I HAVE recently been experimenting with screen grid valves, and, although not satisfied with earlier results, have one working quite well now as a high frequency amplifier on the short wave receiver.

The valve used is the Philips A442. This fits into the ordinary American valve socket, the plate lead coming through the top of the valve.

At present it is being used as a separate unit, being completely screened, the leads going through ebonite bushings.

The tuning is not very critical. I have found that if a station is strong enough to be readable when properly tuned in, it can be heard if the screen grid circuit is within, say, three or four degrees either side of the resonance point.

Beside the gain in signal strength, the screen grid steadies the receiver wonderfully. Body capacity is entirely absent; one's hand can be put to within the field of the coils before any difference is noticed. This applies to the lowest wave-length the receiver is capable of receiving, about 15 metres.

The dial readings are altered all through the scale, less capacity being required than before in the tuning condenser. This applies to a greater extent to the lower wave-lengths of each coil; in fact, it has been necessary to wind another coil to fill a gap.

THE circuit used is similar to those published for all the screen grid valves. Instead of the usual coil for aerial coupling, I am using a midget condenser with all plates, but three removed. With this arrangement there are not any "dead spots"; the receiver oscillates smoothly "all round the dial." It was not found necessary to insert radio chokes in any battery leads as is advised by some writers. Bye-pass condensers are inserted between the screen grid and plate leads, and the screen which is connected to each.

League of Nations' Broadcasts.

REPORTS on the international broadcasts of the League of Nations, which are now being tabulated, may lead to the establishing of a regular short-wave radio service for the broadcasting of these meetings. As an experiment, the sessions of the last meeting of the League were broadcast by station PCLL, Kootwijk, Holland, on awave-length of 18.4 metres, using a power of 25,000 watts.

The announcements were made in English, French, Dutch, and Japanese, and all listeners were asked to send a postcard and describe the strength and clarity of the signals. So far the success of this test is not known, for reports continue to be received from listeners at distant points, but it is thought that there is sufficient interest

Round the World on Short Wave

Notes of special value to short-wave enthusiasts are contributed weekly to the "Radio Record" by Mr. F. W. Sellens, Northland, Wellington. Observations from others are welcomed.

in these broadcasts to justify the construction of a special high-power short-wave station which can be used for broadcasting and for carrying on the League's own business.

While this is not the first time that addresses in these meetings have been broadcast, it was the first time that short-waves have been employed for the purpose.

Radio was first used by the League of Nations in 1925; in 1926 an opening address was sent over long-distance lines from Geneva to Prague, and there broadcast. Later, English, Danish German, and French stations joined in broadcasting other important speeches from the meetings.

All this was done on the regular wave-length used by these stations, and reception was limited to a comparatively small area. The Dutch short-wave station at Kootwijk, which is frequently heard in this country, was originally constructed to carry on radio-telephone experiments with Java.

Reception of distant stations has not been quite so good during the past week; 5SW and PCJJ have both been troubled at times with rapid fading.

Saturday, August 25.

At 6 p.m. 5SW was about R5 on the speaker. An operatic tenor was heard first singing some of Caruso's songs. This was followed by a lady singing "Robin Adair" and "Home, Sweet Home." Reception was both clear and steady.

2XAD was first tuned in at 2 p.m. Strength R5. The programme was supplied by the National Broadcasting and Concert Bureaux. One singer, who was apparently a bit of a humorist, said that when a boy he won a gold watch. A visitor to his school offered a gold watch to the best singer. Only two boys, another and himself, had the courage to go on the platform. After hearing the other boy sing, the visitor gave him, the speaker, the watch, saying he could not possibly be worse than the other!

At 2.30 p.m. the first part of the programme was completed, and they went over to Reilly's Lake House. Lake honey, Togo (?) Springs, for dance music. From 3 till 3.30 p.m., when they signed off, reception was R8 on speaker.

PCJJ was not heard till about 4 p.m. when their regular transmission was heard. Very clear and steady till signals got fairly weak toward 6.30 p.m., when rapid fading was noticed.

Signal strength at its best from 4 till 5 p.m. was R6.

Sunday, August 26.

At 12 a.m. KDKA was about R2, later on when I tried for them they were either off the air or too weak.

2XAF were not up to their usual form. They reached R6 at 3.30 p.m., but static spoilt reception.

The Crosley Radio Corporation station WLW, on about 52 metres, was heard soon after 3.30 p.m., but a slight fault was discovered which put the set out of action till they were off the air.

Static was very bad during the evening.

Monday, August 27.

3LO from 6 a.m. till about 6.15 a.m. were having some trouble, as music came through very patchy. From 6.15 reception was splendid, best volume ever, but, as is usual with this station, fading was bad.

During the evening, 2FC on 28.5 metres were broadcasting their usual programme on dual wavelengths.

Tuesday, August 28.

5SW was R2—3 at 6 a.m., increasing to R5 at 7.30 a.m., but rapid fading spoilt intelligibility.

Wednesday, August 29.

Reception of 5SW was similar to Tuesday. PCJJ was also subject to rapid fading. They were very weak at 5.30 a.m. At About 6.15 a sudden increase in volume was noted. A lady was talking for a while soon after 6 a.m., but could not understand the nature of her speech.

At 10 p.m., on about 70 metres, a foreigner was talking very fast. It may have been RFM, call sign not heard. Strength, R8.

Thursday, August 30.

5SW was again spoilt by rapid fading. The carrier only was audible at 6 a.m. Strength increased later, but too unsteady to enjoy. 2FC, on 28.5 metres, was very good until they went on relay for the talk by Cardinal Ceretti, when they were unsteady at times, but every word was clearly heard at full speaker strength.

Friday, August 31.

PCJJ, at 5.30 a.m., was R3-4, with rapid fading; signals increased to R6 at 6.30 a.m., and then got weaker again. The fading was not noticed when volume was at its best.

5SW, a little stronger than previous mornings, but rapid fading still very bad.

A strong carrier on about 50 metres, where the German is sometimes transmitting was heard for some time, but not any talk or music.

At 17 p.m. the carrier only of 5SW was audible.

The strength of reception given is on the loudspeaker, using the screen grid mentioned.

Radio Transmitters.

At a meeting of the Second District Radio Transmitters' Association held on August 28, it was decided to affiliate with the New Zealand Association of Radio Transmittters (N.Z.A.R.T.), and a Wellington branch was formed. The following were elected as the branch executive: Chairman, Mr. R. Clark; vice-president, Mr. J. Johnson; secretary-treasurer, Mr. V. Parminter; committee, Messrs. F. Blackwood, C. H. Brown, H. C. Dixon, F. W. Sellens, and J. G. Tinney. Social and Listeners' Committees were also formed.

The object of the N.Z.A.R.T. is to increase interest in amateur radio in every way possible. Regular meetings are to be held at which lectures and demonstrations by capable persons will be given on subjects of particular interest to short-wave amateurs.

Slow Morse transmissions for the beginner have been arranged. All interested are invited to join. The short-wave listener is eligible; the listener of to-day is the transmitter of to-morrow. Full particulars available from Mr. V. Parminter, hon. secretary, 8 Arlington Street, Wellington.

The revised list of short-wave stations will probably be ready for the next issue. The call, wave-length, location, and where possible, the power, and schedule in New Zealand time will be given.

During the week 2FC, when broadcasting on 28.5 metres, announced that tests were being carried out with a view to the interchange of broadcast programmes with America.

New Use for X-ray

A NEW use for the X-ray has been recently developed by a German scientist. It makes possible the use of these rays in photographing radio receiving sets, parts and other electrical equipment; thus bringing out constructional details of such apparatus which would be nearly impossible to illustrate by line drawings or diagrams.

At least one German publication has made arrangements to illustrate a series of constructional articles with X-ray photography of the sets and parts in place of the usual blue print and diagrams.

An important feature of this method of illustration is that it is a comparatively simple matter to retouch such photographs to bring out important features of the set or apparatus and soften or omit others.

THE San Francisco "Radio" remarks:—"Some constructors seem to think that they know more than the experienced designers of circuits which employ such tubes as the shielded-grid and a.c. types. When their own 'improvements' fail they are prone to blame the circuit, which they have not followed, rather than their own departures therefrom. Fully half the questions which a troubleman is expected to answer arise from neglect to follow accepted practice." The same comment may apply when amateur constructors blame the new shielded-grid valves for not coming up to expectations. Simply the lay-out is at fault though the circuit may be correct.

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