.C.L., (a) "Valse Lente" (Merikanto); (b) "Venetian Romance" (Brand).
8.24: Vocal duet—Messrs. L. E. Dalley and J. B. Macpherson, "Watchman, What of the Night?" (Sarjeant).
8.29: Soprano solos—Miss Florence Sumner, (a) "That Hour With You" (Tate); (b) "Spring Sorrow" (Ireland).
8.35: Orchestral selection.
8.40: Tenor solos—Mr. L. E. Dalley, (a) "All Hail, Thou Dwelling" (Gounod); (b) "The Star of Bethlehem" (Adams).
8.49: Recitations—Miss Seila Neilson, (a) "The Busy Woman" (Fisk); (b) "The Pipes o' Doon" (Farren).
8.59: Weather report and forecast.
9.1: Contralto solo—Miss Irene Hornblow, "Cloths of Heaven" (Dunhill).
9.5: Bass solo—Mr. J. B. Macpherson, "Love That's True" (Handel).
9.9: Pianoforte solo—Miss Aroha D. Allan, "Arabesque" (Newlands).
9.16: Soprano solo—Miss Florence Sumner, "Rejoice Greatly" (Handel).
9.21: Tenor solos—Mr. L. E. Dalley, (a) "The Fuchsia Tree" (Quilter); (b) "For You Alone" (Gheel).
9.25: Relay of dance music.
10.0: God Save the King.

Saturday, April 28

1YA AUCKLAND (333 METRES)—SATURDAY, APRIL 28.

- 2.45 p.m.: Description of Rugby football from Eden Park (subject to competitions being commenced on this date).
6.0: Children's hour—Cinderella.
7.15: News and reports, sports results.
8.0: Chimes.
8.1: Relay of overture from Rialto Theatre Orchestra, under the direction of Mr. Henry Engel.
8.15: Vocal quartet—The Lyric Four, (a) "A Sailor's Chorus" (Dandy); (b) "Lovely Night" (Chatgual).
8.22: Tenor solo—Mr. Herbert Richards, "My Dreams" (Tosti).
8.26: Vocal and instrumental—The Bohemian Trio, (a) "Since I Found You" (Berlin); (b) "High, High Up In the Hills" (Abrahams).
8.34: Humorous—Mr. Alan McElwain, some humour.
8.39: Bass solo—Mr. Ernest Thomas, "Myself When Young" (Lehmann).
8.44: Relay of entr'acte from Rialto Theatre Orchestra, under the direction of Mr. Henry Engel.
8.54: Vocal quartet—The Lyric Four, "But She Didn't!" (Michall).
8.58: Weather report and forecast.
9.0: Vocal duet—Messrs. Thomas and Richards, "Watchman, What of the Night?" (Sarjeant).
9.5: Tenor solo—Mr. Arthur Ripley, "Molly, Dear" (Lowe).
9.9: Vocal and instrumental—The Bohemian Trio, (a) "Yesterday" (Wilwhite); (b) "Annabelle Lee" (Allan).
9.17: Vocal quartet—The Lyric Four, "Plantation Melodies."
9.22: Relay of dance music by the Internationals, under Mr. Clyde Howley from Dixieland Cabaret.
11.0: God Save the King.

2YA WELLINGTON (420 METRES)—SATURDAY, APRIL 28.

- 11.30 a.m.: Description of Wellington Trotting Club's meeting at Hutt Park (by permission of the club).
3 p.m.: Description of Rugby football from Athletic Park.
6.0: Children's hour.

THE well-known phenomenon of "body capacity," which every builder of a radio set has encountered, may be employed for the purpose of detecting the intrusion of a human being into the neighbourhood of radio apparatus; but it is not necessary that any of the instruments should be in the immediate vicinity of a safe which it is desired to guard. It is necessary only to have a wire running to the safe, and another to the ground; or any large insulated sheet of metal may be used to create an electric "atmosphere," which cannot be entered without upsetting the balance of the system and giving an electric signal—which will operate a relay and set off bells or an electric siren, turn on lights, or otherwise give warning as desired by its constructor. The radio burglar alarm "sees in the dark," so to speak; it is much less expensive than the complicated maze of wires now used for electric protection systems; and it transmits its warning to the guards, watchmen and police, who will answer its summons, without apprising the intruder of his danger until it is too late.

A CORRESPONDENT writes to the New York "Radio News": "With reference to the recent catastrophe, the loss of Mrs. Frances Grayson and companions in her transatlantic plane, 'Dawn,' I would appreciate it if you would publish in your excellent magazine, a suggestion to future transatlantic fliers, and the general public, regarding the danger of inadequate radio equipment, heretofore used on transatlantic flights, and lack of trained radio men, which is partly responsible for the complete disappearance of several planes and their occupants."

ONE of the most rigorous tests to which a loudspeaker has ever been subjected was recently performed in New York City by engineers of the Bell Telephone Laboratories, when they installed a giant speaker on the roof of a thirteen-story building on the New York side of the Hudson River for direct communication with the Jersey shore, which is over a mile distant. Engineers on the opposite side of the water heard both music and voice reproduced with enormous volume, but without distortion. The horns used were of the new "exponential" type.

THE "SOS" has more than once of late called shipping to the assistance of aviators; the compliment was returned in the English Channel not long ago, when the pilot of a London-Paris aerial express observed that a small steamer below him was on fire. He at once used his transmitter to notify Croydon, England, which broadcast the alarm. It was picked up at Boulogne, France, from which port a tug at once put out, rendered timely aid, and towed the distressed vessel with her crew of fifteen safely into port.

IT is often difficult to locate holes for mounting condensers and other instruments without a template. A very simple way of doing this is as follows: The shaft hole is located first, and drilled. The condenser or other instrument is then placed on the panel with the shaft through the hole, and the condenser resting on the panel in the exact position in which you wish to mount it. A little white flour is sprinkled on the panel around the instrument, and the instrument is then removed. This leaves circles of flour around the bushings. The centre of each circle is marked with a centre punch, and drilled. It will be found that holes so drilled line up perfectly.

THE guests' rooms in the Robert Morris Hotel, Philadelphia, are fitted with headphones, which, by a system of switches, enables the occupants to select from three different programmes, as there are three receiving sets operated in a central room.

WHO is the world's champion broadcast listener? That is to say, what broadcast listener has tuned in the largest number of broadcast stations? William McDonald, of Chula Vista, California, U.S.A., has a record of hearing 603 different broadcast stations. His performance appears to be the best authenticated.

Approximately one out of every five farmers in the United States relies on broadcast market reports and agricultural information, according to the United States Secretary of Agriculture.

Science has turned a curious eye on the effect of the northern lights on radio transmission, and first steps have been taken by the National Research Council of Canada to determine just what is the effect. Following a meeting held in Ontario of the Associated Committee on Physics and Engineering of the Council, research work has been undertaken. It is known that conditions in the upper atmosphere have a very marked effect upon the transmission of messages by radio.

A statement published to the effect that a new 50 kw. German short-wave transmitter is already in operation at Zeelen is denied by the Berlin authorities. Apparently, the station heard is the experimental transmitter at Doberitz, which is working on 37.3 metres, and gives the call-sign AFK. The Doberitz transmitter has an energy of about 5kw.

- 7.0: News session, market reports, and sports results.
7.40: Lecture—Miss Phyllis Bates, "Yale Blues."
8.0: Chimes of the General Post Office clock, Wellington.
8.1: Overture—"Charterhouse March" (Moore).
8.5: Vocal quartet—Melodie Four, "The Trumpeter" (Dix).
8.9: Banjo—Mr. Chas. Brazier, "Side by Side" (Wood).
8.14: Tenor solo—Mr. Sam. Duncan, "I'll Sing Thee Songs of Araby" (Clay).
8.18: Instrumental trio—Symons-Billwood-Short Trio, "Finale from Trio No. 3" (Reissiger).
8.28: Bass solo—Mr. W. W. Marshall, "I Go to Claim My Love" (Royal).
8.32: Xylophone solo—Mr. Tasman Lovell, "The Whistler and His Dog" (Pryor).
8.37: Vocal quartet—Melodie Four, "Blue Skies" (Berlin, arr. Frank Crowther).
8.42: Banjo—Mr. Chas. Brazier, "Red Lips, Kiss My Blues Away" (Berlin, arr. Crowther).
8.45: Tenor solo—Mr. Frank Bryant, "Linden Lea" (Williams).
8.49: Instrumental—Studio Trio, (a) "Minuet" (Shield-Moffatt); (b) "Serenade" (Widor); (c) "Rondo" (Mozart).
8.59: Baritone solo—Mr. R. S. Allwright, "Rolling Down to Rio" (German).
9.3: Xylophone solo—Mr. Tasman Lovell, (a) "I Love the Moon" (Reubens); (b) "Falling" (Fields).
9.9: Vocal quartet—Melodie Four, "Comrades in Arms" (Adam).
Weather report and forecast.
9.13: Relay of Charles Dalton's Columbia Solo Six Dance Orchestra from Columbia Cabaret, Kilbirnie.
11.0: God Save the King.

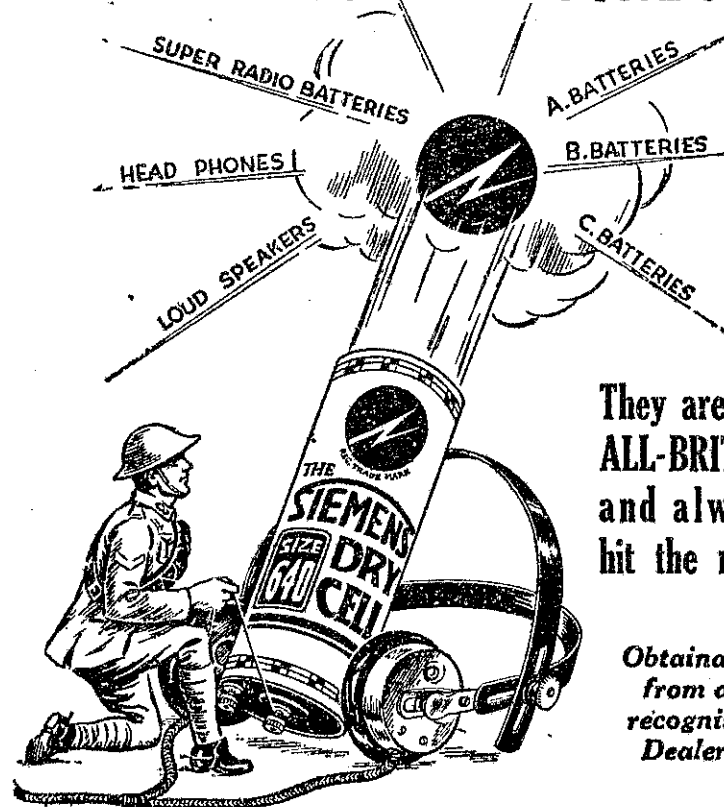
3YA CHRISTCHURCH (306 METRES)—SATURDAY, APRIL 28.

- 6 p.m.: Children's hour—Uncle Sam and Aunt May.
7.15: News session.
8.0: Chimes and overture.
8.15: Soprano solo—Miss Mabel Thomas, "Waltz Song" from "Tom Jones" (German).
8.19: Banjo solos—Mr. Gordon Jackson, (a) "That Night in Araby" (Snoder); (b) "Just a Cottage Small" (Hanley).
8.25: Tenor solo—Mr. David McGill, "O, Vision Entrancing" (Thomas).
8.29: Mouth-organ solos—Mr. A. Elwood, popular melodies.
8.34: Popular harmony duets—Messrs. Alfred Lovett and Charles Lawrence, (a) "My Lucky Day" (Henderson); (b) "Hop, Step, and Jump" (Courtney).
8.40: Instrumental trio—Christchurch Broadcasting Trio, "Prestor from Trio in E Flat" (Hummel).
8.50: Popular songs—Mrs. P. S. Lawrence, (a) "My Love Pals" (Vandersloot); (b) "Dream Days" (Simpson).
8.56: Clarinet solo—Mr. S. E. Munday, "In Cellar Cool" (Kroepsch).
9.0: Humorous recitation—Mr. James Laurensen, "Casey at the Football Match".
9.5: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "Whisper and I Shall Hear" (Piccolomini).
9.9: Weather report and forecast.
9.10: Overture.
9.25: Popular harmony duet—Mrs. P. S. Lawrence and Chas. Lawrence, "I Wish You Were Jealous of Me" (Rowell).
9.29: Banjo solos—Mr. Gordon Jackson, (a) "Pal of My Cradle Days" (Piantadosi); (b) "The Birth of the Blues" (Henderson).
9.35: Operatic tenor solo—Mr. David McGill, "There is a Flower that Blooms" from "Maritana" (Wallace).
9.39: Mouth-organ solos—Mr. A. Elwood, popular melodies.
9.44: Popular duets—Messrs. Alfred Lovett and Charles Lawrence, (a) "Kulua" (Kern); (b) "Sleepy Hills" (Berlin).
9.50: Soprano solo—Miss Mabel Thomas, "A Request" (Woodford-Finden).
9.54: Instrumental trios—Christchurch Broadcasting Trio, (a) "O, Star of Eve" (Wagner); (b) "Hungarian Dance in G Minor" (Brahms).
10.4: Popular songs—Mrs. P. S. Lawrence, (a) "Starlight Lane" (Vandersloot); (b) "Just a Memory" (Henderson).
10.10: Clarinet solo—Mr. S. E. Munday, "Regrets d'Amour" (Bright).
10.14: Humorous recitation—Mr. James Laurensen, "Daniel Peggotty" (adapted from "David Copperfield" (Dickens).
10.19: Soprano and tenor duet—Miss Mabel Thomas and Mr. David McGill, "O, Maritana" from "Maritana" (Wallace).
10.23: Dance music.
11.0: God Save the King.

4YA DUNEDIN (463 METRES)—SATURDAY, APRIL 28.

- 7.15 p.m.: News session.
7.30: Address, under the auspices of the Workers' Educational Associations—Miss M. H. King, principal of Otago Girls' High School, on "The Study of Literature."
8.0: Town Hall chimes.
8.1: Orchestral musical, relayed from the Empire Theatre.
8.11: Soprano solo—Miss Roma Buss, "Scenes That Are Brightest" from "Maritana" (Wallace).
8.16: Violin solo—Mr. A. R. Watson, "Schifferlied" (Hanser).
8.20: Vocal quartet—4YA Harmonists, "Soldiers' Chorus" from "Faust" (Gounod).
8.26: Cornet solos—Mr. George Christie, (a) "The Firefly" (Moss); (b) "Silver Threads Amongst the Gold" (Moss).
(Continued on page 14.)

SIEMENS RADIO ACCESSORIES



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BY "MEGOHM"

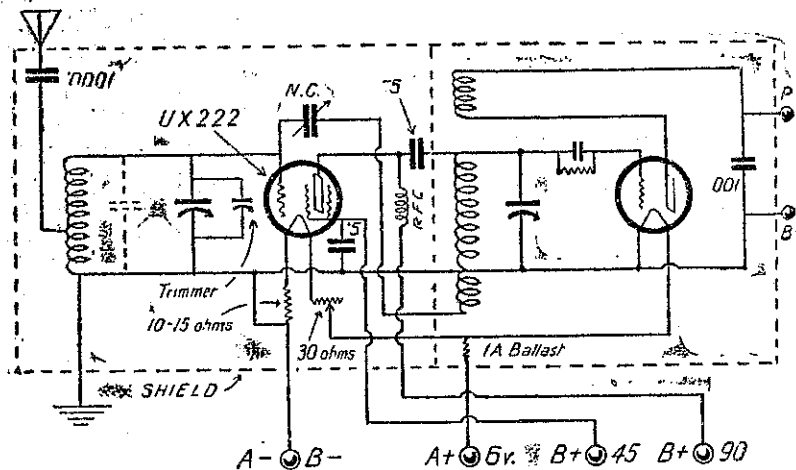
Adapting the Browning-Drake to the Shielded-Grid Valve

UHE March number of "Radio" describes a method of using the UX222 shielded-grid valve in the R.F. stage of the Browning-Drake by a few simple changes. The main proviso is that the R.F. and detector stages must both be completely enclosed in copper screening boxes, the top, bottom, and sides all being of metal.

Many constructors will fight shy of the screening, but it is well worth the trouble, even when only ordinary

grid, thus giving greatest efficiency for the regeneration on the r.f. transformer. These changes are shown in the diagram.

"The primary of the r.f. transformer is shorted out because of the valve's very high impedance. This direct coupling (really an auto-transformer) requires a parallel feed system consisting of the $\frac{1}{2}$ mfd. condenser and choke coil, thus keeping r.f. current out of the B supply. The valve's plate is connected directly to the stator of the second tuned circuit.



R.F. and Detector Stages of Browning-Drake showing adaptation of Shield Grid Valve

valves are used, as both quality and selectivity are gained by its use, and if the screens are roomy, so that a space of at least $1\frac{1}{2}$ inches exists around and above all coils, and 1 inch at the bottom in the case of vertical coils, practically no damping of the circuit will result.

Those who have constructed the short-wave receiver with shielding as specified will have experience of the benefits it gives, and will have found also that working in sheet copper is a comparatively simple and satisfactory process, and not the difficult operation that it might appear beforehand.

"The requisite changes include (1) shorting out the primary of the r.f. transformer and substituting a $\frac{1}{2}$ mfd. condenser and r.f. choke, (2) shielding the r.f. stage, (3) inserting a $\frac{1}{2}$ mfd. condenser between the valve's plate and a connection to ground, and (4) putting a 10 or 15 ohm resistance in the filament circuit to reduce from 6 to 3.3 volts. A neutralising condenser is used to balance the very small capacity between the valve's plate and control

"As this puts the plate-screen grid capacity across the second tuning condenser, it may be necessary to put a 15 mfd. condenser across the first tuned circuit, as shown by dotted lines. In many cases, however, especially if the .0001 mfd. series antenna condenser adds enough capacity, the trimmer condenser will take care of any difference between the two singly-controlled tuning condenser settings throughout the waveband. A few experiments will determine whether it is needed in a given installation.

"Suitable shields and instructions for their use may be secured from the Browning-Drake Corporation. The $\frac{1}{2}$ mfd. condenser between the shield grid and ground is essential when using this valve.

"The 10-15 ohm resistance in the filament circuit not only cuts the 5 volts used with the 300-A or 240 detector to 3.3 volts for the screened grid tube, but also supplies biasing current. If a 3-volt supply and -99 valve is used as a detector, this resistance is not

(Continued foot of next page.)

FACTS ABOUT CONDENSERS

A CONDENSER is described as being of a certain capacity—i.e., .0005 mfd. The farad is the measure of capacity. The property which a condenser has of holding a charge of electricity is called its capacity. An excellent example of this property of the condenser is that of a spiral spring. If a metal weight is attached to the end of the spring, the spring will be extended to a certain length until the weight of the metal is exactly equal to the force exerted by the spring in the opposite direction.

DIELECTRIC STRAIN.

IN the same way, if one plate of a condenser be charged with a certain electrical force, the dielectric or intervening material between the two plates of the condenser will be strained electrically until the condenser exerts an electrical pressure equal and opposite to the electrical force applied to it.

The two plates of a condenser are conductors of electricity and receive the electric charge upon them. They are separated from each other by non-conductive material called the dielectric, which may be composed of mica, glass, or of air. There may be more than two plates to a condenser—and generally are—dependent on the capacity required, but between the plates there must be a dielectric.

CAPACITY OF CONDENSERS.

WE find that the capacity of a condenser depends upon the area of the plates of which it is formed, and the material of which the dielectric is composed. But there are other things which affect the capacity of the condenser. We say that the capacity of a water tank is of so many gallons, meaning that it will hold so many gallons of water when completely full. We do not fill a condenser with electricity in the same way. We apply an electrical pressure to the plates of the condenser, causing a state of strain to be set up upon the dielectric between the plates. The thicker or higher the water tank the greater the amount of water it will hold, and the greater its capacity. But, in the case of a condenser, the thicker the dielectric, or the greater the distance between the two plates, the less will be the state of strain upon the dielectric, and the less the capacity. The thinness of an india rubber tube will allow of its greater expansion when 1 lb. pressure of water is applied to it. The thinner the dielectric the greater will be the state of strain existing in it, and the greater will be the capacity of the condenser.

The capacity of the aerial circuit has its effect on the wave-length to which that circuit is tuned. You will remember that in my last article I talked of tuning and coupling, and I said that to facilitate the tuning of the aerial and closed circuits a variable condenser could be added to the circuits. By varying the capacity of the condenser in such a circuit the tuning of that circuit is controlled.

If a condenser is inserted in the aerial circuit—shall we say between the aerial and the tuning-coil—we reduce the capacity of the circuit, and, therefore, the wave-length. The aerial itself has a capacity which can be increased by increasing the number of wires forming the aerial, and if a condenser is inserted in series with the aerial the total capacity of the circuit is not thereby increased as might be supposed, but decreased, and an increase of capacity causes a decrease of wave-length of the aerial.

TUNING THE AERIAL.

ON the other hand, the aerial itself has inductance, and if an inductance is inserted in the circuit the total

(Continued on Page 13.)

Dealing with Distorted Reception

SEVERAL CAUSES AND THEIR CURE

LISTENERS who reside at considerable distance from any main broadcast station may be inclined to think that those at closer quarters have little to complain of, and that "everything in the garden is lovely." Such a view is to some extent a mistake. Certainly here in Wellington we have the evening session on six nights a week, uninterrupted by howling of any description. That is something to be thankful for. But midnight is a popular time for city people to retire, and the time after 10 p.m. may be filled in with reception of Australian stations. It is at this time that everybody in New Zealand is on somewhat of an equality with regard to conditions, the isolated set owners having, if anything, the best of it, for the howling valves in populated centres detract greatly from the pleasure of listening until, one by one, a sufficient number of oscillators has retired to bed, leaving reception more or less unmarred. Then there is the "silent night"—anything but silent with regard to oscillators, but it affords the writer a splendid opportunity of studying the interference problem.

In many suburbs of Wellington reception of musical programmes from distant New Zealand stations on the silent night is useless from an entertainment point of view, so in order that oscillators may indulge in their nocturnal wrist exercise, others are barred from receiving programmes that would otherwise be available. It is quite evident that a set requiring continuous movement of the dials is not getting any reception that is of any value, except as "something instead of nothing" to the operator.

MOREOVER, it is quite evident to the experienced listener studying interference from howling, that a set requiring a heroic struggle with the dials for perhaps a quarter of an hour cannot be one of any magnitude, as the owner of a four or five valve set will be able to tune in any New Zealand station in half a minute or less, and that without howling—if he knows how, and uses only ordinary care, even if the set is not a neutralised one. Everything appears to point to the one and two-valve sets being the creators of a large proportion of the disturbance in the ether.

But it must not be thought from this that the writer wishes to discourage the use of small sets—far from it, for beginners must learn. But everybody would like to have such beginners as careful of other people's rights as they would have to be when learning to drive a motor-car. But there are large sets, too, that do their share of interfering, frequently in ignorance, for often a listener who knows nothing about radio will have a set installed, and is informed that it "cannot possibly annoy the neighbours," when otherwise is actually the case.

It is not always the constant moving of dials that is the most annoying. There is the set owner that tunes-in a station and leaves the set oscillating, with the result that his neighbours receive that station to the accompaniment of a continuous whistle, which is, to say the least, extremely irritating. The wet finger test on the aerial terminal will give an indication of such oscillation by the two clicks—one when the finger touches the terminal, the other when it is taken off.

DISTORTION FROM INTERFERENCE.

NOW the purpose of this article is to emphasise the great amount of distortion caused by interference from oscillating and radiating sets. When listening to distant stations and getting full volume on the loudspeaker, the writer has frequently experienced the effect of one violently-interfering set practically "wiping out" reception for a few moments. Then there is the cumulative effect of a certain amount of radiation from a number of sets all receiving a distant station—the joint effect is a general weakening of volume, at bad periods reducing it to such an extent as to be worthless for entertainment. But this is not all.

DISTORTION PRODUCED IN THE SET.

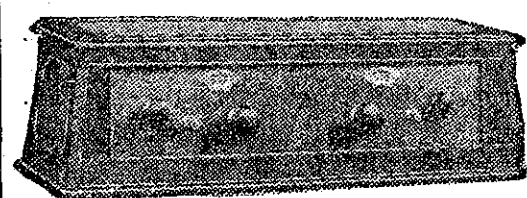
NO matter what good quality reception a receiver is capable of giving, quality is impossible where there is much interference. An oscillating valve communicates a reflection of its mutilated and distorted signals to other receivers close at hand, and though its influence may be only slight, quality is affected. But suppose we have a receiver that, under best conditions, is not capable of producing quality with the volume it is expected to give. With outside distortion added to such reception, the result may be anything but pleasing.

A listener naturally likes to think he has made a good bargain when purchasing his set—and quite likely he has. But the stumbling-block in radio reception is the thirst for volume—the desire for signals to "roar in." Certainly a receiver that brings in the music with tremendous volume will give good and pleasing quality if it is toned down to a reasonable strength, but it is necessary that this should be done. Raspy or gritty tone is to be avoided at all times—it is bad for the nerves. A smooth, mellow tone is soothing and restful.

TRACKING UP CAUSES OF DISTORTION.

DURING the past few years the writer has been up against this problem of good reproduction, continually making improvements to produce

(Continued on Page 13.)



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necessary.

"When the receiver is completed and connected up it may be neutralised by setting the dial at about 20 on the scale and turning the tickler in either direction until a distinct click is heard in the loudspeaker or telephones. Adjust the tickler coil until this circuit is not oscillating. A test to determine whether or not the set is oscillating is to place the finger on the terminal of the $\frac{1}{2}$ mfd. blocking condenser, which, if connected to the grid of the second tuning circuit (to get at this condenser the top of the shield on the r.f. compartment will have to be removed), a distinct click will be heard if this circuit is oscillating. Now turn the tickler back to where oscillating just ceases. Turning the trimmer condenser will then throw this circuit into oscillation if the neutralising condenser is not properly set. The neutralising condenser should be then set until the above test is satisfactory and the trimmer condenser has no effect on oscillations produced in the second circuit. It will be found that this trimmer condenser is almost at a minimum value.

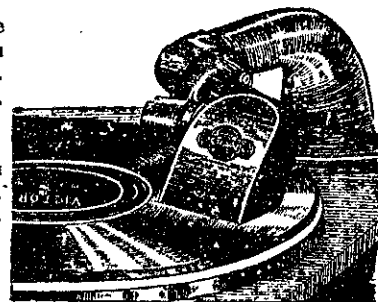
"Too much cannot be said in favour of using the screened grid valve as a radio frequency amplifier. The amplification obtainable is tremendous, and the operator can easily get down to the noise level with little or no difficulty."

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Construction Continued

FACTS ABOUT CONDENSORS

(Continued from Page 12.)

inductance of the aerial circuit is increased, with a resultant increase in the wavelength of the aerial. If you lengthen the wires forming your aerial without increasing their number, you are increasing the total inductance of the aerial. It is obviously impracticable to be continually altering your aerial each time that you wish to increase or decrease the wavelength to which your aerial is to be tuned. To enable you to effect this altering of wavelength your inductance and condenser are inserted into the circuit.

To alter the tuning of the receiving instrument you vary the inductance and capacity of the circuit by varying the adjustment of your variable inductor, or variable condenser. In the same way you alter the position of the weight of a pendulum to regulate the rate at which the pendulum shall swing, and thus to control the clock.

Thus you will see that inductance and capacity may be said to be the electrical counterparts of inertia and elasticity.

DISTORTED RECEPTIONS

(Continued from Page 12.)

better results, and it is no small problem to produce good quality and good volume at the same time, but it can be done. The writer's standard receiver has just been rebuilt on a different plan, and although the change did not affect the audio amplifier, there is a marked improvement in tone in the ordinary four-valve circuit.

And here the writer would like to say that his remarks in this column at different times with regard to good radio reproduction are all intended to be in a helpful spirit. Radio is developing rapidly, and ideas change quickly; hints given to-day may not be in entire agreement with those given at a much earlier date.

Some listeners suffering from distorted reception would like to see the transmitting station bear the blame, but nobody has yet advanced any tangible proof that the station (particularly referring to 2YA) is to blame. The writer hears almost every afternoon and evening session, and has a good opportunity of judging quality, and finds it consistently good so far as transmission is concerned. Bad transmission may be almost as readily detected at close quarters as at a distance. The writer, moreover, is no "servant of the company," and is just as interested as any other listener in making complaints of any shortcomings.

It is probable that in most districts from which complaints of distortion emanate listeners could be found who get fairly consistent good reception. Even one such case in a district would prove that the distortion was locally produced.

GOOD RECEIVERS OR COMPONENTS

FINANCIAL considerations, unfortunately, have a close relation with good reception, and in the radio business the article at double the price will usually give double the satisfaction, just as in most other lines of business. If you are a constructor, it is an easy matter to keep testing improvements in the set, but if you are buying a ready-made set for entertainment it pays to get as good a one as you can afford, and to take careful note of the tone and volume it will give.

GETTING THE DEEP NOTES.

DEEP musical notes are a severe test for any receiver and loudspeaker, and a combination that handles all deep notes without distortion, and does not lose or unduly weaken the high notes, is worth possessing.

Poor, undersized audio transformers and unsuitable horn loudspeakers are the cause of more distortion than anything else, for they will give distortion when there is no interference. The only way to get good reproduction from such a combination is to cut down volume to a reasonable level. The better the set the more volume it will give without losing quality of tone. The humble crystal is a quality-giver, and only when we add valve amplification with unsuitable components does its quality begin to suffer so far as the action of the receiver itself is concerned. If good quality and volume are desired from amplification of crystal reception, then the amplifier must be of just as good a calibre as if intended for the amplifier of a valve set. But a good valve set, properly handled, is capable of giving just as good reception as any crystal receiver, although the latter, without amplification, reproduces the lowest musical notes put over by the station.

In order to test what notes the valve outfit, which includes the loudspeaker, is reproducing, every multi-valve operator-experimenter within crystal range of a station is recommended to fix up a crystal receiver and listen-in with the 'phones. In many cases there will be heard by means of the crystal the low strumming notes in the bass that are, perhaps, entirely absent or blurred beyond recognition in the loudspeaker reproduction. Constructors may, therefore, set the crystal reception as a standard to work by, and gradually improve their receivers until they will, in combination with the loudspeaker, reproduce all the notes heard through the crystal.

One easy method that has already been recommended for improving the first audio stage is by substituting for the transformer a resistance unit such as the Philips or similar ones that are on the market. These are simply connected up just in the same way as a new transformer would be. But there are other considerations. One point is that the detector valve must now be one of high impedance and amplification to work in conjunction with the resistance coupling. Another point is that as resistance coupling gives greater prominence to the deep notes, the audio gear following must be capable of handling such notes. This responsibility falls chiefly upon the second transformer, which must be a thoroughly good last stage model with high impedance primary winding, and upon the last valve, which should be of not more than, say, 5000 ohms impedance in order to be capable of handling the required volume without distortion. Having now reached the output terminals of the set, we have the loudspeaker to deal with. Quite likely this is a horn type, and if it is capable of properly handling low notes it is something out of the ordinary. Most horn speakers tend to make "mush" of all notes below a certain pitch, or frequency, and to a certain extent, the lower that pitch the better the speaker. But a good cone speaker reproduces low notes with ease, though it may tend to weaken the very high frequencies to some extent, but as most of the distortion arises on the low notes, it is cutting out a lot of trouble to have a speaker that will handle them. Balanced or double action in a cone speaker makes for quality and even reproduction, as also does one with elastic attachment round the edges of the diaphragm rather than one with rigid fixing, though this does not apply in every case.

ONCE AGAIN THE OUTPUT FILTER.

NOW, the windings upon the magnets consist of a large number of turns of very fine wire, so fine that it will only carry a very limited amount of current. But when a power-valve is employed in the last stage, a very considerable amount of current may be passing from the B battery through the valve and speaker windings, and this current may be so great as to cause the

loudspeaker, whether horn or cone, to work inefficiently, owing to the comparatively large amount of direct battery current, having a detrimental action (saturation) upon the magnets. When this battery current passes through the valve it has indirectly impressed upon it by the grid what are called voltage impulses or fluctuations of an alternating character, and it is these impulses that really actuate the speaker. It has been found that after the battery current has passed through the valve it may be diverted directly back to the battery, leaving the voltage impulses alone to traverse the speaker windings, still transmitting the same amount of power to the diaphragm, with improved quality, owing to the reduced strain upon the windings.

This separation of the alternating and direct currents is accomplished by what is usually referred to as an "output filter," and is a combination of two components, firstly, a choke coil, which has the property of passing direct current but not alternating current, and, secondly, a fixed condenser of large capacity (2 microfarads), which has the property of passing the alternating impulses and not the direct current. These are connected up in a way that has frequently been dealt with in these columns. The use of such a filter will allow of the speaker carrying greater volume owing to the carrying capacity of the windings having been relieved of the unnecessary direct current. Such filters may be purchased as a complete small unit ready for attachment to the output terminals and speaker. For an output equal to or over 90 volts at 10 milliamperes, it is a necessity for good reproduction, and also protects the speaker windings from damage, and does away with the necessity for connecting the speaker or 'phones according to polarity (positive and negative) of the leads.

The above are some of the main points in audio improvement for better reception. Such improvements should always be made with the fact in mind that one improvement leads to another—that greater volume or deeper notes passed on by one component must be retained by improving the components that follow, so that they may efficiently handle the increase.

WATCH DETECTOR VOLTAGES.

MENTION should also be made here of the amount of distortion that can be produced by pushing the detector too hard, that is, attempting to get too much amplification from it. Both filament and high-tension voltages should be kept down rather than pushed to the maximum, and tone will be helped thereby, and speech clarified. Note how the s's and t's come through your loudspeaker. They are sometimes almost lost in an unsatisfactory audio system.

An appeal is made to all operators of receivers to do all in their power to prevent their sets from causing interference, however slight, for the multiplication of slight effects is serious, and the more aggravated cases of howling are most certainly a direct preventive of a certain number of people becoming listeners. Operators may scarcely realise that by keeping the ether clear they may do a great deal to assist in attracting additional licensees to provide the money for the improved programmes, which are so frequently asked for.

RESISTANCES IN SUPPLY

QUITE recently a paragraph was reprinted from an American journal giving a method of giving equal drain over the whole of the cells of a B accumulator by treating the total voltage as the output of a B eliminator and by means of variable resistances cutting down the voltage to suit the several valves. A correspondent figured the matter out, and sent his view of the question, showing that the consumption of current would be greater than by the tapping system, as the drain over the whole battery would be equal to that of the total of all the valves. This is quite correct, and at first sight the idea appears to be uneconomical. But we must not lose sight of the purpose of the proposed idea—the equal use of all the cells in the battery.

Under the tapping system the higher voltage cells are putting out less current, as they are supplying fewer valves, and so, in order to fully charge the latter, the former always receive a considerable overcharge, and this is what it is sought to avoid. By adopting the B eliminator system of control, we dissipate in the resistances the power that would otherwise be expended in overcharge, causing a certain amount of deterioration of the overcharged cells, and the battery is charged up in the usual time, no part being obliged to receive an overcharge as formerly.

In the issues of September 30 and October 7 last, "Megohm" described a method of charging a 112-volt accumulator at low voltage by connecting the rows of cells in parallel by the substitution of a "parallel" connector in place of the "series" connector. In the original battery the unequal use of cells was provided for by the use of a "reverse" connector, which, when substituted by the "series" connector, had the same effect as if four rows of high voltage cells were lifted over and used for low voltage, the low voltage being used as high. This connector was not described, as it was considered that many constructors would consider it "too complicated." But all the same, the battery is most convenient when constructed with the switching arrangement, as by merely changing the connecting-piece the battery is charged by an A battery charger, giving 16 to 20 volts and instantly connected in "series" or "reverse" at will.

An alternative set of figures is marked under the tapping sockets for use when in "reverse." Any constructor writing in will be supplied with a diagram of this connector.

AUSTRALIAN PROGRAMMES

2FC, SYDNEY

(442 metres.)

WEDNESDAY, APRIL 18.

8 p.m.: "Big Ben"; from the Capitol Theatre, Sydney, the Capitol Symphony Orchestra, of 30 members; items on the Wurliitzer organ, played by Mr. Fred Scholl; Ted Henkel and his stage band of 20 players; vocal quartet, in association with the stage prologue. 8.45: From the studio, Mabel Batchelor (soprano) and Eileen Boyd (contralto), duets (a) "Tales of Hoffmann" (Offenbach), (b) "By-Bye Babe" (Vera Barnett) (accompanied by the composer). 8.55: Gladstone Bell, cello solos. 9: "Big Ben"; late weather forecast. 9.1: Will Bowyer, basso, (a) "The Admiral's Yarn" (Kubens), (b) "The Swordsman" (Wallace). 9.8: From the Capitol Theatre, Sydney, the Capitol Symphony Orchestra; at the Wurliitzer organ, Mr. Fred Scholl. 9.25: From the studio, Mabel Batchelor (soprano) and Eileen Boyd (contralto), duets, "Venetian Boat Song" (Blumenthal), "Just You" (Vera Barnett) (accompanied by the composer). 9.32: Gladstone Bell, cello solos. 9.42: William Bowyer, basso, (a) "Wander Thirst" (Ronald), (b) "Drake's Spirit" (Stewart). 8.48: H. W. Varna and company will produce the play "Sherlock Holmes" (by arrangement with J. C. Williamson, Ltd.). Characters: Sherlock Holmes, H. W. Varna; Dr. Watson, William Hume; Norman Holmes, Alan, Arthur Fisher; Lady Edward Leighton, Muriel Conner; Count Stalburg, E. H. Brewer; Professor Moriarty, Foster Dean; Jim Larrabee, Noel Robertson; Billy, Somerset Varna; Madge Larrabee, Cleo Glover; Alice Faulkner, Felix Clark. "Sherlock Holmes," part one—Scene: Sherlock Holmes' room at Baker Street. 10.12: Incident music to part two. 10.14: "Sherlock Holmes," part two, played by H. W. Varna and company. Scene: The Gas Chamber at Stepney. 10.36: Late weather forecast; incidental music to part three of "Sherlock Holmes." 10.38: "Sherlock Holmes," part two, played by H. W. Varna and company. Scene: Dr. Watson's house, Kensington. 10.58: Tomorrow's programme and late news. 11: "Big Ben"; National Anthem; close down.

THURSDAY, APRIL 19.

8 p.m.: "Big Ben"; the 2FC Orchestra, conducted by Horace Keats. 8.15: Peter Gawthorne, baritone. 8.25: Henry Penn, pianoforte solos, (a) "Romance" (Grünfeld), (b) "Lullies of the Valley" (Poldini), (c) "Country Gardens" (Grainger). 8.35: Madame Vera Tasma, soprano (with orchestral accompaniment. 8.43: The 2FC Studio Orchestra (conductor, Horace Keats). 8.55: Ernest McKinlay, tenor, (a) "A Rat Tail" (Gordon), (b) "Eleanore" (Mallinson). 9: "Big Ben"; late weather forecast. 9.1: James Pheloung, cornet solo. 9.5: Peter Gawthorne, baritone. 9.15: Concerto for piano and orchestra, "Capriccio Brilliant" Op. 28 (Mendelssohn); at the piano, Henri Penn, and 2FC Orchestra, conducted by Horace Keats. 9.28: Madame Vera Tasma, soprano. 9.36: Charles Lawrence and Len Maurice, duets. 9.46: The 2FC Studio Orchestra (conductor, Horace Keats). 10: "Big Ben"; Ernest McKinlay, tenor. 10.8: James Pheloung, cornet solo. 10.15: Charles Lawrence and Len Maurice, duets. 10.25: The Ambassadors' Dance Orchestra (conductor, Al Hammett). 10.35: From the studio, late weather forecast. 10.37: The Ambassadors' Dance Orchestra (conductor, Al Hammett). 10.57: From the studio, tomorrow's programme and late news. 11: "Big Ben"; the Ambassadors' Dance Orchestra. 11.45: National Anthem; close down.

FRIDAY, APRIL 20.

8 p.m.: "Big Ben"; Alexander Sverjensky, pianoforte solos, (a) "Prelude in A Flat Major" (Chopin), (b) "Prelude in B Major" (Chopin), (c) "Valse in C Sharp Minor" (Chopin). 8.12: Sydney Calland, baritone. 8.20: The "Smart Set" Instrumental Trio (leader, Molly Gant). 8.32: "Tune in and listen." 8.45: Alexander Sverjensky, pianoforte solos, (a) "Etica of Petrarca" (Liszt), (b) "Impromptu" (McDowell). 8.55: Sydney Calland, baritone. 9.3: Late weather forecast. 9.4: The "Smart Set" Instrumental Trio (leader, Molly Gant). 9.5: Rev. F. H. Raward talk, "Let's Go Round the World." 9.30: "Tune in and listen." 9.40: The "Smart Set" Instrumental Trio (leader, Molly Gant). 9.50: From Her Majesty's Theatre.

Sydney, the second act of the musical play "Rose Marie," featuring Harriett Bennet and Frederick Bentley. Musical numbers: Opening chorus; trio, "Only a Kiss," Frederick Bentley, Yvonne Banvard, and James Hughes; sextette, "Finaletto," Harriett Bennet, Reginald Dandy, Noel Allan, Lou Vernon, Mabel Lambeth, and Stephanie Deste; Empire march and gallop, song and dance, "Minuet of the Minute," Harriett Bennet, Frederick Bentley, and Stephanie Deste; dance, "Wanda Waltz," Stephanie Deste, (a) Bridal Procession, (b) song, "Door of My Dreams," Harriett Bennet and chorus; bridal finale; finale ultimo. Scene—1: A novelty shop in Quebec. 2: Grand Ballroom, Chateau Fontenac, Quebec. 3: Impression, the cellar of a hotel, on the river-front, Quebec. 4: On a hill near Kootenay Pass. 5: The Casino. 10.57: From the studio, tomorrow's programme and late news. 11: "Big Ben"; the Ambassadors' Dance Orchestra. 11.45: National Anthem; close down.

SATURDAY, APRIL 21.

8 p.m.: "Big Ben"; from the Prince Edward Theatre, Sydney. (1) Introductory music by Prince Edward Concert Orchestra, conducted by Albert Cazaban; (2) incidental music to "Solitudes," a fox-trot subject; (3) Eddie Horton, world-famed organist, at the Wurliitzer organ, in special novelty numbers; (4) incidental music to the cartoon, "Rail Road"; (5) violin solos by Albert Cazaban (accompanist, Paul Vinogradoff); (6) incidental music to the picture, "Find the King"; (7) Albert Cazaban and concert orchestra in "Operatic Gems"; vocalists, Molly de Gume (soprano), Ansurin J. Moore (tenor), Lionel Lunt (baritone). 9.3: From the studio, late weather forecast. 9.6: Cyril Monk, violinist. 9.14: Norman Francis, tenor. 9.21: Alexander Sverjensky, pianoforte solos, (a) "Prelude in A Flat Major" (Chopin), (b) "Prelude in B Major" (Chopin), (c) "Valse in C Sharp Minor" (Chopin). 9.31: Frank Chapman, comedian. 9.38: Cyril Monk, violinist. 9.46: Norman Francis tenor. 9.54: Brunton Gibb, entertainer. 10.2: Frank Chapman, comedian. 10.10: Alexander Sverjensky, pianoforte solos, (a) "Sonnet of Petrarca" (Liszt), (b) "Impromptu" (McDowell), (c) "Dance Rustique" (Boscoff). 10.20: Brunton Gibb, entertainer. 10.30: Late weather forecast. 10.31: Harrison White, banjo solos. 10.38: From the Ambassadors' Dance Orchestra. 10.54: Brunton Gibb, entertainer. 10.57: From the studio, late weather forecast. 10.57: From the studio, tomorrow's programme and late news. 11: "Big Ben"; the Ambassadors' Dance Orchestra, in popular numbers until 11.45 p.m. 11.45: National Anthem; close down.

RADIO IN U.S.A.

Listeners in America have troubles which listeners in New Zealand do not have.

At the present time there is considerable uproar in the United States regarding broadcast regulation. The country was divided into five districts by the Radio Act of 1927 and a great proportion of the total watts power of the United States is concentrated in the most populous districts, that is, in New York and Chicago. The southern States have complained about discrimination, although the shortage of power in their areas is due to the lack of initiative in erecting stations. In the meanwhile, the broadcast band has been filled with stations and any power increases in the south are difficult to accommodate.

To counteract this situation, a Bill is proposed which will require the Federal Radio Commission to equalise the power distribution in the five districts. To comply with this mandate, it would be necessary to curtail the power of stations in the New York area by eighty per cent.

SCREEN-GRID VALVES.

INQUIRY shows that a good stock of these valves is held in Wellington. The first shipment of Marconi 5625 screen-grid valves is not expected to arrive for some time.

An Old-fashioned CHALLENGE to Combat



Time and again, Zenith has published this unwavering challenge to the world of radio:

"Under identical circumstances and conditions, and taking our various models in their proper grade, we challenge any make of radio receiver to equal or surpass Zenith performance in quality or quantity of tone; selectivity; sensitivity; distance; ease of operation; precision of manufacture and general all around performance."

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Programmes Continued

(Continued from page 11.)

- 8.35: Tenor solo—Mr. R. A. Mitchell, "She is Far From the Land" (Lambert).
 8.39: Instrumental trio (violin, flute, and piano)—"Oberlander" (Mangelsdorf).
 8.43: Mezzo-soprano solo—Miss Mollie Andrews, "Down in the Forest" (Donald).
 8.48: Flute solo—Mr. J. Stewart, "Fra Diavolo" (Hartman).
 8.54: Baritone solos—Mr. F. M. Tuohy, (a) "I Love the Moon" (Rubens); (b) "Sympathy" (Marshall).
 9.0: Weather report and forecast.
 9.12: Orchestral music from the Empire Theatre.
 9.12: Soprano solo—Miss Roma Buss, "In Happy Moments" from "Maritana" (Wallace).
 9.16: Violin solos—Mr. A. R. Watson, (a) "Waltzer" (Cramer); (b) "Tarentelle" (Langley).
 9.23: Vocal quartet—4YA Harmonists, "The Rosary" (Nevin).
 9.27: Cornet solo—Mr. George Christie, "Hailstorm Polka" (Rimmer).
 9.34: Tenor solo—Mr. R. A. Mitchell, "If With All Your Hearts" from "Elijah" (Handel).
 9.38: Instrumental trio (violin, flute, and piano)—"Slumber Song, Op. 11" (Ernsfeld).
 9.41: Mezzo-soprano solo—Miss Mollie Andrews, "The Songster's Awakening" (Fletcher).
 9.44: Vocal quartet—4YA Harmonists, "A Cradle Song" (Wheeler).
 9.47: Baritone solo—Mr. F. M. Tuohy, "The Crescent Moon" (Sanderson).
 9.50: Relay of orchestral selections.
 10.0: God Save the King.

Note: During the evening the professional boxing contest between Leckie (feather-weight champion of New Zealand) and Gillespie (feather-weight champion of Australia) will be described from the ringside. This contest is expected to take place about 9 o'clock.

Sunday, April 29

1YA AUCKLAND (333 METRES)—SUNDAY, APRIL 29.

- 3 p.m.: Afternoon session—Selected gramophone items.
 4.6: Literary selection by the Announcer.
 4.8: Further selected gramophone items.
 4.30: Close down.
 6.0: Children's service, conducted by Rev. L. B. Busfield.
 6.55: Relay of evening service from St. David's Church. Preacher, Rev. Ivo E. Bertram. Organist, Mr. E. C. Craston.
 8.30: Relay of band recital by the Municipal Band, under the direction of Mr. Christopher Smith.
 9.30: God Save the King.

2YA WELLINGTON (420 METRES)—SUNDAY, APRIL 29.

- 6 p.m.: Children's service, conducted by Uncle Ernest.
 6.55: Relay of evening service from Taranaki Street Methodist Church. Preacher: Rev. Clarence Eaton. Organist and choirmaster, Mr. H. Temple White.
 8.45: Relay of Port Nicholson Silver Band concert from the Grand Opera House, Wellington.

3YA CHRISTCHURCH (306 METRES)—SUNDAY, APRIL 29.

- 5.30 p.m.: Children's song service, by Uncle Sam.
 7.0: Relay of evening service from Salvation Army Citadel, Victoria Square. Speaker, Ensign Allan Montgomery.
 8.45: Rebroadcast of 2YA, Wellington (relay of Port Nicholson Band from Grand Opera House).

4YA DUNEDIN (463 METRES)—SUNDAY, APRIL 29.

- 5.30 p.m.: Children's song service.
 6.30: Relay of service from the Methodist Central Mission. Preacher, Rev. W. Walker. Organist, Mr. Chas. A. Martin.
 8.0: Band concert.
 9.15: God Save the King.

2YA FEATURES

(Continued from Page 7.)

Many good songs will be sung at 2YA on Friday evening by the members of the Celeste Quartet—Miss Myra Sawyer, Miss Mabel Dyer, Mr. Edgar Swain and Mr. W. Boardman. The concerted numbers will include "Strike the Lyre" and "Early One Morning." Favourite songs will be sung as duets and solos.

Also on Friday's programme will be the popular "Two Boiled Owls," who will give as a sketch "More Hoots," and vocal and novelty piano numbers. Messrs. Berthold and Bent, the Hawaiian Duo, will contribute popular airs.

On Saturday evening at 7.40 Miss Phyllis Bates, the well-known Wellington instructor in dancing, who last year gave a series of lectures at 2YA, will give a description of the Yale Blues.

On Saturday, April 28, the Melodie Four, in response to numerous requests, will repeat Irving Berlin's "Blue Skies." This popular song, which has been arranged for four male parts by Frank Crowther, con-

tains a haunting melody around which has been woven much beautiful harmony. The well-known song, "The Trumpeter," will also be presented in quartet form, as well as "Comrades in Arms." Each member of the quartet will present a solo number. Mr. Samuel Duncan will sing "I'll Sing the Songs of Araby," while Mr. Frank Bryant will be heard in "Linden Lea." Mr. R. S. Allwright (baritone) will present Elgar's rollicking song, "Rolling Down to Rio," and Mr. W. W. Marshall (basso) will sing "I Go to Claim My Love."

Xylophone solos and items by the Studio Trio will be played.

On Sunday the service of the Taranaki Street Methodist Church will be broadcast, after which a band concert will follow.

3YA FEATURES

(Continued.)

For the vaudiville programme on Saturday evening, some of 3YA's best week-end talent has been engaged, including Mrs. P. S. Lawrence, Messrs. Alfred Lovett, and Charles Lawrence in popular duets and solos, Miss Mabel Thomas, Mr. Dave McGill, the Studio Trio, Mr. Jas. Laurence (humorous recitations), Mr. Gordon Jackson (banjo), Mr. A. Ellwood (mouth organ), and Mr. S. E. Munday (clarinet). These artists will contribute a programme of the wide range for which 3YA Saturday evenings are noted.

AT 4YA

St. Kilda's Band, with a bright and varied programme, assisted by 4YA artists singing a number of old favourites, will provide the musical concert on Tuesday evening. Pastor More will deliver an address.

Light and bright will be the studio entertainment on Thursday. Much humour will abound. On the programme will appear numerous excerpts from musical comedies, such as "Going Up." Humorous stories, humorous songs, and humorous recitals will be given by Mr. Allan Young, Mr. Charles Rowand and Mr. Carl Moller respectively, while popular Hawaiian music will be supplied by the guitars of Messrs. Sheehy and Campbell.

Wednesday next being Anzac Day, the Otago Returned Soldiers' Association will hold a memorial service in the Kensington Drill Hall, which will be broadcast by 4YA, commencing at 2.45 p.m.

This will be an important and impressive service, and the big Drill Hall will no doubt be filled to capacity.

Prior to the service proper, which is timed to commence at 3 p.m., the St. Kilda Band, under the baton of Mr.

Our Mail Bag

An Eltham View.

An Eltham Listener: I read with interest many letters and comments on the programme question, which as far as we listeners are concerned is, of course, of great importance. We here feel the company is out to do its best for us, and this was in evidence especially on Easter Monday from 2YA in the way it catered for "sports."

I would like to pass a few remarks on my ideas of the programmes, if not out of place. I do feel we have a little too much of the very high-brow class of music, the first and second movements, etc. They invariably have very little in them approaching a "tune," which we all love. I much prefer opera selections or such pieces as "Valse Triste," etc., that have a melody which can be followed, and which are not so long drawn out.

I think Mr. Len Barnes one of the most versatile of your artists, and he entertains us in various ways splendidly. Mr. Haywood's pieces are always a delight, and so are cornet solos, flute, clarinet, etc. Mr. Stanley Warwick's "Monkey's Paw" was splendid; we are looking forward to his play. Miss Anita Graham appeals to us, and so do Miss Sawyer and Miss McGruer. The Male Quartets are delightful, and now that the piano is subdued for the "Boiled Owls," we can follow them better. The Rev. Lionel Fletcher on Easter Sunday was splendid—to him many thanks.

Reception from 2YA has not been nearly so good lately; it fades where it never did before. Can you account for this? Wishing you continued progress.

"Satisfied Customers."

Carborundum (Petone): After having carefully perused your last two or three numbers of the "Radio Record," I feel compelled to write a few lines re the discontent shown by a few Auckland listeners; I think, sir, the whole may be summarised into one word, jealousy. I am afraid it is the same old trouble, Auckland is always jealous of poor old Wellington; I guess, sir, that if 2YA had been established in Auckland nothing would have been said.

As regards the gentleman (?) with the "pull" who was going to do all the damage he could. Well, I am afraid it has only damaged himself. If he is not already heartily ashamed of himself he ought to be, as a good many other listeners are ashamed of him. I would suggest, Sir, that any Auckland growlers who are dissatisfied be given back their "thirty bobs." I am personally delighted with your programmes, especially now that you are cutting out that much-maligned trio. Really, we could not stand "Handel" or "Caruso" himself if he broadcasted every night. I am well pleased with the "Radio Record," and look forward to it week by week.

I would like the Broadcasting Company to feel that there are thousands of their customers who are well satisfied with their goods, who have not got the impudence to want to know all about the profit and loss account of the company.

Now, Sir, for my own little grouse: You promised some long time back (in answer to a correspondent) that a dictionary of some sort would be published explaining most of the technical words used in radio; up to the present there has been "no appearance, your worship."

[This work is in hand in connection with the preparation of a complete Radio Listeners' Guide, which is now in the hands of the printer, and will be available in the course of some six or seven weeks, perhaps sooner. See announcement elsewhere. The dictionary of terms is, we believe, the most complete ever compiled, at any rate in this country, in popular form, and will be very useful. We hope to begin at any rate condensed publication in the "Record" in the near future.—Ed.]

Harmonics.

G.C.H. (Masterton): Replying to Mr. S. R. Ellis's (Okato) letter in your issue of April 6, remarking on his having logged 4YA on 230 metres. Whenever it is on the air I also am able to log this station on this wavelength, or rather on about 231 metres, and a few months back, when recep-

James Dixon, will render appropriate music, and will be heard at other times during the service.

The Kaikorai Band, conducted by Mr. E. Franklin, will commence the service with a funeral march, and will afterwards provide further music.

The Returned Soldiers' Choir, under the direction of Mr. John Leech, will render an anthem with band accompaniment.

The principal speaker will be the Hon. Sir James Allen, K.C.B.,

Mr. J. Batel will give an address, "Landing on Gallipoli."

The "Last Post" and "Reveille" will be sounded by the Cadet Bugle Band, conducted by Sergeant-Major Napier.

A well-balanced programme has been arranged for Friday evening, comprising instrumental and vocal musical items, and elocutionary selections. The vocalists will be Miss Irene Hornblow, Miss Florence Sumner, Mr. J. B. MacPherson, and Mr. L. E. Dalley. A feature of the programme will be the contributions of Miss Sheila Neilson, elocutionist.

An interesting lecture will be given on Saturday at 7.30 p.m., when Miss M. H. King, principal of the Otago Girls' High School, will speak on "Study of Literature."

The 4YA Harmonists, allied with other talent, will provide excellent entertainment on Saturday evening. There will also be relayed a description of

tion here of 4YA was not too good, I frequently tuned in the harmonic wave in preference to the normal setting and got better reception. Mr. Ellis may be interested to learn that when 4YA was transmitting on a wavelength of 380 metres, and again later when on 435 metres, I was then also able to log in on the harmonic wave. Another station I find possessing a harmonic is 3LO, Melbourne, and on about 185 metres is loud enough to listen to (my dial setting is 6 for the harmonic). I cannot understand Mr. Ellis logging 4YA on 85 metres, as the station's fourth harmonic would be approximately 92½ metres.

I would be pleased to hear if any listener has brought in any stations other than the two mentioned on their first harmonic—not possessing a short-wave set the harmonics would of course have to be on the broadcast band to interest me.

As regards KFON, Mr. Ellis will find this station by tuning in on 241.8 metres up till 8.30 each evening. KFON has not been transmitting on 290.6 metres since June last.

Short-wave Enthusiasm.

S. Saunders (Wellington) in recounting a long list of receptions throughout Easter (too late for publication last week) states that on Monday, April 9, 3LO, Melbourne, came in at good strength. He received it at first with the aerial switched off. The announcer said they get about 200 letters from all parts of the world a week, written in different languages, for which they had an interpreter. He had received letters from two princes, also from several of the nobility. He stated that short-wave telephony was only in its experimental stages yet, and they were trying their best to make it a success. Not very long ago the amateur enthusiast would sit up all night to get spark morse from a nearby ship. He would be pleased to receive letters on their transmission, and each letter would be answered by the first mail.

Too Much Trio.

G.C.C. (Nelson): After reading with considerable interest your page in this week's "Record" of correspondents' views of programmes, I felt I would like to add my quota. With regard to programmes, I would like to congratulate the Broadcasting Company on the programmes put on the air, and consider they are the cream of talent available in this country, with one exception, and that applies to the three main stations. I refer to the three trios on the air nightly, with their third and fourth movements, D minors, Eb romances, and Bb finals. As soloists these artists cannot be beaten, but as trios they are a "washout," in my opinion. If these trios must be put on the air, and I admit there are some listeners who prefer that class of stuff, why give them 40 minutes (average) of an already short programme, when listeners get an average of only five minutes occasionally of artists like Mrs. Stallard, Miss Hamerton, Miss Elaine Moody and party, Mr. Lad Haywood, and many others equally good? If, as we honestly believe, the company is out for the good of the listener, may I suggest that you publish a voting coupon in your valuable paper to enable every listener to express an opinion on the class of items he or she prefers. [Frankly, we have shirked this for two reasons: (1) Because of the work involved, and that is pretty heavy; and (2) because exhaustive votes in Britain and America are available, and as the law of averages operates fairly effectively, the tastes recorded there are almost sure to apply here. If there is a keen desire for a vote we will be prepared to conduct one.—Ed.]

Some Attractive Suggestions.

Waihi: Last issue received to-day containing letters on programmes and lack of variety. Almost every complaint comes from valve set owners as near as I can judge. This seems remarkable, as these people have the choice of three programmes each night, as against the crystal set owners' one programme, and surely if their sets are efficient any reasonable person with the night's programmes before him can choose a concert to suit his own taste. Personally, my favourite items are instrumental—banjo, guitar, cornet, mandolin, etc. By subscribing to the "Radio Record" I am enabled each night to select what items in each programme I prefer, and as they are as a rule fairly on time, I am enabled to choose a good evening's entertainment. At the same time I must admit that there is a sameness about the programmes which would become irksome if I were confined to a crystal set and one station. For the benefit of all listeners I would suggest that the transmission of gramophone records would add a great deal to the attractiveness of programmes. With the new method of recording these are a treat, giving as they do a wide selection of the world's best artists, and, in addition, almost without exception, they broadcast much clearer and with an absence of background noises which is often noticeable in studio items. No exception is taken in England and America to "canned" music (in fact, by the latest papers it seems a greater use than ever is being made of records), in spite of the fact that they have an unlimited number of artists to call on as against our small number. I would suggest, therefore, that as lack of variety and not the ability of performers is the chief cause of complaint, that three or four records wisely selected in relation to the rest of the programme would be thankfully received. Several times I have heard records during an evening programme, and have so far not seen a single complaint in letters. Further, while not suggesting that announcers should descend to cheap wit, they could adopt a more breezy and pleasant manner of delivery without sacrificing their dignity. To listen to 3YA's announcer and then hear the

stiff and correct bald announcement from other stations will give you an idea of how the personality of the announcer makes one's favourite station. I feel that I have known 3YA's announcer for years, and it is always pleasant to tune in and hear his pleasant method. This may be a small matter, but it is these little things which go to make up the programme, and an announcer's voice can become just as monotonous as other items. In your summary of times occupied by various items, you state that announcing takes sixty minutes or one-twelfth of the time. Why not give the understudy a chance?

In conclusion, I think that the greatest cause of complaints is that the novelty and mystery of wireless reception has worn off, even home constructors and experimenters, owing to cost of components, being confined to sets already built. To keep their interest, novelty items must be kept up. A few suggestions: Relays of overseas stations, mouth organ solos, relays of championship boxing bouts, Sydney Stadium, guessing competitions (one I recently heard was striking objects, bells, trays, blowing horn, working bolt of rifle, etc., winning guesser receiving a valve or small prize), harp solos (never heard one for years), playing competitions (limit competitions, known by numbers, to say six; let each play same item for two minutes and invite listeners to vote for winner, who will receive a prize). With amateurs only it should not be difficult to stage a different kind of instrument each week, violin, banjo, piano, mandolin, cornet, etc., with little expense for advertising, and only taking about 20 minutes one night a week. The performances may not be high class, and most of us are not competent to judge, but even so most listeners seem good critics and would have a go at picking them.

An Outside View of Auckland.

H.D.B., Tokomaru Bay: I consider your paper a very valuable little journal, and heartily endorse all your remarks concerning the uncalled-for and adverse criticism which has been appearing in some of the Auckland papers. It is, however, impossible to please some people, and it appears to me that the "Auckland Listeners' League" are like children, and really don't know what they want. We can "tune in" all the New Zealand stations here (and most of the Australian ones), and consider the programmes excellent, and realise that the management have to cater for all tastes—not an isolated few.

Wishing your journal and company every success.

An Inquiry.

"A Listener" (Wellington): A listener-in on Wednesday, March 28, picked up on a spider-web double coil, as described in the "Radio Record," and with the aid of some home-made crystal, heard a station calling, "Hello! Hello!" repeated several times. The caller then said: "Have you seen our new self-starter, Jack? When are you coming to see us, Jack?" The reception was good, but was slightly troubled by morse. The call was received about 9.15 and continued until 10 o'clock, then faded away. Can any advice be given as to the whereabouts of this station through your paper?

Analysis of Criticism.

G. C. H. (Masterton): Touching on the "burning question" of the quality of the programmes submitted by the Radio Broadcasting Co., while not being perhaps absolutely satisfied myself with the programmes presented, I have no sympathy with those who write to the "Record" and the newspapers in such a disparaging manner in regard to same, most of the letters being absurdly lacking in common sense, and, in my opinion, containing unwarranted criticism. Unfortunately the great majority of letters appearing in the "Record" and elsewhere contain quite unjustified complaints; all too few of the thousands of appreciative listeners make known their appreciation in print. I have come to the conclusion that the majority of those writing letters of adverse criticism are listeners who have had their licenses only for a short time. It can hardly be that listeners of longer standing would be so absolutely lacking in judgment, as it must be very apparent to them that there has been a tremendous improvement in the programmes during the past seven months or so, and that further improvement is taking place. What would perhaps bring the growlers to their senses would be for the stations to close down now and again for, say, a week at a time; and then they would really appreciate what they are receiving every afternoon and evening for such a small cost. What of this Easter? Why, with extra transmissions of church services and sporting fixtures, listeners are receiving a veritable feast of entertainment.

Buck up, all you growlers who read this, and look at the matter from a common-sense viewpoint. "Hard Up" (Roxburgh) letter in the "Record" of April 6 contains a lot of sense. Try to be impartial in your views and tastes, and keep your unjust criticisms to yourselves. Learn to appreciate the programmes that are given now and you will get a lot more enjoyment for your 30s. per annum than before. Remember, "Blessed is he that expecteth little, for he shall receive much."

Pick Your Own Menu.

Music (Wellington): I would like through the columns of your valuable paper to thank the manager of the Radio Broadcasting Company for a courteous reply to a request I made for a repeat of some pieces of music that had been played by the Symon-Billwood-Short Trio from 2YA.

Other information asked for was also willingly given, and the manager was also kind enough to advise me by letter nearly a month ahead when two of the request items would be relayed, an action which I greatly appreciate, as it

(Continued Next Page.)



I've Been Thinking it Over

Is radio worth while after all with this recharging of batteries which seem to run out almost immediately—worry—trouble and expense?

It's not! But there is no need to give up radio. I've decided to give up the trouble instead, and buy an EMCO "B" Battery Eliminator and run my set direct from the lighting mains.

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RADIO PRODUCTS
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NEWS FOR THE CHILDREN

"AUNT PAT GOES TO WIRELESS LAND"

Aunt Pat, dear children—has been away, But I did not know till the other day Where it was that she travelled to. But Brer Rabbit told me, so I'll tell you.

It was so strange, how it all came about I never could really have found it out. I was sitting alone the other night, It wasn't dark and it wasn't light, When I heard a queer sound, so I ran to the door, And was just in time to see a brown paw

Dropping a note in my letter box. I hadn't heard footsteps—there'd been no knocks.

'Twas old Brer Rabbit! then off up the street, I heard "patter-patter" go his soft little feet; And this was the note that I got from old bunny. I'll have to tell you, it was so funny. The note just said, "If you want some fun

Put on your hat and run! run! run!!! As fast as you can to 3YA. The fairies are taking Aunt Pat away." So off I ran, and when I got there, The fairies had trooped to the top of the stair.

They said: "We must watch out for Uncle Sam," But they found he'd gone home on the Summer tram.

Then they peeped in the microphone, romped round the stair, And even tried the announcer's chair, While with soft fairy voice, one small wireless sprite, Said: "Our session's concluded; we bid you good-night."

And then they hunted and hunted around, Until in the office Aunt Pat they found. Aunt Pat began to laugh and laugh, When they led upstairs a tall giraffe, Who bowed his head and wished her "Good-day"

And said: "A fine station, the 3YA." He said he'd come from far over the sea And was only too proud and too happy to be

The one who was chosen to fetch her away.

Then bowing again on the carpet he lay, And dear Aunt Pat could do nothing but laugh.

And stroke the head of the proud giraffe. She's so full of fun herself, you see That she quite enjoyed this Wireless Spree.

Then the fairies said: "We will take you afar, To the place where the wireless fairies are.

We have often heard your happy laugh, So we all decided to send the giraffe. He's a trusty friend and true, And he knows our wishes regarding you."

Then the old giraffe again bowed his head, And there in the room stood a coach of red.

And the fairies harnessed the tall giraffe

With wireless waves. Didn't Aunt Pat laugh.

Then they put the wireless reins in her hand,

And said: "Off you go to Wireless Land."

Of course all the fairies went with her too,

And wasn't there then a fine hullabaloo.

It was dark as dark but it was such fun, And the old giraffe soon started to run.

Of course Aunt Pat didn't know the way

And she couldn't help wishing that it was day.

At last they came to the Static Zone, Such a noisy place and oh so lone.

They came to a beautiful place at last, Where the old giraffe did not go so fast.

There were aerial masts everywhere she turned

And this was wireless land she learned.

She saw one place with a beautiful dome,

And they told her that that was the fairies' home.

(Continued in Column 5.)

Children's Sessions for Next Week

AT 1YA.

TUESDAY, 24th.—Uncle George will amuse the large Radio Family from 6 to 7, with his delightful stories and talks. He will also have a song or two about our friends in Nursery Rhyme Land, and there will be letters and birthday greetings. Mr. Faigan will give a talk on Shakespeare.

WEDNESDAY.—Uncle Tom will talk to the members of Radioland about Anzac Day, and there will be suitable musical items.

THURSDAY.—Peter Pan has the Optimist Club with him, so look out for a cheery evening. Jolly people singing jolly songs and choruses. Everybody happy.

FRIDAY.—Nod will be assisted by pupils of Madame Annie Morris on the piano, and pupils of Mr. Wilfred Morris on the violin, so watch out for these clever little performers.

SATURDAY.—Here's Cinderella again with some splendid news. In her glass slipper she has Sunny Jim, and as usual he is full of jokes, conundrums, and interesting stories.

AT 2YA.

MONDAY, APRIL 23, being St. George's day and Shakespeare's Day, a special programme will be presented. Light dainty scenes from the comedies will be presented, and

several of the songs of Shakespeare. The music and word pictures of the great poet will long remain in your memory.

TUESDAY.—We are going to a fancy dress masked ball. Pierot and Pierette will conduct us there, and oh, the splendid costumes, gay music and colour everywhere. You will enter through the archway of Japanese lanterns till you find yourself in a veritable fairyland of delight. Our friends Bernard and Elton, with their banjo mandolines, will be there dressed as gondoliers, and serenading the party.

THURSDAY.—We come to the land of lilting rhymes and fairy pictures. Uncle Sandy and his court, consisting of the Northland School children, will reign supreme in this land of joy for one whole hour; songs, sketches, birthday rhymes, and stories.

FRIDAY.—The Girl Guides with their campfire stories and choruses will help Uncle Ernest to amuse the little ones. We shall transport ourselves to some far away dell, and in the dancing shadows that are cast by the flickering fire, unfold our treasure store of songs and stories.

SATURDAY.—Auntie Dot and Uncle Toby, with Felix the cat (the sworn enemy of Spot), will while the hour away—songs, birthday greetings, stories, and general dialogue.

AT 3YA.

MONDAY, APRIL 23.—A grand entertainment to-night to celebrate Shakespeare's birthday. Uncle Jack is in charge, with Aunt Edna and a band of Miss Cowan's clever little pupils to help in songs, dialogues and choruses.

THURSDAY.—Chuckie is to be back with us to-night, with a host of fresh ditties to sing, and stories to tell, and Aunt Pat so pleased to see him back that she will sing, too.

FRIDAY.—To-night we have a new helper whose name is "Soccer." Doesn't that interest the boys? Look out for some good play. The girls won't be forgotten, however, and there will be stories and songs for them, too.

SATURDAY.—Uncle Sam and Aunt May are names that bring joy to all the Radio Family, and they will keep you happy during the bedtime hour to-night.

SUNDAY.—The song service, for young and old. Uncle Sam in charge, and Conductor, Jos. Taylor is bringing the Girls' Song Brigade from the Salvation Army to help.

"AUNT PAT GOES TO WIRELESS LAND"

(Continued.)

Then they brought the wee fairies that carried her voice.

It seemed they were all allowed their choice;

But if a place was too far away, The fairies just whispered her voice away.

There were 'phones and loudspeakers all over the place,

With an extra big one to send the bass. And whenever the wireless fairies dispersed,

They'd go to the sick little children first.

They never forgot to go to one They'd have been ashamed when their day was done.

Over the speakers the fairies would bend

To catch the nice greetings the uncles would send.

Then swiftly they'd run to each white little bed

To tell them exactly what each uncle said.

And the lovely songs that the children would sing

Some kind little fairy would hasten to bring.

The wireless fairies were oh so gay 'That carried the children's voices away.

And wherever she went in the wireless zone

Were fairies in charge of a speaker or 'phone.

They kept Aunt Pat three days and nights,

And showed her all the beautiful sights.

The wee fairies belonging to Auntie Pat Had nothing to do so the little things sat

And ever so softly they stroked her hair And said: "Will you laugh like you do down there?"

But poor Aunt Pat could only sigh. They were all so sweet she wanted to cry.

And they loved her so much they begged her to stay.

But she thought of the children at 3YA.

On the last of the nights Aunt Pat was away

Someone announced: "Station 3YA." And what do you think it was Uncle Sam.

He had come up again on the Summer tram.

'Twas the Children's Hour, and she heard Uncle Jack.

So she thought it was time she was starting back.

So the tall giraffe once again was brought.

He seemed to have been most carefully taught.

And again was Aunt Pat by the fairies led

And placed inside the coach of red.

When she still was up—oh, ever so high She thought she heard voices, as she went by.

And then she laughed, for of course she knew

'Twas Big Brother's voice and Peterkin's too.

They were asking riddles as she passed through

The very thing they were sure to do. But the riddle's answer she did not know.

It was: "Where does the wind from a windmill go?"

She was too far down to hear the rest. And she wondered and wondered if Peterkin guessed.

But she got back safely without being seen

And nobody guessed where Aunt Pat had been.

So now when you hear her happy laugh You will think of the pride of that tall giraffe;

And whenever Aunt Pat is speaking to you,

You will know what it is that the fairies do;

And all little children, both near and far

Will know who the wireless fairies are. And whenever you hear her over the air, Won't you all just wish that you'd all been there!!

—By "Aunt Mary."

WIRELESS WORLD CLOCK

At ten in the morning and six in the evening the Rugby (England) wireless station sends out time signals of such exactness that an astronomer on land or a navigator at sea could set his watch by them.

For five minutes at second intervals the dots and dashes go on, and, radiating outward for hundreds or thousands of miles, tell those who pick them up not only what inquiring children call "the right time," but the right place.

For example, if when the 10 o'clock signals began to tick off the navigator's chronometer marked 20 minutes to the hour or 30 minutes past it he would be able to calculate just how many miles he was east or west of the meridian of Greenwich by which the standard time sent out by Rugby is fixed.

A surveyor in Africa or Asia having the means to pick up the signals would in the same way know just what was the longitude where he was travelling; and the 300 signals sent out in 300 seconds are of such extreme exactness that they would serve as a correction to surveyors mapping out the land.

This new British time signal, sending out the time over half the globe, is the first instalment of a plan by which the standard time will be sent out from a number of selected great wireless stations. When the system is complete it will be the equivalent of an international clock and send out time for the world. It will, in short, be the World Clock. Some day, perhaps, the planets will be able to set their time by it; we shall have one time everywhere. Why not?

Pending that achievement we may well look forward to a day when men all over the world will wear wireless watches on their wrists, or at least carry them in their pockets, to catch up the wireless signals of the time whenever they want it. Then nobody will have an excuse for missing the train.

SOUND v. WIRELESS

Two fog-signalling stations off the German coast, one at the mouth of the Rhine and the other on the Meuse, are using a new system of warning vessels by which a ship can tell how far it is from shore. It is done by making a sound travelling through the water race a wireless signal!

The sound from a submarine bell travels at about 1360 yards a second



Auntie May, of 3YA.
(Miss Eileen Warren.)

—Webb, photo.

through the water, but a wireless signal, travelling with the speed of light, takes so little time that it need not be counted. The operator on the ship thus hears the wireless signals instantly and the submarine signals later. The wireless signals are recorded as dots, which are marked on a travelling paper ribbon, so many a second, and the operator has merely to count how many dots appear between the beginning of the wireless signal and the hearing of the submarine bell to find how far away he is.

Two lightships have been equipped to test submarine signalling, using an under-water oscillator which vibrates 1050 times a minute. The signals will be picked up by ships provided with submarine telephones or hydrophones.

WAYS OF WIRELESS WAVES

The short wireless waves which are being used so much have recently been found to behave very mysteriously.

The wave 50 metres long can, for example, be picked up at any distance up to 50 miles, but is quite often inaudible at points between 50 and 500 miles. But at distances between 500 and 1500 miles the waves can be picked up quite easily.

Still shorter waves behave more curiously still. A 15-metre wireless wave

WIRELESS FINDS THE WORLD'S LOST PEOPLE

A message was broadcast from 2LO not long ago which was a first instalment of some of the visions of the future conjured up by a scientific novelist long ago.

A young American was on a cycling tour in Scotland, had left no addresses, and was for all practical purposes out of reach of letters and telegrams. He was wanted. His father had died at sea. It was imperative that he should go home with all speed.

So much the wireless spoke aloud to all who might listen, and who can doubt that wherever the young man was he must sooner, rather than later, hear of this strange call, perhaps at the first inn in the Highlands where he stopped for a night's lodging? Even if he sought a bed at a farmhouse he would more likely than not be told of the message that had been humming the night before on the wireless.

The wireless had another arrow on its string. This one was winged in search of a relative of the American, a lady who was known to be touring the Eastern counties, and whose car had been seen in Cambridge the day before. That wireless arrow was sure to find its mark.

When the scientific writer was plunging into the future years ago he imagined that if a man were wanted urgently he could be almost immediately found, even if he were wandering lonely in some glacier field of Spitzbergen or in Pacific Islands. Wireless, in its infancy then, has made the whole of the prediction matter-of-fact now.

can be picked up easily at any distance up to ten miles; after that no one can hear it until 1500 miles away. All these and many other quaint vagaries of short wireless waves have just been considered at a special meeting of the Radio Society of Great Britain, and as a result of this meeting it seems quite certain that short waves are more useful than the miles-long waves hitherto used, at any rate up to distances of a thousand miles.

AN AUSTRALIAN UNCLE.

By each mail from New Zealand Uncle Bass has been receiving many dozens of letters from his little friends in the Dominion.

Uncle Bass gives a special call to all his little New Zealand friends on Monday evening. This is a regular feature of the Bedtime Story programme from 2BL.

Our Mail Bag

(Continued from Page 14.)

enables me to fit this night in. I consider the programmes from 2YA are generally very good. We are not compelled nor are we expected to swallow all the items provided on the menu—"programme." We do not do so when we go to a restaurant for a meal. When we go to a restaurant for a meal we consult the menu and pick out certain articles of food that we fancy, and those we do not care about we do not have, but we do not abuse the management for having provided something we do not like.

The Broadcasting Company is in somewhat the same position as the restaurant keeper, having to provide a bill of fare to suit a variety of tastes, and if listeners will insist on trying to digest everything on the menu, if it agrees with them or not, they should not blame the company if they suffer from musical indigestion, or, in other words, get "fed up."

I would like to add a word of appreciation on the enterprise of the company in again securing the right to broadcast the Sunday night concerts by

the P.N.S. and W.M.T. Bands from 2YA on alternate Sunday nights. Although I usually attend these concerts myself, the broadcasting of them is a boon to country listeners.

The formation of an orchestra in place of and including the Studio Trio is a good move, and is being eagerly awaited for by many listeners.

Mrs. Kenny's Mandolin Band is also worthy of a bit of notice. The programme put over by this band on Saturday night last (Easter Saturday) was not only in keeping with the season, but amply demonstrated that this instrument is capable of putting over what we might call medium heavy-weight music, equally as well as the light jazz programme this party put over some six weeks ago. This combination, with its high pitched firsts and deeper seconds, playing in splendid time to the rhythmic strumming of the ukulele, should go a long way to popularise the radio with all classes of listeners if they are given the opportunity.

I would like to add my weight to "2.M.U.C.H.," "Record," 13-4-28, re Sunday afternoon concerts from 2YA during the winter months, and also agree that good class gramophone records would be very suitable.

In conclusion I must thank you for so much of your valuable space, and wish your paper and the Radio Broadcasting Company all possible success and good wishes.

The Programmes

Satisfied (Wellington): I should like to answer through your columns a letter written by one who signs himself N. S. Francis. I am now referring to his criticism of 2YA's concert programmes. I am pleased to say that I cannot altogether agree with the complaints outlined by this gentleman, whose musical intellect seems somewhat lacking. Taking into consideration the amount of foolish complaints the authorities of 2YA must receive, I think their patience must be somewhat tried. When one considers the complaints put forward by Mr. Francis, one is reminded of an Oxiphone belching forth noise, that is, a bull bellowing in a paddock. Trusting that listeners will endeavour to aid broadcasting by helpful criticism, and not twaddle that may retard the effort of those who are endeavouring to make it a success.

Inquiries Answered.

R. J. Crable (Napier): I notice a couple of inquiries in this week's issue of the "Record." A Wellington listen-

er reports having heard a station on a fairly low wave-length after the Australian stations had closed down. I think that he will find that it was 3DB, Melbourne. This station is operated by the Druileigh Business College on a wave-length of 255 metres and power of 500 watts.

Last Thursday night (April 5) I sat up very late to see if there was anything after the Aussies had closed down. 3DB was the only station heard, and he was going until about 2.15 a.m., corresponding to 12.45 Australian time. No other stations were heard, although I listened periodically until dawn as a trial to see what might be picked up.

In the second query a reader from Etrick reports a station on about 230 metres giving a speech session at 7.30 p.m. I think this will be found to be the first harmonic of 4YA, Dunedin (463 metres). This harmonic can always be heard when 4YA is on the air, a few points below KPON.

Static has been a nightmare to Napier listeners for the last month with practically no clear night. There is plenty of volume in all stations, but static on most nights has put listening out of the question.

A new member to the broadcasting band is 2AQ, Taihape, who has been heard testing on various waves from 280 to 310 metres on one or two evenings recently. He comes in with plenty of kick.

It is very pleasing to note that 2YA is shortly going to have a fine studio orchestra.

Can any reader tell me the identity of a station, presumably an American, on about 310 metres. I have heard him faintly between 5.30 p.m. and 6 p.m., but as soon as 3YA, Christchurch, starts, this station is, of course, blotted out. It is not an Australian. I will have a good go at him on 3YA's silent night. 2AQ will be found on 320 metres when he gets going properly.

The Radio Depot

105 Manchester St., Christchurch.

E. G. SHIPLEY.

RADIO SPECIALIST.

'Phone 4776.

The Future of Broadcasting and Television

Dr. de Forest Discusses the Radio Possibilities

Radio listeners will be interested in the following article on the Future of Broadcasting and Television broadcast recently from station WRNY, New York, in dialogue form between Dr. Lee de Forest and the Editor of the "Radio News." Dr. de Forest is a notable inventor whose opinions carry much weight.



IN the "Home Science University" series of Station WRNY, broadcast on January 11, 1928, Dr. Lee de Forest was interrogated by the editor of "Radio News" on a number of radio subjects. The entire interview is published, verbatim.

Mr. Gernsback: The questions which I am going to ask you to-night, Doctor de Forest, are put to you in such a way as perhaps the man in the street would put them to you, if he had the opportunity, or, may I say, the good fortune to speak to you. I shall try and make the questions as simple as possible; because you appreciate that, perhaps, not all of our listeners are technically inclined, and few can know all the technicalities. The first question is: "What do you consider the greatest step in radio progress for the year 1927?"

Dr. de Forest: Mr. Gernsback, before I answer that and the following questions, I want to say to the radio audience, that my remarks to-night will not be too technical. From the tenor of the questions which are being proposed to me, I am talking in strictly radio technical matters; but I trust that I will use language that those really interested in radio will understand. Now, in answer to your first question, I consider that the most important radio developments in 1927 came under the heads of the rapid elimination of "A" and "B" batteries for radio receiving sets, and the progress in the development of short-wave-length broadcasting. Great progress has also been made during the past year in the simplification and standardisation of tuning devices; so much so that, for all local work, the single-dial control, even though this may operate three or four condensers, gives fine selectivity and adequate volume. The DX fan still wants individual-stage control with vernier condensers; but the great mass of radio listeners, who now overwhelmingly preponderate in and around our larger cities, are rapidly becoming educated to the fact that the very best they can obtain of radio anywhere comes from nearby stations. Therefore the extreme accuracy in tuning each individual R.F. amplification stage, in order to pick up with maximum volume long-distance stations, no longer appeals as it did.

Mr. Gernsback: Thank you, Doctor. Another question: "What are your views on the present broadcast art?"

Dr. de Forest: It is a source of immeasurable gratification to me to observe the very marked increase in the quality of musical programmes now being broadcast, as compared with that of two years, or even one year ago. This is particularly noticeable on Sundays; a lover of good music may then listen to his radio for hours at a time, and hear nothing but music of the highest order. To-day's radio is abundantly making good my prediction of many years

ago, that radio would be instrumental, as no other institution of man's creation possibly could be instrumental, in a rapid development of the public's taste for good music. Countless thousands are now educated to hunt for and genuinely appreciate a type of music, of which five years ago they were entirely ignorant, or under no conceivable condition would trouble themselves to hear.

This cultural influence of radio is cumulative, accelerative. I have no doubt that, five years from now, most of the cheap jazz and mediocre music which the public now enjoys will be as distasteful in the United States as it has always been among the more cultured and music-loving peoples of Europe.

Mr. Gernsback: That probably answers the next question, which I shall put to you, anyhow.

In what directions do you think present broadcasting should or can go? What are your views?

Dr. de Forest: That calls for a somewhat more technical answer. As to the technical developments awaiting us in 1928, I am sure that great strides will be made in the matter of improved quality of reproduction. The better type of console radio with built-in loudspeakers, particularly the higher-priced ones with phonograph combined, will be more and more in demand. And as prosperity becomes more widely distributed, and particularly as the educative influence of radio, above mentioned, works its indirect benefits, more and more will discard their cheap "noise-boxes" in favour of more expensive and properly designed amplifiers and loudspeakers.

Much progress will be made in 1928 in the field of broadcasting with short wavelengths below 50 metres; but it will take more than one year to iron out successfully the intricate difficulties involved in building reliable receivers for operating on such short waves.

It will be a long and slow process of infiltration that short-wave broadcasting must undergo before it can invade, to any large degree, the popularity which the present range of broadcasting channels now enjoys.

Mr. Gernsback: Dr. de Forest, you probably read a few days ago, that Harry Lauder said he would never broadcast. He said the present reception is not at all what it should be. I don't know whether you read that in the newspapers. That brings the question:

"Wherein does the present-day radio set fail, if it does fail?"

Dr. de Forest: I had not read that article; but it exactly fits with a statement made to me at luncheon to-day with a friend who recently met ten of the Players at the Players Club. He said he talked with them about radio, and found that only one of the ten owned a radio set; five of the ten had owned

radio sets, but, with their ears so well trained to fine enunciation and fine music, they discarded the sets; and the other four were not interested in radio.

Many present-day radio sets are deficient in the quality of their audio amplifiers, and particularly in the loudspeakers employed. The radio-frequency and detector systems have attained a high state of refinement, but too little attention has been paid up to date to the audio-frequency-amplifier end of the receiver. Too little iron is used in most of the transformers; too few amplifiers employ push-pull circuits; and there is too little inclination to employ expensive power tubes in the last stages; with the result that we frequently have distortion due to saturation in the transformers, or overloaded tubes somewhere along the line.

Mr. Gernsback: That partly answers my next question, which I will put to you if you have something more to say about it, and that is:

What is lacking to make present-day sets more perfect?

Dr. de Forest: I think the greatest need in that direction is better audio-frequency amplification, and, particularly, better loudspeakers. I do not consider any of the cones now on the market come anywhere near the perfect loudspeaker. Cones invariably favour some frequencies at the expense of others, and most of the cones, while over-emphasising the bass, put a mask of "paper rattle" over the higher frequencies. Although more expensive, more clumsy, and demanding more space, and altogether less artistic, there are certain types of non-metallic horns, now on the market which, with proper loudspeaker units, give far better reproduction than any 18-inch cone. I strongly advocate a radio set built into a large console cabinet with sufficient room to take in one of the larger exponential horns. I know of one or two such combinations of radio and phonograph in one cabinet now being developed, though not yet on the market, which give incomparably better sound reproduction than anything with which the radio public is familiar.

Mr. Gernsback:

Dr. de Forest, are you convinced that the present-day alternating-current set is a step in the right direction?

Dr. de Forest: As to the technical developments awaiting us in 1928, very rapid progress has been made by a number of leading manufacturers in the solving of the problem of applying raw A.C. to the filaments of the valves, and several first-class sets are now on the market using these valves, thereby being made entirely independent of "A," "B," and "C" batteries. There is no question that the trend of the industry is entirely in this direction, and that, during the ensuing twelve months, we will see the storage battery eliminated,

except for the cheaper class of sets. This will be a development which every user of radio must heartily appreciate. The storage battery has from the start been a very serious nuisance in the home, and will shortly be quite superfluous wherever electric current, A.C. or D.C., is available. The better type of console radio with built-in speakers, particularly the higher-priced ones with phonograph combined, will be more and more in demand. And as prosperity becomes more widely distributed, and particularly as the educative influence of radio works its insinuating benefits, more and more will the radio public favour the more expensive and properly designed amplifiers and loudspeakers.

Mr. Gernsback:

For the next question, Dr. de Forest, the new so-called "screen-grid" valve makes it possible to use much less current than the old-type valve. Do you think multi-valve sets with little battery consumption a possibility, and that battery-operated sets might yet prevail in the future?

Dr. de Forest: Notwithstanding the greater current economy which the double-grid valves permit, I do not think that multi-valve sets for battery consumption will ever again be popular. I think the day of general use of the storage battery and the dry battery is rapidly drawing to an end. The great convenience and sense of satisfaction in knowing that you are not dependent upon a battery which may give out in the midst of a particularly desired programme, will outweigh any other considerations just as soon as the socket-power units and the A.C. valves are a little further perfected.

Mr. Gernsback:

What are your views on television, in view of the past experiments by Baird, of London, and by the research engineers of the American Telegraph and Telephone Corporation? Do you believe television attachments to radio sets a matter of the near future? If so, how soon?

Dr. de Forest: I am quite naturally interested, and have inspected the work in television which has been carried on in this country, particularly that by the American Telegraph and Telephone Corporation. I must pay the highest possible tribute to the ingenuity and patient research which has made possible the system employed by the American Telegraph and Telephone Corporation. It is little less than a scientific miracle. Nevertheless, I know my views on television have been somewhat disappointing to those who wish to believe that in the next few years everyone can have a moving-picture show at home, broadcast direct from his favourite theatre. Frankly, I cannot foresee such a millennium for the radio fan. Until some radically new discovery has been made in physics, some

new principle or operation of which we to-day have no clear conception, television apparatus must continue to be extremely intricate, delicate, requiring the constant and most careful attention of highly-skilled experts, and be built and operated at very great cost. Until such a new discovery, therefore, I think we must limit our television expectations to an occasional demonstration under the auspices of one of the few great electrical engineering and manufacturing corporations. Television in the popular mind means radio broadcasts of distant scenes as they transpire.

I have little patience with some of those whose names are associated with the history of this new development, who seem willing to impose on the gullibility which the public evinces whenever the word "television" is used. A few years ago it was impossible to get anyone to believe in wireless telegraphy, and later in the possibilities of the wireless telephone. Of recent years, however, the progress in popular science has been so phenomenal that general gullibility, or willingness to accept any prediction along the lines of invention, takes the place of the scepticism which formerly made the work of pioneers so difficult.

Mr. Gernsback: According to your thoughts, doctor, I presume what you mean by a new development in physics would be a television apparatus without revolving parts, such as that we have at the present time?

Dr. de Forest: Yes, I think that such a development will eventually be made, but it will be the result of some discovery as radical and as unexpected as was the invention of the X-ray by Roentgen; and not until we have another Roentgen or Michelson, who produces or makes a new discovery as radical as the X-ray was at the time he made it, may we bring into existence the television which we all would so gladly welcome.

Mr. Gernsback: I think you are a little too modest, doctor, when you mention as an example the X-ray. Why didn't you say the vacuum tube? You are the one who invented that unexpected wonder. Let me ask you the next question.

What, to your mind, while we are talking of vacuum tubes, is the ideal vacuum tube of the future? What should be its outstanding point?

Dr. de Forest: I think the ideal vacuum tube of the future should operate without batteries, it should be small, ruggedly-built, absolutely free of all tube noise, and non-microphonic. It goes without saying, that it should be operated without overloading, and with absolute freedom of alternating-current or direct-current noises. I think that such a vacuum tube will be produced within the next two or three years.

INTERNATIONAL BROADCASTS

ENGLAND AND U.S.A.

To demonstrate the ease with which the English programmes are being received in America via short wave relay, Dr. Goldsmith, chief broadcast engineer of the U.S.A. National Broadcasting Co., placed his telephone receiver near the loudspeaker in his laboratory recently, and music broadcast in London at an 8 p.m. (3 p.m. New York time) entertainment was heard over the telephone in "The New York Times" office. The station transmitting was 6SW, Chelmsford, England, operating on twenty-four metres.

"International rebroadcasting between United States and English stations has been resolved to a definite experimental project which has received official approval and a definite appropriation of funds to carry out the work," said Dr. Goldsmith. "We will pursue the problems involved until they are satisfactorily solved."

"Among the problems to be studied are antenna design—both directional and multiple—suitable receiving sets and fading compensators which will equal-

ise the output of the sets and place on the land wires to the point of distribution in New York a constant amount of energy."

Special apparatus for the receiving station at Riverhead, L.I., is being completed at the Van Cortlandt Park laboratories of the Radio Corporation of America. The short wave transmitters in Pittsburgh and Schenectady, owned and operated respectively by the Westinghouse Electric and Manufacturing Company and the General Electric Company, will broadcast the United States programmes to British listeners, via short wave receiving station at an efficient point of interception in the British Isles.

YANKS HEAR ANTIPODES

MORE FAVOURED THAN WE.

A broadcast listener writes to the Sydney "Wireless Weekly":—"I'm not a doubting 'Thomas' and I realise that most of us radio fans cannot help exaggerating to a certain extent, but I wonder if any of your readers can explain why so many American fans are able to receive Australian stations on the broadcast bands, whilst we cannot receive their stations, even on sets manufactured in that country? Rather curious, isn't it? Even more so since America would suffer more from interference than this country, owing to the great number of stations in America, and also to the towering masses of iron-work, the number of electrical installations, and one thing and another."

The explanation is simple. When it is midnight in California it is only 6 o'clock in the evening in Queensland, N.S.W., Victoria and Tasmania, and as few stations continue broadcasting after midnight in America the Australians have very little chance of obtaining darkness for reception of the Yanks. The American fan, however, by sitting up till the early hours of the morning, can obtain darkness for reception of the Australian and New Zealand stations, which are then in full swing.

AN INTERFERING STATION

ACTION IN AMERICA.

The New Zealand Government will be well advised to continue to refuse permits for more than one powerful broadcast station in or near any centre. In the United States the clashing of stations has caused no end of trouble. Governor Moore, of New Jersey, was recently advised by the Government Radio Commission:—

"The station WAAM, at Newark, is in a residence section where it has been causing much interference with other stations. If this were a new station, the Commission would not permit it to have power of more than 100 watts in its present location, but is authorising it to continue at 250 watts until the station can move out-of-town, as I believe it is now planning to do."

THE FOUR R'S OF EDUCATION

READING, 'RITING, 'RITHMETIC, AND NOW RADIO.

Atlanta, Ga., U.S.A., is one of the first cities to equip its public schools with radio.

The fourth R has been added to the time-honoured three R's of education by the introduction of radio into public schools. And this fourth R is proving to be an adjunct in every sense of the word to the already existing methods of modern instruction. In certain parts of America, particularly in Atlanta, Ga., lectures in English, drama, art, debating, history, and the sciences, are being broadcast specially for the schools as a daily part of the classroom work, while talks and recitals are serving both as inspirational and cultural supplements to these programmes.

In Atlanta seventy-two public schools have been equipped with radio sets and amplifiers. With this equipment 50,000 students are enabled to listen in daily to educational and cultural programmes broadcast from station WSB. Furthermore, each of the schools is allotted a certain number of days during the year to provide the programme, thus offering the op-

portunity for all the students, as well as the instructors, to participate in appearing before the microphone, as well as listening-in to the others. And the value of radio as a means of lending new interest in instruction, developing self-assertion on the part of students, and stimulating healthful competition amongst the various school units, has already proved itself to the Atlanta school authorities.

EARLY INVENTORS

The dream of an American inventor eighty years ago will be realised if the Federal Radio Commission grants permission to the Radio Corporation of America to erect a station at Rocky Point, New York, for facsimile transmission of pictures, messages, and documents.

In 1848 Alexander Bain, the first man to experiment with facsimile transmission, worked out a crude system of reproducing pictures in code for sending by telegraph.

He received the first United States patent for picture transmission, but his system proved unworkable, although it contained the fundamentals of present-day methods.

Like all forms of communication, the transmission of facsimiles has reached the stage of commercial application only after a long period of development and research.

In May, 1891, N. S. Amstutz, of Valparaiso, Ind., sent a picture over telegraph wires for a distance of twenty-five miles. This is said to be the first successful transmission.

Professor Arthur Korn, of Berlin, made further improvements, and in 1906 transmitted pictures over several hundred miles of telephone wires.

In 1908 he sent pictures by radio. The pictures were converted into a regular code message and transmitted as such. The World War forced the abandonment of plans for transatlantic picture transmission, and it was not until 1923 that various laboratories in the United States again undertook the development of long-distance sending of photos.

The first picture sent across the Atlantic by radio was in June, 1923, by Professor Korn. The transmitter was located at Rome, and the receiver at Bar Harbor, Maine.

Other transoceanic transmissions followed. It is said that more than 2,000,000 dollars a year is being spent in the Unit-

WHEN winding coils on formers it is a good idea to insulate them with paraffin wax. This is done by melting a quantity of good paraffin wax (enough to well cover the former), and leave the former in it for about half an hour, during which time it should be baked in the oven. On removing, scrape the superfluous wax off.



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ed States in research work along these lines. Nearly 300 patents covering the art have been issued.

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