

Construction Continued

those of different makes. On the average the initial voltage was just over 1.5 per cell, but the test disclosed that it is not always the battery with the highest initial voltage that gives the best service.

"For all the tests a voltmeter with a resistance of 37,500 ohms was used, for only with a high-resistance instrument can accurate readings be taken. Two of the batteries were found to have "bad spots" in them when received, and these were immediately replaced by the makers. Once the test was under way it proved to be full of interest—and of surprises. The first batteries to succumb (both of the same make) reached the 70 per cent. mark on the nineteenth day, having given an average of fifty-six hours' service. These had the highest initial E.M.F. of any tested, and for the first week it appeared that they were going to do pretty well. At the end of that time, however, a rapid decline set in.

AN EXPENSIVE PROPOSITION.

It soon became evident that a battery with a performance such as this could not prove an economic proposition for high-tension supply in the multi-valve set. It would require renewal at least twelve times a year, and if the average initial cost of a standard capacity battery is taken as twopence a volt, the expenditure per annum would work out at two shillings per volt, or £10 for 100 volts. If we take it that the receiving set is in use for a thousand hours during the year, the running costs per hour for H.T. alone come to a little under twopence-halfpenny.

Similar batteries tested gave varying, but similar, results.

SUMMING UP.

To sum up, the standard capacity battery is quite unsuited for working any set that is required to give greater volume than that produced either by head telephones or by a midge loudspeaker. In fairness to manufacturers, it must be said that the majority of them do not recommend small cell types for any such purpose, whilst many state quite clearly that the maximum economical discharge is of the order of 5 milliamperes.

It is evident that batteries of larger capacity are likely to be far more economical. Exact data upon this point must be given later, since the tests that I am conducting with bigger batteries are not yet complete. Speaking generally, though, one may say that where the load exceeds 5 milliamperes, but does not exceed 10, a battery of the large-capacity type is likely to prove a much more profitable investment. The permanent fall in voltage is much less rapid, and the temporary drop during a three hours' run is far smaller. Figures of the running costs will be given in a later article.

A DISTINCT ECONOMY.

WITH a load of 10 milliamperes or more it undoubtedly pays to purchase batteries of the super type. Although the initial cost may seem rather high, there is a very distinct economy in their use.

TIPS AND JOTTINGS

Raytheon Tubes.

THE B. H. Raytheon tubes, passing 85 millamps, are now stocked in Wellington. This tube is now widely used in B eliminators, and has the advantage of working without a filament, thus dispensing with a low-tension winding on the transformer. Rectification is full-wave. The tubes are stocked by Messrs. Thomas Ballinger and Company, Ltd., Victoria Street, the price being 36s., plus postage. This firm also stocks the Mullard high-tension rectifying valves, DU2 and DU10, full and half-wave respectively.

New Carborundum Detector.

THERE is now on the American market a new form of the carborundum stabilising unit. The case is shaped like a valve and a base is provided with the usual pins, by means of which it is plugged in to take the place of the detector valve. Slight alterations are required in the set, but the unit is said to effect a gain in tone, stability, and selectivity. The crystal, small fixed condenser, and potentiometer are all contained in the bakelite case.

Corrections.

In the eliminator article last week about three inches constituting the finish of the article was misplaced at the end of the detuning article on the same page.

In a paragraph about vibrating chargers the word "old-fashioned" was printed, whereas "old-established" was used in the original manuscript. The writer has nothing to say against old hands continuing to use apparatus they have, though not advising the purchase of such a rectifier at the present time.

Rejuvenating Valves.

THE latest prescription for rejuvenating dead valves is to put on normal filament current, then reverse

On Short Wave

GENERAL RECEPTION GOOD

MYSTERY STATION SOLVED

Mr. F. W. Sellens writes:—There are not any fresh stations to report this week, but reception generally has been quite good. On Saturday afternoon, March 24, 2XAD was enjoyed at quite good speaker strength from 2.45 p.m.—when I tuned in, till they signed off at 3.31 p.m., or, as they stated, 2 minutes past 11 o'clock, Eastern standard time. The wave-length was said to be 21.96 metres, this is not always given exactly the same—but very near. The Palmolive people were again responsible for most of the programme.

During the evening, RFM was heard through some severe morse interference. 4NW (Queensland) and 2YD (Sydney) were testing, the former being very good. KDKA were relaying musical items until 3.40 p.m. on Sunday, when they returned to the studio and read the daily programmes for the coming week and replied to two reports of reception from England. After this, they went on with their message to the "Far North." 2XAF, on 31.4 metres, were relaying a hotel orchestra and closed down at 4.32 p.m. Both these American stations were louder than they have been for some time. After 2YA closed down, 7CW (Tasmania) came in at good strength and modulation.

At 5.45 a.m., a strong carrier was heard on 32.5 metres (probably 2NM, England), speech and music was heard, but not loud enough to understand what was said, except that it was English.

3LO was late in starting their weekly test. They appeared to be having trouble, as their carrier was very unsteady till 6.9 a.m., when they commenced. After this they were very good, but slight fading was noticed. I understand that Hinkler spoke, but it was after I closed down at 7.30 a.m.

RFM was the only short-wave station heard during the evening.

On Tuesday morning at 5.50 a.m. on about 41 metres "Allo! Allo! R.S.R." was heard. The R's are doubtful, as A in some foreign tongues sounds like R. This is, I believe, the same station heard and often reported as a mystery station by me, the call not having been heard before on account of poor modulation. At 6.30 a.m. Big Ben was heard, followed by a talk on "Biography and History." Pianoforte items then followed, and at 6.58 a.m. a French talk was given. PCJJ was at its best on Wednesday morning till they closed down at just after 6.30 a.m. A strong morse station right on top of PCJJ spoilt reception. A lecturette: "The Garden in a window box," was heard from 5SW after Big Ben had struck 7 p.m. on Tuesday evening.

On Thursday morning, at 6.15, 5AW (South Australia) on about 32 metres,

polarity of the B battery, connecting its positive to A positive, and its negative to the lead which is normally connected to B positive. The valves are to be left running in this manner for a full hour; the filament current should then be turned down to the lowest point and left this way for half an hour. Very poor valves may need a repetition of the process before much improvement is shown. Such valves as the 200A and some power valves are not suitable for rejuvenation.

The Wonderful Gramophone.

COMPARED with early attempts, gramophone reproduction has reached a wonderful pitch. The electric pick-up, combined with better manufacture of records, has been the chief factor in the advance. Prejudice against gramophone broadcasts is a hard-dying relic of times when results were mediocre in every way. One is always sure of a delightful selection of good music at the afternoon sessions, and the writer would at any time prefer to hear a good record rather than an uncultivated singer. However, it must be agreed that at the evening sessions there are many fine items that it would be a loss to miss hearing.

The Output Filter.

THE loudspeaker should never be placed directly in the plate circuit of the last valve if there is a current of more than 10 milliamperes flowing. Apart from the relatively powerful current surges which may damage the delicate windings, the steady direct current tends to draw the armature or diaphragm towards one of the pole pieces, causing the mechanism to hit and rattle on loud signals. An output filtering device clears up all danger, and gives more undistorted volume than can be obtained without it.

The radio operator on the Union Steam Ship Company's steamer Somerset, which has just arrived in New Zealand waters, reports that he picked up 4YA when the Somerset was 2300 miles from New Zealand. The transmission, he states, was strong and clear.

was testing. A gramophone record was received well, and the signing off just after tuning him in. As we are two hours ahead of South Australia, 5AW was on the job very early.

5SW (Chelmsford) was testing as usual, but with less volume.

RFM was on the air in the evening. PCJJ were very good again on Friday morning, but were again spoilt by Morse. In closing, it was announced that the next transmission would be on Saturday, March 31, at 13 to 17 G.M.T. (Sunday 12.30 a.m. till 4.30 a.m., New Zealand mean time).

About 5 a.m. on between 18 and 19 metres a station was tuned in, and heard very strongly. Two items, gramophone records, were heard, about half-way through the next they went off the air, and were not heard again, apparently a breakdown. This was probably PCJJ (Holland), as it was working on the same wavelength.

5SW and 2XAD were again testing, reading reports to each other, reception was very good, every word spoken by the Englishman being heard clearly, and about 50 per cent. of the American. I could not pick up 2XAD direct, but heard him through the Chelmsford station.

At the request of 5SW the American put on a record which was received at fair speaker strength, with two of audio. It was arranged that 2XAD test out a new antenna next Thursday, and that 5SW report on its efficiency.

The modulation of 5SW is excellent, the best, in my opinion, of any short-wave station heard here. The usual test started at 6.30 a.m., with Big Ben and "London calling."

6AG, Perth, on 32.9 metres, was picked up at 10.15 p.m. This station used to be heard every evening at one time after 10.30 p.m., but according to his statement this is altered. He is now testing almost every evening at 11 o'clock, West Australian time (2.30 a.m. New Zealand M.T.), and sometimes earlier—as this evening. Reception was very good, gramophone records being audible all over the house. He announced several times that "Hinkler had arrived at Cook, on the Transline (?) at 5.45 p.m., Central Australian time, after a non-stop flight from Melbourne, and made a perfect landing." Mr. W. R. Coxon, the operator of 6AG, is the engineer in charge of W.F., the West Australian broadcast station.

2AD (N.S.W.) was testing on about 32.5 metres, and was very loud, but modulation not as good as it might be.

On Saturday morning Big Ben was heard through 5SW, a talk on music following.

"Record" Short-wave Adapter.

A. C. Sime (Awatea, Otago): I have constructed the detector stage of the "Radio Record" short-wave set, and use it in conjunction with the two audio stages of my five-valve neodyne.

Instead of using plug in coils, as described in the "Radio Record," I use only one set, the secondary of three turns, and the tickler of four. The secondary coil is tuned by a .00025 mfd. condenser, controlled by a 50 to 1 vernier dial. This arrangement gives quite good control over a much longer range of wavelengths than a .0001 condenser would with one set of coils.

I must say that this adapter has given me complete satisfaction, as I already have logged a good number of stations, as well as hearing a number whose calls I could not get, owing to weak signals, static, and, in some cases, foreign stations whose calls I never heard in English.

The best long-distance stations I get are 5SW, England, and PCJJ, Holland. These come in almost equal volume to the short-wave transmissions of 2PC and 3LC, and may be enjoyed at twenty feet from the loudspeaker.

On different occasions I have held 5SW at quite enjoyable 'phone strength until 11.30 a.m., New Zealand time, when Big Ben chimed the hour of midnight and they closed down. Once at 9.30 a.m. I tried 5SW on the detector alone, and the signals were quite distinct on the 'phones.

On another occasion I forgot to connect the set to the aerial, with the result that I tuned in KDKA, Pittsburg, quite plainly.

No ebonite is used for supporting coils or condensers in this set, the panel and baseboard, etc., being made of thoroughly dry wood, which, I believe, is as efficient as ebonite so long as it is kept perfectly dry.



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EASTER SUNDAY IN HOLLYWOOD

OPEN-AIR SERVICE AT SUNRISE

GALLI-CURCI'S "EASTER HYMN."

The following description of an Easter Sunday morning in Hollywood is from the pen of Miss Maynard Hall, "Aunt Pat," of 3YA. Miss Hall, who has been connected with 3YA since the station first went on the air and who is now organiser of the Children's Department at 3YA, is a sister of Mr. Winter Hall, the well known actor, spent two years in Hollywood. Her reminiscences, given in lectures from 3YA and 2YA, have provided much enjoyable entertainment. In the appended article she treats of another aspect of life in Hollywood.

While the name and the place of Hollywood are almost exclusively connected with the motion picture industry, this is not by any means the only side of life with which one comes in contact there, for in direct contrast with the light and flippant existence of the average movie artist, there is the more serious-minded resident who has at heart the welfare of the community, and to whom the higher ideals of citizenship are of some importance. The casual visitor to Hollywood is, of course, struck with the brightness and gaiety to be seen on all sides. The Boulevard is thronged with gaily-dressed crowds, and the restaurants and cafeterias are full of apparently irresponsible pleasure-seekers. One feels a certain luxuriousness in it all; that money is being spent with almost reckless extravagance in trying to catch whatever fleeting pleasure and excitement there is to be had.

But, if you stay there long enough, you get below the surface of all this flotsam and jetsam, and find the real Hollywood homemakers. You will find that they have their fine community theatre, where all the best plays are presented, and their halls where, once a week, they have community singing, when professional singers and entertainers will frequently take part. Indeed, you will find a large section of the Hollywood folk leading the ordinary normal life of any American citizen.

At this Easter time it may be interesting to some of you to hear of an Easter Sunday morning service I attended during my stay in Los Angeles.

Open-Air Theatres.

Running through the range of hills which separates Hollywood from the beautiful San Bernardino Valley, is the Cachaunga Pass. On each side of this pass there are numerous little valleys, or canyons, which, in the wonderful climate of Southern California, where no rain falls during nine months of the year, have been found admirably adapted for open-air theatres. In one of the smaller of these canyons you could easily imagine you were in the Holy Land, for the entrance is built to represent the gate and high walls of one of the cities of Palestine. Once outside, you find a perfect little theatre, the stage occupying the whole of the end of the canyon, with the hill running steeply up at the back, and forming a fine natural background. Here is presented for three months every year "The Pilgrimage Play," a play similar to the Passion Play of Oberammergau. But the largest and most interesting of these open air theatres is called "The Bowl." Only a year or so ago, "The Bowl" was a more or less uninteresting looking canyon, like a dozen others, but some enterprising members of the Hollywood Women's Club saw the possibilities of the place and set about adapting it for special public gatherings, thus providing Hollywood with a very wonderful asset. To help to raise money to carry on this work various performances were given in "The Bowl" while it was still in its rough, natural state. The majority of the audience then had to sit on the ground.

The first of these performances was a fine representation of the landing of the Pilgrim Fathers. The little band of Pilgrims appeared, led by Elder Brewster, who knelt and offered up a prayer of thankfulness for their having been brought safely to land. The play told the story of their heroic struggles and the hardships they endured. A group of North American Indians in full war-paint took part. They lent an air of reality to the scene, and the romantic love story of Miles Standish and Priscilla was one of the chief episodes in the play.

The next performance was a presentation of Shakespeare's "Tempest," by which time, for a portion of the audience, at least, there had been provided rough plank seats, and at each successive entertainment more improvements in the accommodation appeared, until within two years enough money had been raised to transform this bare hillside into the magnificent amphitheatre it is to-day.

Service in "The Bowl."

At sunrise on Easter Sunday a service is held in "The Bowl" when the Los Angeles Philharmonic Orchestra

and Choral Society, and generally some artist of European reputation also, are engaged to perform. To one of these services I went, accompanied by a young nephew.

We left home at 4 a.m. and walked the short distance down to the Hollywood Boulevard, where we were to catch a street car to take us to the Cachaunga Pass. The Boulevard was all lit up, and the street cars were packed, as though it was 10 o'clock at night instead of 4 in the morning. We managed to board one of the cars, and when we reached the Pass we found the highway lined with motor-cars, and cars parked in all the side streets.

With difficulty we got through the entrance gate, and walked the short distance into "The Bowl." A thick mist hung over all, and in the dim greyness before the dawn, as the throng of people moved quietly and reverently to their seats, one felt as though some mystery were present—something one could not define—as if there were something one wanted to discover, and to know.

As the grey light of the dawn brightened the murmurings of the crowd grew quieter, until it seemed to me that stillness was everywhere, unbroken even by the song of a bird.

Then presently, from over the top of the hills behind us, the first clear ray of the sun fell upon a large white cross on the hillside opposite. Gradually the mist cleared, and with one movement the vast audience of 15,000 people rose to their feet, as the magnificent strains of the "Hallelujah Chorus" burst upon our ears.

We stood, motionless, until the final Hallelujah rang out.

A short prayer, followed by a hymn, came next, then Galli-Curci's wonderful voice rose, clear as a bell, singing the "Easter Hymn" from "Cavalleria Rusticana," with the voices of the chorus rising and falling in accompaniment.

The sun rose higher. The mist vanished. The short and deeply impressive service was over, and on the hillside, bathed in the glory of the day, stood the Cross.

For a moment or two longer the immense audience waited as though with one accord, before going their several ways. The careless, as well as the thoughtful, were silently rendering homage to that everlasting symbol of Divine love and sacrifice.

WANGANUI LISTENERS

A meeting of sixteen members of the Wanganui Listeners' League (representing some 500 listeners in Wanganui) was held on March 21, Mr. F. J. Hill presiding. The question of broadcast programmes was discussed, and a resolution was passed to the effect that, although the quality of the programmes had improved considerably, there was still room for improvement in the direction of more light opera and musical comedy music, and serious comic and comic items.

It was decided that there should be an occasional broadcast of boxing and swimming contests, and results of athletic night meetings. Mr. Hill pointed out that this would prove very interesting to listeners-in, and in the case of boxing some very good accounts might be submitted.

It was also decided that an endeavour should be made to relay items from time to time of the leading picture theatre orchestras.

In view of numerous complaints, a recommendation was passed that the Post and Telegraph Department be asked to take active steps to cope with interference by "howlers" and other causes.

Mr. Bennett moved that there should not be a silent night during the week. In connection with this matter Mr. Hill said that such a proposal would meet with vigorous opposition in Wellington, as the silent night was the only occasion when they could pick up outside stations.

FROM WARD—

HOSPITAL PATIENTS AND RADIO.

A bright and cheerful letter comes from a patient in one of the city hospitals. She tells of the pleasure which she derives from listening in, especially to the children's session. In the course of her letter she says:—

"Perhaps I had better sort of introduce myself, though I feel I know you quite well, having listened in for so long. I have been in ward—for many months, eighteen to be exact (but don't breathe it to a soul, as it is a disgraceful long time to lie in bed and be so lazy) on a Bradford frame, but, God willing, I shall not have much longer to stay, two or three months, perhaps. . . . Once, when I was moved into the big ward after an operation, a little girl of 11 or 12 was put on our veranda for a day or two, and of course she was able to use my ear-phones. Well, it was lovely to see how she enjoyed it all, being the first time she had ever listened in, and when Uncle Tom, or whichever uncle it happened to be, said anything or asked questions, she would immediately answer, thinking that he could hear her."



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