1. Using a carborundum crystal, would it be advantageous to use a large ratio transformer, say 6—1, or would distortion creep in?

ANSWER: Providing the curve is relatively flat the ratio may be high.

2. What are the relative merits of moving tickler and throttle control regeneration?

ANSWER: Base smoother, alters timing. (See article on regeneration.)

3. Is the double grid valve suitable for use in this set

ANSWER: It would be suitable providing there was not a great deal of volume to be handled.

My aerial is fairly proficient, but, living in an upper story I have a very long earth, about 50 feet, which increases the external resistance of the set. Still, my results have been very good. 1YA roars in on the speaker, while 1ZB, 2YA, 3YA, and 2FC have, under favourable conditions, come in with very fair 'phone strength.

However, I think I could do much better, for I have noticed that when I tune in a distant station—say 2YA—and turn up the filament a little, the set begins to whine, the same thing happens if I turn up the condenser. In other words, to tune to a higher wavelength than the local the rheostat has to be turned down with a consequent loss of signal strength. Substituting an H.F. choke for the grid leak makes no difference, neither does it stop when I disconnect the aerial and earth. At present I am using a carborundum crystal without brassing battery and a "free grid," which I find gives clearer reception. Can you enlighten me on this point, please?—D.J.J.

ANSWER.—To overcome this difficulty by the addition of grid bias, check the tickler coil. If the set oscillates at a low reading some turns can well be taken off; if at a high, more added.

Shortwave Reception.

I HAVE a locally-constructed three-valve short-wave set, which is not going too well. On Wednesday and Thursday night I was listening-in to a foreign station, PCLL, on about 20 metres. It was very mushy and distorted. I could not clear it up at all. "Allo, allo, allo," was all I could make out. I use dull emittor valves, 90 volts, B dry batteries. Is this all right, and can you suggest something to bring in American stations, as I have not heard them yet since I added this short-wave set in October last to my possessions. I get good results with a factory-made six-valve set on the broadcast band. Could you advise me how to test audio frequency transformer? It does not seem to have much kick.—NEW CHUM (Otago).

ANSWER.—Judging from the reports, short-wave reception is bad just at present, and this is probably your trouble, for everything you report on seems so. However, as is suggested, a component may be at fault. Test these by the 'phones and battery method described in the Beginners' Corner recently.

A DIRTY lead-in is a graveyard for distant signals.

AMPLIFICATION at low frequency means the magnification of those currents which represent speech or music, i.e., the magnification of the output from the detector (whether crystal or valve), gramophone records, etc.

Hawke's Bay Notes

THE Hawke's Bay Radio Society held its usual monthly meeting on January 29, when, in spite of the hot night, there was a good attendance of members, and quite a number of important matters were discussed. As proof of the live activities of the society, reports on various movements were presented, these including a most successful Christmas tree and the installation of the equipment in the Hastings Memorial Hospital. This equipment, by the way, has proved a great success. In fact, one of the staff told the writer that since the radio had arrived the patients who were experiencing its joys for the first time were not keen to leave the institution. A few nights ago the matron tuned in a Japanese station at good speaker strength, and everyone was delighted.

THE Radio Society held a very successful picnic outing on Sunday, January 27, and about 100 members and their friends had a great time in real Hawke's Bay weather. After this venture it is pretty certain that an annual picnic will be a feature of the future.

ANOTHER move by the society to foster the social side is the holding of a ladies' night on February 27. A great musical programme is being arranged, and for once at least static and interference will be forgotten in the joys of listening to the talent the society can produce. The move is full of promise, and it should be a good evening.

AT the last meeting of the society one of the moves suggested to the society was to inaugurate a battery service station for members, the idea being to get charging at a cheaper rate, but members did not take kindly to the proposal in view of the many obstacles which preface it. The subject was "tabled," however, till next meeting, to enable the sponsor of the idea to be present to give his views.

ANOTHER matter discussed was that of local reception and a local broadcasting station. The secretary reported that there was every prospect of Mr. Ball, editor-announcer, visiting Hastings, and it was decided to hold over the discussion on the station until after Mr. Ball's visit. A special invitation was extended to Mr. Ball to make the trip.

THERE has been a fair amount of controversy here over 2YA's experiment with master oscillator and crystal controls. There is a great difference of opinion, but the most listeners seem to favour master oscillator, at least at night, although many hold that the crystal scores for afternoon reception. The Radio Society members have undertaken to furnish the secretary with a report of their observations, and these will be forwarded to the Radio Broadcasting Company.

RECEPTION here lately has not been startling. There are still many complaints regarding distortion and fading from 2YA. No fault is apparently found with the Auckland and Christchurch stations. The "Aussies" have been "in and out," and on a couple of nights during the past week, 2BL has been up to its best form, coming through with great volume. 1YA, by the way, is being badly upset by the heterodyne of a "Yank." At the moment the writer has been listening to the Auckland station, but the Yank is causing distortion, for 3YA is as clear as a bell.

Beacon Station at Start Point

Direction Finding in the Channel

A WIRELESS beacon installation built at Start Point by Marconi's Wireless Telegraph Co., Ltd., for the Corporation of Trinity House has just been completed.

This type of station transmits a special signal on an exclusive wavelength of 1000 metres for the benefit of ships equipped with wireless direction-finders. The Start Point installation is the seventh of its kind now established round the British coasts, others having been installed at Round Island, Skerries, Spurn Lightship, The Casquets (Channel Islands), Start Point, Bar Lightship, Albatross (Coninbeg, Ireland), and in the near future beacon stations of the Marconi type will be installed at Sule Skerry (Scotland), Lundy North, Dungeness, Kinnaird Head (Scotland), Cromer, South Bishop, and other places, in addition to similar stations for which orders have been received in other parts of the world.

The completion of the Start Point transmitter means that very effective cross-bearings can now be taken by ships using the three Channel stations as their fixed points, and they can thus obtain a sequence of bearings whenever required by the navigators and can be sure of their position right up the Channel.

Since the wireless direction-finder has become firmly established and more generally employed on the merchant vessels of the world the demand has arisen for the erection of permanent installations situated at places of advantage from a shipping point of view round the coast and whose function it is to send out a recognised signal at convenient intervals purely for the purpose of enabling ships fitted with direction-finders to take their bearings and thereby find their exact position when approaching the coast.

One of the great advantages of the system of position finding in which a wireless beacon station of the Marconi type at a known position is used in conjunction with a direction-finder on board ship is that the signals are broadcast in all directions and a direct bearing can therefore be taken on the transmitter from any direction at every signal sent out by it. This method is, therefore, particularly suitable for lightship installation, as the swinging of the ship's head does not affect the accuracy of the bearing obtained, and navigators can lay off their wireless bearings on familiar points on the chart.

The Marconi beacon transmitter of the type fitted in the British Isles has a power of 500 watts and is operated on a wavelength of 1000 metres, which is the specified wavelength for wireless beacon stations, and the whole equipment is automatically controlled by a master clock for transmitting groups of interrupted continuous wave (I.C.W.) signals at pre-arranged intervals.

Broadcasting in America

Effect of Re-allocation

ON November 11, the Federal Radio Commission of the United States, in compliance with the 1928 Davis Amendment to the Radio Act, redistributed the nation's broadcasting facilities equally among the five radio zones and proportionately among the various States according to population. This was done by re-allocating the wavelengths, power and broadcasting time of the stations.

"Radio Retailing" endeavoured to ascertain the effect of the re-allocations on the radio service to listeners. In order to do this, questionnaires were sent to radio dealers in every State. The answers to these questions, together with information received from other sources, indicate that, on the whole, the broadcasting situation has been much improved. There are local conditions in certain small areas which still have to be remedied, but it should be remembered that these are due, not to the re-allocations ordered by the commission, but to the equalisation provision of the Davis Amendment. It is also generally admitted that sufficient time has not elapsed for perfect adjustment to the new requirements and that eventually the benefits of the re-allocations will be more obvious.