

AMATEUR RADIO



Published in the interests of "Amateur Radio" by the Wireless Institute of Australia (Vic. Div.) official organ of the Royal Australian Air Force Wireless Reserve.



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"AMATEUR RADIO"

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Vol. 1—No. 10.

October, 1933.

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All communications concerning this Magazine and all Mss. to be forwarded to the Editor, "Amateur Radio," c/o Box 4540, G.P.O. Melbourne

Subscription to "Amateur Radio" is 6/- per annum post free (paid in advance) but is offered at reduced rates to members of the Wireless Institute of Australia.

PHILIPS

TRANSMITTING VALVES

THE PHILIPS transmitting valves indicated below are excellently adapted for use by amateurs.

Most of these valves have an oxide-coated filament; this gives great mechanical strength and a high thermionic emission, notwithstanding the very small filament wattage.

By reason of their special construction with anode and grid terminals on the bulb, Philips 5-watt, 10-watt and 75-watt triode transmitting valves will generate waves down to less than 5 metres. Owing to their steep slope, Philips transmitting valves can very easily be made to oscillate. These valves for amateurs will give a high output at a comparatively low anode voltage.

Thanks to their excellent vacuum, the valves can withstand a temporary overload without sustaining any serious damage.

TYPE	Triodes				Screen-Grid Valves		
	TC 03/5	TC 04/10	TC 1/75	TB 2/250	QC 05/15	QB 2/75	
Filament voltage	4.0	4.0	10-0	11-0	4-0	10-0	V
Filament current*	0.29	1	1-6	3-8	1	3-25	A
Saturation current*	100	400	1,500	2,000	400	2,000	mA
Anode voltage	150-300	200-500	800-1,500	1,000-2,000	400-500	2,000	V
Screen-grid voltage	—	—	—	—	75-125	300-500	V
Max. anode dissipation ..	6	10	75	150	15	75	W
Anode dissipation on test ..	16	20	100	200	20	100	W
Max. screen-grid dissipation	—	—	—	—	3	15	W
Amplification factor*	6	25	25	25	225	200	
Mutual conductance (slope)*	2.3	2.0	5	4	1-4	1-4	mA/V
Int. resistance*	2,500	12,500	5,000	6,000	160,000	150,000	R
Anode-grid capacity	—	—	—	—	.001	.02	mm/F

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EDITORIAL.

W.I.A. (Vic.).

President (Geo. Thompson Esq.) Introduces "Amateur Radio."

With this, the first issue of "Amateur Radio," a long-felt want is being satisfied. It is a far cry from our old Magazine which appeared in 1921 to the present time, and during the intervening years, many and varied attempts have been made to offer the army of radio enthusiasts in Australia something worth while, which would be of real interest, value and help. It is the intention of the magazine committee, the council, and all concerned, to see that every section of our vast radio community is catered for in these pages. With that object in view, pithy news of general interest will regularly find space in its pages. To all members of the W.I.A., especially those of the Victorian Division, the R.A.A.F.W. Reserve, and all radio enthusiasts, we confidently look for wholehearted support in this undertaking.

This magazine is the official organ of the Victorian Division, every financial member of which will receive a copy post free, and every Ham should see that they receive one. We have in Victoria approximately 300 members and three affiliated clubs, but there are quite a number of holders of the A.O.P.C. who have not yet enrolled. In view of the fact that the officials of the Institute do an enormous amount of work voluntarily (not only in the interests of our members but also of the non-members), it is not in keeping with the Ham spirit to take a share of the advantages which the other fellows' fees and energy provide. Our ranks are open to anyone who is genuinely interested in the science of Wireless, irrespective of their knowledge of the subject, and a hearty welcome is assured to all members with a definite promise of assistance and help, in any desired direction within our scope.

The country experimenter will now be in closer touch with the city enthusiasts and will be kept informed of all Institute activities right up to the minute.

The Institute, in a general sense, is divided into four sections (with a possible fifth to be formed later). Of these, the chief is, of course, the Executive, known as the Council,

which consists of the President, Secretary, Treasurer and ten full members elected annually, whose duty it is to shape the destiny of the Division, control its funds and do all such acts and deeds which are essential for the successful functioning of the whole, within the limits of the constitution.

The Short Wave Group, which is the latest section, is devoted to the Experimental side of short wave transmitting and receiving, and much good work is being done by this very enthusiastic body.

The "Key" Section, probably the largest numerically of all the sections, is a very active group whose work largely constitutes filling the atmosphere with "dits and dahs," burning much midnight Yallourn energy, and in general communication with the uttermost ends of the earth, with as low power as possible. It is largely from this group that the Royal Australian Air Force Wireless Reserve was recruited, and so successful has been the experiment, that it has now been officially accepted as an indispensable unit of our country's Defence Forces. The "Key" Section is largely responsible, in conjunction with other Amateurs the world over, for the successful pioneering of the many frequencies or wavelengths which were at one time considered impossible, but which are now in general use.

The Telephone Section, which is undoubtedly the best known to the general body of listeners, is also very live, energetic and enthusiastic. Their work generally needs no amplification—the very high standard of their transmissions, excellent arrangement of programmes from a purely listener's viewpoint and the high entertainment value of their labours, are a real asset not only to the W.I.A., but to the Government and the Radio Trade generally. There are 22 Country and 24 Metropolitan Amateur Stations actively engaged in entertaining listeners during non-broadcast hours on week nights and Sundays. In many cases in the country, they provide the only programmes that can be received decently owing to atmospheric conditions, particularly during daylight.

Mention should be made of the Technical Development Section, a small committee of highly trained technicians who control the Instrument Library of the Institute, and who are always ready and willing to offer the benefit of their greater knowledge to their less advanced fellow members.

The possible fifth section to be known as the Super Het Club, depends largely upon the public response to the suggestion and, if formed, will be open to everyone. Interesting competitions with valuable prizes for the logging of distant stations, advice on constructing efficient receivers, short wave converters, interesting lectures, a portion of this magazine devoted entirely to their interests, participation in our social life, and a host of other interesting and entertaining features will be arranged, the cost being practically reduced to subscription to this publication.

There is several hundred pounds worth of highly efficient gear, such as broadcast and short wave transmitters and receivers, meters of all kinds and technical publications at the disposal of our members and it is the earnest desire of the Council that the fullest possible use be made of them.

This first editorial would not be complete without reference to the wonderful assistance and courteous consideration that we have received from the Department of the Chief Inspector of Wireless at all times. To Mr. J. Malone and his staff, Messrs. Martin, Dobbin, Conry, Greig and

Dunne, do we express our cordial greetings and thanks.

We have every confidence that, in this journal, our many transmitting and receiving radio friends will find news of interest of other people's doings and at the same time have a forum in which to place their own ideas pertaining to Amateur Radio.

THE EDITOR'S CQ.

Our President has introduced us in no uncertain manner. Concise, without any "padding," he has laid bare the workings of the W.I.A. To him we offer our sincere thanks: to our members, for their approval, we offer "Amateur Radio."

With this first issue, it is most necessary to mention our various advertising friends. These people are the very life blood of "Amateur Radio," inasmuch as their dues in no small way contribute to allaying our printing costs. You can believe us when we tell you that selling advertising space is no easy matter.

We appeal to you to support our advertisers, and when you buy any parts to make that new set, we want you to mention that you saw their ad. in "Amateur Radio," thus making Goodwill for the magazine with the surety of renewal of contracts. We cannot stress this point too strongly.

So this is "Amateur Radio!" If you don't like it, tell us; if you do, tell your friends.—THE EDITORS.

"Read, Mark, Learn--"

There's a brotherhood of radio
Right throughout our land to-day
All experimenting, testing
Banded by the W.I.A.

Live in shacks and such like places
Wotting not of things around
Caring not for mundane matters
Long as D X may be found.

Nought to them if markets vary
While their tubes and "batts" are
sound,
Though the exchange rate's a problem
When subscription date comes round.

When they meet in solemn conclave,
Things of moment are discussed;
Questions of the day propounded;
How the foreign cards are rushed!

Since that VK3's suggestion
That they start a magazine
Was considered and adopted
Great discussions there have been.

Send along your contributions,
All can help to make it go,
Pull your weight, and get behind it—
Here's to "Amateur Radio."

(Mrs.) L. E. HUTCHINGS,
(VK3HM).

SIMPLE CRYSTAL CONTROL

By MAX HOWDEN (VK3BQ)

There are two main reasons given as objections to the use of C.C. and one of these really includes two others. The first is that several stages must be used and this makes the cost too high and makes the outfit too bulky. The second is that it is supposed to be impossible to change the frequency when QRM is bad.

We will dispose of the latter argument in a few words by stating that a piece of mica, approximately the same shape as the crystal and about seven mills thick, placed with the crystal in the holder, will increase the frequency enough to clear the signals from any reasonable QRM. To go back to the first item and its two riders—some experiments were carried out at 3BQ a few weeks ago and the eighty metre transmitter that will be described now is the result.

The advantages of the penthode as a CO. have been dealt with at some length in QST and other journals, but none of these seem to have made any mention of the higher power that can be used without any risk of damage to the crystals.

The first tube that was tested was an E443N with 60 volts battery bias, 150 volts on the space charge grid and gradually increased plate voltage. At 400 the input power was eight watts with the aerial taking the load and a good deal of local work has been carried out with this arrangement. The actual crystal current was so small that it could hardly be measured and as any good crystal will stand up to some 100 ma. of R.F. in its actual circuit (that is, as measured by the thermo couple milliammeter at M) it was thought safe to increase the voltage up to 600. With this the input increased to 24 watts with a hardly perceptible increase in the crystal current. The E443N showed no signs of strain so 1000 volts were tried. At that the crystal current was about 25 ma showing that the crystal would be safe with anything up to 16 times the power. The input with 1000 volts on the plate was 55 watts and with the aerial taking the load the valve did not heat but when a 247 was tried in its place it flashed over at the pinch at the first touch of the key.

At 600 volts the 247 behaved in a similar manner to the 443.

Eventually it was decided to see what effect 1400 volts would have on the valve. Nothing drastic happened although that aerial ammeter needle hit the far end and the valve thought it had been mistaken for a neon sign. The input was 90 watts and the valve still functions normally but what was most satisfactory was that the crystal current was only 42 ma. which showed that with a suitable valve or valves in parallel to handle the power, the crystal would not object to a couple of hundred watts anyway.

It would seem that a couple of F443's or QC 5/15's in parallel would go nicely but they have not been tried as yet.

The next step was the introducing of automatic bias which worked very well and gave the valve a fair chance with the higher voltages. Several PM24B's were tested at 1000 volts and except for slightly lower input they functioned the same as the 443 except that they did not glow noticeably.

The inductances were rather too large to tune down to the forty metre band so half of each was shorted out when the 7 m.c. harmonic crystal was tried. The efficiency seemed to be just the same as on eighty metres so with eight turns of heavy wire of small tubing in each coil shunted by a .0005 condenser both bands can easily be covered, by simply switching in the other coil and retuning with the condensers. For twenty metre work, those who have twenty metre crystals are welcome to test them to any power they like, and others who have not a crystal of this frequency are recommended to replace the crystal holder by a .002 mfd. condenser and to insert a small diameter coil of about 25 turns of fine wire at M and so turn the outfit into a TNT rig. If after testing, etc., no results have been obtained, it is then advisable to short out the automatic bias and everything should be OK. This is the reason for the 25,000 ohm. grid leak in place of the more usual grid choke across the crystal. The other R.F. chokes consist of some four inches of $\frac{3}{8}$ in. tubing close wound with 32 DSC wire. One of these chokes can be used across the crystal for those who prefer to utilise some other type of set for twenty metre work.

Key Section Notes.

NOTICE:—The next meeting of the Key Section will be held on Tuesday, 3rd October at 8 p.m.

As this is by far the most important of our notes, in this issue we give it pride of place. At the last meeting an increase of nearly 50 per cent in attendance, including 7 new members, speaks eloquently for the interest with which the boys look forward to meeting nights.

Nearly every newly licenced ham makes his debut as a pounder of brass and we should be fully aware that his first and most lasting impressions are gained in our ranks.

Let us strive to make them very pleasant ones, for who of us can look back to the time when he started without realising that a little encouragement and patience will earn the gratitude of the newcomer and convince him that the ham spirit is really existent. However, let me give a word of warning concerning illegal operating. By all means help a man who is keen to get his "ticket," but don't condone his installing and operating a transmitter until he has an A.O.P.C. The authorities are getting more strict on this breach of regulations and detection not only prejudices his chances, but also renders you liable to proceedings.

DX conditions on 'forty' are now looking up and some of the boys have done excellent work recently on this band. Unfortunately DX has its bad points. Have you ever searched the band from end to end in the hope that you will find someone with whom you can have a yarn—in vain? Has it ever struck you that DX is not now the wonder that it was a few years ago? And do you ever realise that indulgence in DX to the exclusion of the other branches of the grand old radio game is the surest way to kill the ham spirit.

Let us but realise that DX is not an achievement in these days, that our licences were granted primarily to encourage experimental work, that if we are to EXIST in the not so distant future, it is only by fostering the brotherhood of amateurs by banding together in a strong organisation and putting the very best we can into it that we can hope to keep the privileges that we now enjoy. Believe me, we have a lot to do to justify our existence. Let us pull together with the Wireless Institute as

our protecting organisation and we JAN do it.

With all that off our chest, let us now consider something which will interest us all. The Federal Executive is staging a five point relay contest in October. This will be the first of a series of six contests, the winner of each of which will receive a handsome trophy.

It rests with the gang to show them that not only the winner but also second, third and fourth at least live in VK3.

In addition to the trophies already mentioned, there is a trophy for the State which obtains the highest aggregate score over the six contests and is known as the "Fisk Shield." Now here is a chance to show your team spirit, gang. Every entry means another man in the team, and every man means more points to VK3. We want that trophy and we have just got to get it. The details and rules of the contest will be found elsewhere in this issue. Read them up now and put your station in order for the big fight.

It is a surprising fact that portables have not found very much favour in this country, but with summer and the holiday season fast approaching, a fine opportunity for progressive hams to do a bit of thinking along these lines is presented. What is wanted is a portable which is primarily cheap, efficient, really portable, and lastly, reliable. Don't forget, however, that permission to operate a portable station must first be obtained from the P.M.G.'s Department.

This page is for your use; it is up to all members of the Key Section to give all the suggestions and helpful criticism you can; and to help you do this VK3XR and VK3PS will be on the air, calling "CQ MAG," on schedules given below to take any 'dope' you care to shoot along.

VK3PS—7050 KC, Wednesday and Thursday, 1930 MMT.

VK3PS—3525 KC, alternate Sundays, 11.30 MMT.

VK3XR—7280 KC, Monday and Friday, 1930 MMT.; Sunday, 1230 MMT.

Finally we would like to welcome the following new members to the ranks of the Key Section: VK3HQ, VK3OP, VK3PQ, VK3ZQ, VK3QJ, VK3FJ, VK3FG and VK3KC.

J. H. WINTON, VK3XR.

Phone Section Notes

At the meeting of the above Section held on Tuesday, September 12, office-bearers were selected for the coming year. Chairman: Mr. R. M. Dalton (3UI). Secretary: Mr. I. Morgan (3DH). Assistant Secretary: Mr. W. Fitzpatrick (3WF).

In addition to these we have the allocation Committee as follows:—Mr. Manning, Mr. J. Kurley, Mr. Laffiff, and Mr. L. Richards. This number is one more than with which we have previously worked, but it was unanimously decided that since these gentlemen are fairly well spread out geographically, everyone should have a better chance of getting a fair observation.

Now first and foremost the subject of publicity for the Institute. This matter was dealt with to a certain extent at our last meeting, and has, as a matter of fact, been discussed at meetings for some time. We cannot stress too heavily the importance of letting everyone, not only active amateurs or interested experimenters, know that they can achieve little or nothing unless they are members of this body. Anyone who has just a slight interest in radio reception should join the W.I.A. The benefits which would be theirs are worth as much as their gear or knowledge, be it large or small.

The Phone Stations can do more than their share to make these people realise they should be members. By virtue of the fact that the 'phone section members are in direct contact with the Broadcast Listeners, the "Superhet Club," (details of which will be found in our President's Editorial) must be made known to everyone in Melbourne, at least, who listens to Amateur transmissions either by design or accident.

This brings us to an important point. Repeating what was said at the meeting, our channels, given us for use on Sundays MUST be utilised 100 per cent.—they are one of our most valuable assets, and we cannot afford to lose them, which may possibly be the case if they are not given full use.

If you cannot go on the air yourself, always remember to communicate with the other chap with whom you share your frequency allocation.

With regard to the doings of the "Phone Hams" the writer attempted

to collect information, but most of them appear to be rebuilding or installing larger or more tubes to get out further (?) with the same power, but no very technical information was forthcoming.

VK3CB particularly, seems to be building a large frame for a new transmitter, which will be, he says, water cooled (the frame only) also the house has been repainted and the radiation (?) has increased by 100 per cent. When 3CB was asked by the allocation Committee if he wanted a wave length, since there was no application in, he said "Yes,—same wave length, same time," and 3BY was heard to remark—"and same rotten transmissions." By the way, can you find the new call sign attached to a certain gentleman's name on our Index page?

There are probably quite a number of chaps working on "Phone" who have been, or are, specialising in some particular branch of "Phone Work" such as, tubes for speech amplifier work, microphones, pickups, and methods of coupling microphones, tubes and pickups. Also modulation systems, and a score of other branches. Now why can't we have an article from at least one member of our gang in every issue of "Amateur Radio." There are enough items to last for years, and since every man has probably a different opinion on each subject, we should have an unlimited supply.

There seems to have been an increase in the amount of "duplex rag-chewing" going on, in the last couple of months. The period of the winter months, when one prefers to remain at home, may have something to do with it; at any rate the value of this work is quite high.

Getting back to the subject of publicity once more; in this direction we could perhaps commence this part of the performance earlier in the evening; then about 12 p.m. on Sundays, and by suitable arrangements, have a "National Hookup," as it were, and all stations could broadcast the same programme simultaneously, consisting of some W.I.A. propaganda. Apart from the possible subject of the material broadcast, the mere fact of its being a novelty would make the public sit up and take more

notice. This scheme was brought up by Mr. G. F. Thompson at a "Phone Meeting" some months ago, and since nothing has been done regarding the matter there is an obvious necessity for more co-operation. There are no real difficulties attached to the stunt from a technical point of view.

Most of us are able to work duplex with a few stations and all that is necessary is a receiver capable of picking up another station and re-broadcasting it on one's own frequency.

There also is a simple and interesting means of making the "Phone Section" Notes contain some real ideas worth swapping. The writer will be "on the air" each Sunday at

about 12 p.m. (after 3BY has closed down) to receive information for publication in "Amateur Radio." It is much easier to yarn about your ideas than make up an article, so let's have one or both.

A chat on the above notes at our next meeting on Tuesday, 10th October, would be appreciated.

Country members of this section please note that their permits are now due for renewal, and they are advised to communicate with the Department immediately. New Frequency allocations for the country are in the hands of Mr. G. Thompson, c/o W.I.A., to whom you are advised to write.

IVOR MORGAN (VK3DH).

VICTORIAN RAILWAYS INSTITUTE (Wireless Club)

Since the Victorian Railways Institute Wireless Club's first provisional Committee of nine met in June, 1926, steady progress in activity has been registered, there now being approximately 300 members on the books. During this period, owing to the depression, rationing and dismissals in the Railway Department a loss of membership was felt, but at the end of this financial year the Club is comparatively as sound as at its inception.

From a modest beginning the experimental station, VK3RI has in a matter of a little over seven years assumed quite respectable proportions and now ranks with the foremost amateur stations as is testified by the hundreds of appreciative letters on file in the Club Room, many of these from so far afield as New Guinea, New Zealand and Western Australia. Nearly 5000 applications have been received from listeners for Q.S.L. Cards in the last six years.

Not so long ago, broadcast experiments were being conducted by our enthusiasts, using very crude apparatus, the power for which was derived

from a few "B" batteries, but the indifferent results obtained in no way damped their ardour. Since that time, however, gear to the value of nearly £500 is now in regular use at the Club, including some very fine laboratory apparatus.

At the last Annual Meeting held on 24th August, the following office-bearers were elected for ensuing year:

President: Mr. T. Ramsay.

Vice-Presidents: Mr. A. Galbraith,
Mr. G. Massey.

Council: Mr. W. Smart, Mr. E. Greer,
Mr. J. McBain, Mr. E. Milligan, Mr.
N. Hienrichsen, Mr. W. Harrison, Mr.
K. McCarthy (3FX), Mr. H. Byrne
(3HB),

Secretary: Mr. W. E. Brennan
(3RO)

Treasurer: Mr. W. I. May.

Assist. Secretary: Mr. C. H. Harris.

A Smoke Social followed the Annual Meeting and the guests of honor were Messrs. G. Thompson, "Goke" Dalton and G. Douglas of the W.I.A. VK3RO proposed the toast of the W.I.A. and George Thompson responded in a manner suitable to the occasion.

"HARMONICS"

During the summer, 3UK and 3ML are going away, one week-end each month and will be carrying out some special tests. Three transmitters will be taken, one for 80 mx, one for 40 mx and 20 mx and one for 10 mx and 5 mx. Full details of dates and schedules will be in next issue.

"HARMONICS"

When at school in 1912, VK3BY used to work out the answers to his home lessons with his school pals via the air with a spark transmitter.

We think what we heard the other night was a couple of young chaps talking trig. in a new continent for W.A.C. called Algebra!

ROYAL AUSTRALIAN AIR FORCE WIRELESS RESERVE

VICTORIAN NOTES

It is a very happy feeling to pick up pencil and paper, to write the Reserve notes for the inaugural issue of "AMATEUR RADIO," because we know our magazine is going to fill a long felt want in the W.I.A. It will serve to draw closer together the various sectionalised activities of the Institute and provide a medium, through which each of us will know just what the other man is doing.

Briefly, the Royal Australian Air Force Wireless Reserve was designed to utilize the services and equipment of licensed amateurs in the following directions:—

- (a) To facilitate communication between Air Force stations and detached aircraft.
- (b) To co-operate in the observation of tests of Air Force W/T equipment.
- (c) To foster interest in the Air Force and aviation in general, with particular regard to communication as an auxiliary to ground organisation.
- (d) To provide the basis of an emergency communication system to be used in the event of permanent communications breaking down.
- (e) To facilitate the collection of weather reports.
- (f) To train amateurs generally in the correct RAAF W/T procedure for the expeditious handling of traffic.

The Reserve in Victoria is divided into sections of six stations each, including a Section Commander. Each station holds office as Section Commander for a two monthly period, thus every man has control of his section for eight weeks each year.

Trophies are given annually for the best section, the best Section Commander and the best traffic handler in Victoria, and these are presented at the Reserve Convention which is held in Melbourne each September.

Our second Annual Convention has just finished and we have had one of the happiest, busiest and most tiring weeks of our lives! On Monday, September 4th the balloon—sorry—the plane went up, and, as a curtain-raiser for the big week, we had a dinner followed by a theatre night. Tuesday saw the serious work commence when the country members were medically examined and duly enlisted in the re-organised Reserve. Under the new organisation, our

section of the W.I.A. becomes the Wireless Section of the RAAF Reserve, thus all members must enlist in the Reserve in the normal manner. On Tuesday evening our first meeting was held at 3Z1 (3UK). After the District Commander had opened the Convention and touched on the main points of interest during the past year, Wing Commander Wrigley presented the Trophy to this year's crack traffic handler 3D4 (3OR), and a cup to last year's winner 3A5 (3OW). Flight-Lieutenant Wiggins gave a very interesting talk on the Reserve and its future, and after a great deal of discussion (but no yarns, hi!) the evening broke up, everyone looking forward with the keenest anticipation to the Wednesday and Thursday, for they were the BIG days of the week. Wednesday dawned fine but windy and after meeting at the Barracks, the whole gang left for two days, in Plane to ground W/T training at Laverton and Pt. Cook. The whole story of the two great days is told by Doug 3C5 (3YK) below.

Wednesday night was "half time" so all had an early night, except a few indefatigables who "did the shows"! Thursday and Friday nights were devoted to discussions on procedure, arranging new contests and, in general, forming our domestic policy for the coming year.

Then on Saturday night the country members were the guests of the W.I.A. at one of the biggest, brightest and best dinners and smoke nights we have ever had. They say all good things must come to an end—perhaps it makes us appreciate them all the more while they last—but it was with a feeling of genuine regret that we left 3D6's (3YL's) on Sunday night for we realised it was writing 'Finis' on the Convention for yet another year. We all had a great night there, thanks to our charming hostesses, and it seemed a fitting end to a great week. Monday saw the departure of most of the country boys and on Monday night the old familiar signals appeared again on 3.5MC.

With old friendships renewed and new ones formed, with the ties that bind us all into one unit, stronger than ever, this coming year bids fair to far surpass any of its predecessors. If we can feel at the end, that we have accomplished something for our country, through our Hobby, we will be more than satisfied.

THE ROYAL AUSTRALIAN AIR FORCE WIRELESS RESERVE

THE RESERVE TAKES AN "AIRING"

By 3C5 (3YK)

Each year, at our Annual Reserve Convention, a period of training in plane to ground radio work will be carried out at Laverton. This year the BIG days were Wednesday and Thursday, 13th and 14th September.

Wednesday was rather blowy, but fine and all were in great spirits, when they met at 0930 in front of the RAAF HQ. Transport was arranged by Tender and a hilarious trip down was made. As the Tender was shod with solid rubber tyres, a little QSX by some of the gang was excusable! On arrival at Laverton, the boys were divided into two sections; Nr. 1, which consisted of those who had been medically examined and duly enlisted on the previous day, and Nr. 2, who still had to undergo the test.

The first item on the program was an inspection, by both sections, of Nr. 1. Aircraft Depot. Those of the gang who had a leaning towards engineering, were especially interested in the overhauling of the aero engines, which of course, is a very frequent and important event for each machine.

The interest intensified on arrival at the parachute room and, as Nr. 1. section was to fly in the afternoon, the more imaginative must have had visions of joining the Caterpillar Club!

This inspection over, the journey was continued to Pt. Cook for lunch in the Airmen's Mess, where some surprising quantities of food were put away, by those who had no qualms of what the afternoon would bring forth (or up!), through airsickness. After lunch, the sections divided, Nr. 2 repairing to the Ward Room for Medical examination and enlistment. Nr. 1. section was split up into three subsections; A. went to the pier-head and the W/T equipped Southampton, in which the days flying was to be carried out, B, went to the receiving station and C to the transmitting rooms.

The ground transmitters are remotely controlled from the receiving rooms, so, while sub-section C examined the transmitting equipment, B held two-way communication with A. After about three-quarters of an hour's flying, the Southampton alighted, and the sub-sections changed around. Later, a third change was effected, thus, each had a period of

working the ground from the air, the air from the ground, and also examining the origin of the "hefty wollop" known as VJP.

Meanwhile section 2 had been put through its paces in the ward room and had also had a very instructive and entertaining! lecture, on Procedure in traffic handling. Both sections re-united at about 1700 hours, and, after several false starts, when various members were reported missing, the gang left for VIM.

Next morning, a baby gale was blowing and a few of Nr. 2 section, whose turn it was for flying, wished they had been allotted to Nr. 1 and had had their plane training on the previous day! One member failed to turn up and in the end the Tender had to leave with him. Whilst passing through the city, however, a frantic CQ was heard and the missing one was sighted, doubling "hell for leather" through the traffic. Apparently he wasn't used to being punctual; after all, what is an hour or two in the country? hi hi. After a desperate chase, he was eventually hauled on board, nearly dead to the world!

On arrival at Pt. Cook, a demonstration of message picking up from the ground, was given by a Wapiti. This was followed by light signalling between plane and ground.

After lunch, section 2 was divided into sub-sections, as Nr. 1 had been on the previous day. As the weather was bad, a Wapiti was used instead of the Southampton. This, of course, necessitated the members going up singly, instead of in sub-sections as on the Wednesday. All the gang realised, that operating from the observer's cockpit of a Wapiti is not conducive to good keying, especially in the boisterous weather experienced. The writer lost a pair of goggles from about 2000 feet and was well stung by the driving rain, which was falling rather heavily whilst he was having his flip. Nevertheless, a report and some traffic was exchanged with the ground station quite OK.

Each sub-section, when inspecting the transmitting rooms, found its ideas, on various well-known components, somewhat upset by the gigantic proportions, of some of them. The tank coil of one of the long wave transmitters, could have conveniently served as a cage for a couple of tigers and, some of the stand-off in-

sulators, might have done duty for gate-posts.

1700 hours found us regretfully realising that the two great days were over. We piled into the Tender for the return journey, tired, but all sparking well and whiled away the trip back, by some very bright reminiscences (note 'reminiscences' is not spelt Y-A-R-N-S!!). They had been two very enjoyable days and our thanks are due to all at Laverton and Pt. Cook for their efforts on our behalf.

There are still a few vacancies in the sections, for both town and country stations. Here is a real opportunity for doing something of tangible usefulness with your hobby. Even apart from the Patriotic standpoint, enlistment in the Reserve carries with it many advantages from the Amateur point of view. All Hams interested write immediately to District Commander, RAAF W.R. 3rd. District, 5 Fordholm Road, Hawthorn, E.2.

SCOTCH COLLEGE NOTES

When the Club decided to apply for a transmitting licence, it was found necessary to put the Constitution on a proper formal basis, and so a new one was drawn up, submitted to, and accepted by, the members and endorsed by Dr. Littlejohn.

The first job is to qualify for the AOPC and, with the examination only three weeks off, the task of reaching the required standard in the time, is formidable. Regular code practice and lectures have begun and, in spite of the magnitude of the

job, we are hopeful that one or more of us may qualify, to relieve Mr. Marshall of the responsibility of our transmissions.

The transmitter VK3SC is a TPTG, using a 247, with about 5 watts input and the antenna a half wave 7 mc Zepp. Our President, who owned and operated 5DO ten years ago, is most hopeful of renewing old friendships, and will be delighted to hear from any Hams who worked with him in the years 1923-4-5.

CAN YOU FIND A RADIO TERM TO SUIT THIS PICTURE?

During the "RAAFWR" Convention, it was suggested by many of the gang that we should run an "Obstinate Artist" Competition. While we do not wish to pat ourselves on the back, we must say that our artist was "engaged" some weeks previously. Just goes to show how "we are on our toes."

The results of our "Artist's" labors are shown opposite, and rules for the Contest hereunder.

Each suggested title for the picture is to be accompanied by 1d. stamp, and the title is to be of a Radio nature.

We are guaranteeing a prize of 20/-, and if entries are sufficient, the prize value will increase accordingly.

Each individual may send in as many entries as they wish, addressing the envelopes "Obstinate Artist," c/o W.I.A., Kelvin Hall, Collins Place, Melbourne. The Editor's decision is final.



A.R.R.L. INTERNATIONAL TEST, 1933

AUSTRALIAN SECTION SCORES AND PLACINGS

Received from A.R.R.L. via W2CL and VK3RJ, the scores shown below represent "Red Hot" news, not having been printed in any other radio journal.

Our congratulations to VK3ML and VK3RJ for filling the first two places in the Australian Section.

VK3ML	11,232	VK3KX	455
VK3RJ	3,696	VK3CX	386
VK2JZ	3,456	VK5WJ	394
VK5PK	3,440	VK4GK	258
VK4JU	3,023	VK2WD	210
VK5FM	2,820	VK3MX	162
VK3ES	2,390	VK3FM	156
VK3WL	2,205	VK2VG	135
VK2ZW	1,800	VK6SA	135
VK2OU	1,755	VK3XF	126
VK7CH	1,520	VK2FQ	120
VK7BC	1,278	VK2TR	72
VK5GR	1080	VK3DC	55
VK3BW	984	VK2YL	24
VK2PX	909	VK3AX	8
VK3HK	840	VK3YW	8
VK2ER	488	VK3LQ	3

It is understood the world's highest score was run up by EAR185.

Within U.S.A. and Canada the highest score was from W3ZD.

QSL BUREAU NOTES

QSL cards for the following Stations are on hand at the QSL Bureau, 23 Landale Street, Box Hill, Vic., and may be obtained on the receipt of a stamped addressed envelope:—

VK3AH	AN	BD	CL	CR	CW	
DL	EP	ET	FC	FM	GU	GX
JM	JN	JO	KQ	LM	LP	LY
MI	MJ	MM	MX	NC	NG	NM
OD	OX	OZ	PQ	QJ	RN	RQ
RS	RT	TD	TP	UJ	UY	WH
WK	WO	XX	YL	YR	ZK	ZL
ZY						

Messrs. Burnell, Coghlan, Graf, Henrickson, Kennedy, Mason, White.

MANNER OF DISTRIBUTION OF INWARD CARDS

Inward Cards are distributed by the following methods:—

Cards for country members are

posted direct during the first week of each month.

Cards for suburban members are distributed at the monthly meeting of the key section.

Cards for all other Stations must be obtained by forwarding a stamped envelope to the Bureau. Stations sending for cards should forward only large envelopes to facilitate despatch and to obviate the necessity of folding cards.

To receive expeditious treatment, outward cards should reach the Bureau during the last week of any month and stamps or postal notes to cover the QSL charge of one half-penny per card should be enclosed.

Correct postage should be placed on packets of cards sent to the Bureau as all surcharged articles are refused.

If any writing is enclosed in packets of cards, postage at letter rates should be affixed to the packet.

QRA's or any other information regarding stations in all parts of the world will be supplied on receipt of a stamped envelope.

R. E. JONES, VK3RJ,
QSL Manager.

ANTENNAE WIRE

Following a recent article in QST regarding the stretching of soft drawn copper aerial wire, we have made several tests and find that all that was said in that article was very true.

We have made arrangements with Messrs. Thomas Warburton Pty. Ltd. to stock No. 14 gauge hard drawn copper wire. Hitherto this has been unprocurable in Melbourne.

The above firm, who are advertising on our back cover page, also stock duco with which to protect the surface of the wire. This duco could also be applied to those loose coils in your short wave receiver!

CQ 28 AND 56 M.C.

VK3OF would like it known that at 11 on each Sunday he will be calling CQ on 5 and 10 metres, on 'phone and C.W.

EXPERIMENTAL ACTIVITIES OF THE SHORTWAVE GROUP.

The Shortwave Experimental Group of the W.I.A. (Vic. Division) was formed to co-ordinate the work of a number of isolated enthusiastic short-wave broadcast listeners experimentally inclined, and to suggest further lines for investigation.

At the outset it was not intended to open the group so as to include all shortwave listeners because it was thought that the experimental work might be retarded. Shortwave listeners who were likely to become interested, and who would, with the necessary training, be in a position to undertake experiments were encouraged, of course, and the amount of ground covered during the short eighteen months of its existence has fully justified the policy.

All lectures, demonstrations and other activities have been designed to foster and encourage the experimental side of the Group's existence and the papers and lectures which have been delivered have been chosen to assist in some such activity.

The Group would be pleased to have the enquiries and assistance of other members, and prospective members, who might be interested in the work, much of which is closely allied to that of medium wave broadcasting. An extract from the report submitted to the Annual Meeting of the Institute is published verbatim.

The work accomplished up to date is as follows:—

(1) Experimental observations to determine the maximum signal periods, for reception in Australia, of overseas shortwave stations operating on the allotted bands of 50 m., 31 m., 25 m., 19 m., 16 m., and 13 m. Twelve months observation have been completed for the 25 m. band for European stations and graphical results extended to indicate the duration and incidence of the maximum periods for each month of the year. The analysis of results together with a copy of the graphs obtained by co-ordinating individual reports, has been forwarded to the two stations most interested—Radio Paris and the Empire Station of the B.B.C. The report to the B.B.C. was a lengthy one of six pages of closely typed foolscap and included a completed questionnaire submitted for our reply. The work was most favorably

received by the B.B.C. engineers.

Similar observations are nearing completion for the 31 m. and 50 m. bands.

(2) In August 1932, a detailed observation was undertaken during the eclipse of the sun and the results forwarded to the B.E.R.U. who requested it. This also was suitably acknowledged.

(3) An outline and study of the deficiencies from which our short-wave broadcast receivers suffer, and progressive improvement in the light of our experiences etc. This work is not completed because of the difficulties present but is progressing satisfactorily.

(4) A study and development of a suitable frequency meter which would cover the important broadcast bands on both short and medium waves. The meter which resulted—an electron coupled type—has proved to be more stable than we anticipated and the method of calibration easier to accomplish without elaborate equipment than was expected. Unfortunately greater accuracy is limited by difficulties in obtaining accurately graduated dials.

(5) Educational. Papers by world authorities in other countries have been made available for our use through the medium of the library and have been used extensively in providing "lectures" etc. at our ordinary meetings.

Visits of inspection were arranged at monthly periods to points of interest in technical laboratories and workshops in and around Melbourne and when the supply diminished, their place was taken by demonstrations, in the rooms, of equipment available in the instrument library.

Opportunity was taken to calibrate some of our individual instruments.

A similarly extensive programme has been mapped out for the ensuing period and we are at present engaged upon a useful survey of suitable tuning units for all wave receivers together with an attempt to determine whether the super het. method of reception can be mechanically simplified to enable home constructors to obtain the benefit of its undoubted advantages over the older or more common T.R.F. Receiver.

—W.G.S.

Institute's Annual Dinner

Excellent Evening with Prominent Guests

Saturday evening, September 9th, was the occasion of the annual dinner of the Victorian Division of the W.I.A., at which about sixty members were present, the official guests of the evening being the R.A.A.F.W.R. country members. Individual expressions of opinion on the success of the evening were most gratifying to those responsible for the organising of the whole show. Collective opinion was expressed very forcibly by the manner in which the various speeches were received, and by the lateness of the hour at which the party broke up.

Many prominent personages were present, including Mr. S. W. Gadsden (past Federal President of W.I.A.), Mr. J. Malone (Chief Inspector of Wireless for Australia) and Mr. J. Martin, of the R.I.'s office. Tasmania was represented by "Snowy" Harrison (VK7CH).

Responding to the toast of the visitors, Mr. Malone's speech was positively teeming with propoganda which the W.I.A. Council could well use to swell the membership list.

Eulogising the Australian Amateur Radio man, Mr. Malone asked whether the "Hams" were slipping back. His own personal opinions led him to believe that this was not so, but that there was plenty of room for more cohesion, a stronger spirit of co-operation, and that we should stick together and do something for ourselves.

The progress of the Ham movement had been one most meritorious, and it was the happy privilege of he and his department not to act as "low policeman" but to be "fatherly" rather than "heavy." When we Hams consult the department, we consult friends rather than unfriendly critics.

The W.I.A. is very important in controlling policy of amateurs, and for this reason the Ham has had a

fair go in Australia, as an example, the liberal Radio Laws in this country compared with those in many others.

Mr. Malone congratulated the country members who had come to Melbourne at their own expense for no personal gain, except the interest of Ham Radio. He referred to the compliment paid to the Amateur movement and the W.I.A. and also personally congratulated Mr. S. W. Gadsden on his recent appointment to a certain Commonwealth Radio Inquiry.

Mentioning Sunday morning amateur programme, we were told to put these up to the public in a manner particularly fit for their digestion, and that we should use more publicity (only give us the chance O.M.'s E.D. "A.R."). It was gratifying to the W.I.A. to hear that the department liked to hear someone speaking for the Amateur Radio community and stressed once again the necessity for sticking together in an active organisation like the W.I.A.

Mr. Martin responded also, saying that we were fortunate in having Mr. Thompson for our President. Both Thompson and Dalton are termed by the depot "the official beg your pardon officers" for the W.I.A. It was up to the Hams to realise what was being done for them and that they should stick behind the executive for this reason.

Mr. Martin said there were a lot of hams who were not W.I.A. members (hear-hear from Mr. Malone) and it was in the interests of all to be members of that organisation.

Speeches were also made by members of the R.A.A.F.W.R., and various other entertaining gentlemen.

Space does not permit us giving the description of the evening we would like. Suffice to say "A GOOD TIME WAS HAD BY ALL!"

W.I.A. MEETING NIGHTS

1st Tuesday in each month—Key Section.

2nd Tuesday in each month—Phone Section.

2nd Wednesday in each month—Short Wave Group (Demonstration Night).

2nd Thursday in each month—Council Meeting.

3rd Tuesday in each month—Metropolitan Reserve Stations.

3rd Wednesday in each month—For General Meeting

4th Tuesday in each month—For Technical Development Section

4th Wednesday in each month—Short Wave Group (Business and Lecture Night).

AUSTRALIAN FIVE POINT RELAY CONTEST 1933

FISK SHIELD TROPHY

Below we print verbatim, the Rules of the 1933 Five Point Relay Contest promoted by W.I.A. Federal Headquarters at Adelaide.

Accompanying these rules was a letter asking us to give this Contest all the publicity possible.

We would suggest that VK3 strive to have the largest number of entrants showing that the best "Ham" publicity medium is "Amateur Radio."

Regarding Rule 7, it is an excellent opportunity to tell VK generally what you think of the first issue. If so, we may say that the Editorial staff will be listening to all the criticism with great interest.

Rules of the Contest.

(1) A maximum number of messages than can be originated by one station is THIRTY (30). They should be numbered from 1 to 30.

(2) Each message must have not less than twenty words in the TEXT.

(3) Messages can be originated by any station in any State. They must be relayed through no less than four States. By this we mean, and we want to make this point very clear, indeed, FOUR States plus the originators own State make up the FIVE.

When the preamble bears the call of Five Stations, it is finished with.

(4) Allocation of points: ONE point will be given for each message sent and ONE point for each message received. That is, if a station relays a message it is worth points, one for receiving and ONE for retransmitting. Upon a message reaching the fifth State and becoming dead, it will give an extra half point, to the receiving station only. Make 1½

points to the station receiving a message that would be dead on his receiving it.

(5) All messages, whether they have completed the chain or not at the end of the contest must be forwarded by the station handling the messages to the W.I.A. by the 20th November, 1933. No entries will be received after that date, and one must remember that if one fails to send in returns ALL stations who have handled those messages will lose points.

(6) There is no rule against stations making schedules in advance.

(7) Messages must not be of the rubber stamp type. Try and make them interesting to all.

(8) Traffic managers must not include their traffic totals in this contest.

(9) A special log must be submitted by all participating stations at the conclusion of the contest, showing the number of messages handled. The logs must be forwarded together with a copy of all messages handled to the W.I.A. at the conclusion of the contest.

(10) THE DATES of the contest will be from 0001 SMT on October 21st to 2359 SMT on October 29th, 1933. Logs must be in hand at the W.I.A. by the 20th November, 1933. Address your entries:—

WIRELESS INSTITUTE OF
AUSTRALIA,
Box 284D G.P.O.

Adelaide, Sth. Australia.

Mark the envelope Federal Contest
Manager.

Identification Discs

The investment of one penny at one of the metal embossing machines installed at all city Railway Stations and at the Post Office will give a ham the basis of a neat lapel badge call sign.

In making his own, the writer cut away the superfluous aluminium, forming an oval just large enough to leave a small margin around the letters. The whole was then given a couple of coats of blue duco. When dry the colour was carefully scraped off the raised letters, and a coat of clear duco applied as a finish.

An ordinary large pin, bent over at the head, is pushed through for attaching to the lapel and was in-

serted before ducoing, so that its head is the same colour as the ground of the badge. Another application of the above idea would be for name plates for instruments, dials, etc.—VK3PS.

(EDITOR'S NOTE: The above idea has been explained to several of the W.I.A. Executive, and has met with wholehearted approval. It must be understood, however, that the badge described above must not take the place of the regular W.I.A. insignia. Our regular badge should be worn at all times. It is a means of identification when interviewing our various advertising friends, and when making all radio purchases).—ED. "A.R."

UNOFFICIAL HISTORY OF THE R.A.A.F. RESERVE CONVENTION

By 3C3 (3RH)

Well our Convention has come and gone and the thought uppermost in my mind is, "Thanks be to Allah, the next is only eleven and a half months away." I feel sure all you fellows who shared in the enjoyable programme will echo that sentiment—and then some.

For a "first offence" the show was certainly a splendid effort and primarily, the 'blame' can be laid at the respective doors of our worthy Federal and District Commanders, Flying Officer Cunningham and Pilot Officer Marshall. Don't forget this fact, chaps, and in future show your appreciation by always drinking "Kiwi" and sprucing up your shoes with "Glen Valley"—its different. (Adv. 4d. a line!!)

Looking back in retrospect upon those hectic seven days, many different topics intrude themselves and, strangely enough, the serious side of our work appears merely as a background to our experiences in the lighter vein. Perhaps this is as it should be, for who wishes the Reserve to take it's pleasures sadly? While not unmindful of the great compliment paid and the confidence placed in us by the Air Board, by actually enlisting us in the RAAF Reserve, I feel sure that we lost nothing in efficiency by "looking on the bright side" of things.

Fortunately, most of the country members were able to get down to Melbourne for the occasion and this gave us the opportunity to look each other over and either laugh or cry at the imaginary conceptions we had conceived, during our previous etheristic contacts!!! I won't dwell on that particular point, however, as I may drift into deep water—and it's too darn cool for swimming these days.

I wonder whether you are all aware that 3HG did the rounds of the city, looking for the best brand of canary-seed? He's after 3OR's lildicky bird next year and when he gets it home, he is going to keep it so well-fed and contented, it will never want to leave again. And, while on the subject of 3HG, let's drag in his companion in QRM—3OW. Don't those two look as if

butter wouldn't melt in their mouths? I guess, if the occasion demanded it however, they could both generate saliva sufficiently potent to dissolve diamonds!!

I believe 3OR and 3KR became much annoyed when the manager of the Regent refused their request, to run through portion of "The Kid from Spain" again slowly, so that they could check up on Eddie Cantor's technique in the episode of the ignition key!! Personally, I'm sure that those boys, without further tuition, could obtain similar results, even if by a more circuitous route hi!

Then you'll all remember the face of the Mess Corp. at Pt. Cook, when 3DW tried to prove the fallacy of the old adage "Man cannot live on bread alone"—and asked for a fourth loaf! And the tea!—guess 3UK slipped on the contract this year, but here's hoping they'll keep the business in the family in future hi.

It was hard luck that 3HL finished up the week with a bad cold. The doc was unable to diagnose whether the cause was due to a bad attack of "breeze up," which naturally chilled the liver, or to 'HL sitting in a bit of a draught while doing his stuff in the Wapiti.

And now it appears that I have picked on a lot of the boys from the bush and have given myself the miss. That's hardly fair, so I'll tell you what the young lady—no I won't! Second thoughts are best. But I'll keep it until next Convention and in the meantime, gang, don't forget the Reserve secret sign—left hand waving a la propeller, right hand extended as though grasping the fuselage and keying with the right foot hi. So cheerio boys, but before dismissing, let's up on our hind legs and let off our war cry—a cry that may yet become the envy and terror of our enemies—if any. Now then altogether—H.L.Z!!!!!!

BERU NOTES FOR SEPT. 1933

LONDON, SEPT. 18th, RADIO BY G6CL.

Distributed by Radio via Empire Link Stations to all Empire Societies.

The eighth Convention of the RSGB was attended by nearly 200 members from every part of the British Isles. The opening meeting took the form of a conversazione, when short papers on subjects of Amateur interest were given, whilst films taken by G2PD

and G6UN were also shown. A running buffet enabled everyone to become quickly acquainted. SUIEC, VS6AH and VQ5NTB, were amongst our visitors. The various meetings and the dinner are fully reported in the September T. and R. Bulletin, which also contains details of practical five metre apparatus.

Activity continues on 56 mc and some interesting contacts have been made up to distances of about fifty miles. The 28 mc band has shown an improvement and numerous QSO's with Europe, North Africa and Egypt have been effected.

Keeness is being shown in Television problems especially in connection with ultra short wave work. A Contact Bureau Group has been formed and overseas members interested in this problem are cordially invited to co-operate.

HAMADS

Offers made in advertisements below are made "subject to sales."

This column is open to W.I.A. members at a charge of 2d. (two pence) per line.

To non-members of W.I.A. or affiliated bodies the charge is 4d. (four pence) per line or part thereof.

The Editor reserves the right of refusal of any advertisement.

WANTED—Burnt out "Ferranti" Audio Transformers.

FOR SALE—One (1) only push-pull, input-output "Ferranti" Transformer for coupling two push-pull stages.—VK3XR, c/o W.I.A., or 'Phone: U-2662.

WANTED—One National drum dial, with escutcheon. Cheap. VK3OC, c/o W.I.A.

FOR SALE—U8 Full wave rectifiers, 500 volt rating. Will definitely replace UX281's, 4/6 each.—VK3LQ, c/o W.I.A.

If you want a lapel call sign, as described in this issue, write, see, or call VK3PS. Price 6d. finished. Postage 2d.

FOR SALE—Transformers 230v., 325 watt, 1260v. C.T., new 35/-; 10v 8a 8/6; 1250v. 150ma. Kenotron. 15/-; Transmitters. 28 MC. T.N.T with 171a, 10/-; 7MC Hartley with E408, 17/6; o-25MA meter, valves, condensers etc. Any offers?—VK3JJ. M-1984.

NORTH SUBURBAN RADIO CLUB

If you are interested in Radio—you should join the North Suburban Radio Club which caters for both the beginner and advanced experimenter. The Club meets every alternate Monday evening at 8 p.m. in their club rooms, 354 Rathdown Street, North Carlton. The next meeting will be held on Monday, 2nd October and a lecture of interest has been arranged.

A party of members recently spent frequency measurements and receiving station of the P.M.G.'s Department, and the Department are to be commended on the high standard of efficiency of their apparatus. On October 8th, a party of members are to visit the "shack" of Wm. Sievers, 3CB, and he has made arrangements for some of his "flames" to greet us. (From what I hear, Bill is a thorough gentleman).

The Club is operating a fone xmitter (VK3FY) on the 200 metre band, and is in operation on Sundays on 195 metres (1538 KC) from 8.30 an enjoyable afternoon at the Radio to 10 a.m. and on 222.1 metres (1350 KC) from 10.30 p.m. till the op. falls asleep.

3FY has challenged the Melbourne Experimental Radio Club to a QSO competition—that is—the greatest number of confirmed QSO's in a month, points to be awarded for distance, and it is to be hoped that they will accept our challenge.

As this goes to press, we are using a P.P. TNT on 40 and 80 metres, with telefunken modulation.

All enquiries regarding Club activities will be welcomed by our Secretary—Wm. Wonder, 12 Smith Street, Thornburv. N.17.

HARMONICS

We have on good authority that VK3WI is going on the air in the near future, and from what we know, the whole family will be listening to the Programmes.

Ken Rankin (VK3KR) passed his examination in December, 1926.

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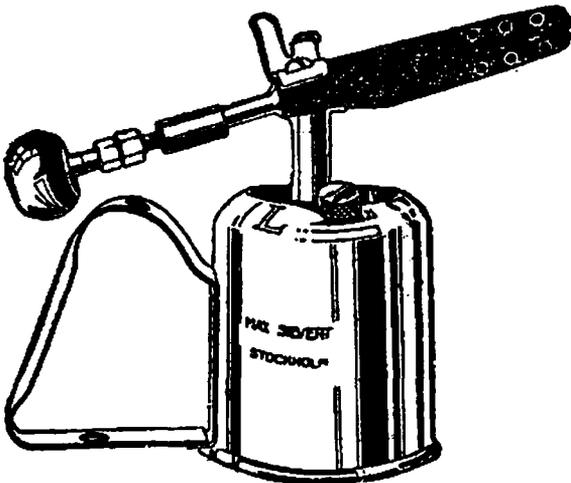
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Published by the Wireless Institute of Aust., Victorian Division.

Vol. 1.—No. 11.

1st November, 1933.

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Filament current*	0.29	1	1.6	3.8	1	3.25	A
Saturation current*	100	400	1500	2000	400	2000	mA
Anode voltage	150-300	200-500	800-1500	1000-2000	400-500	2000	V
Screen-grid voltage	—	—	—	—	75-125	300-500	V
Max. anode dissipation	6	10	75	150	15	75	W
Anode dissipation on test ..	10	20	100	200	20	100	W
Max. screen-grid dissipation .	—	—	—	—	3	15	W
Amplification factor*	6	25	25	25	225	200	
Mutual conductance (slope)*	2.3	2.0	5	4	1.4	1.4	mA/V
Int. resistance*	2500	12,500	5000	6000	160,000	150,000	R
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EDITORIAL

"HELP US TO HELP YOU."

The number of superlatives existing in the English language is amazing. They were all used in Victoria last month, when any ham gave a critique on the first issue of 'Amateur Radio.'

Essentially the October issue was VK3 in character, but we have been honoured, and are proud to state that this journal is now recognised by the Federal headquarters as the official organ of the Wireless Institute of Australia.

Although the number of pages has increased to 24, we could easily fill thirty-two pages, or even more. However, being somewhat conservative, we have deemed it wise to see whether your friends, as potential subscribers, are going to help us to help you. More subscriptions mean more pages—more pages mean more original technical data (we have quite a lot on file and promised); more technical data and general information means more W.I.A. members; and so we go on, in an ever-widening circle.

It is indeed gratifying to the Editorial staff to read the introductory notes of the A.R.A. of New South Wales over the signatures of the President and Secretary of that division. Our thanks to the A.R.A. for this unsolicited appeal, and we hope that other States will follow the lead given by VK2.

The policy of this publication is a mutual one. Believing in the adage, "United we stand, divided we fall," we shall endeavour with each issue to bind closer the radio amateurs of Australia, and we know this will be appreciated by our good friends of the P.M.G.'s Department. The time is opportune to quote some lines of a letter received from the Chief Inspector of Wireless (Mr. J. Malone):—"Congratulations on the new venture, the issue of 'Amateur Radio.' The first number is a good one, worthy of its authors. There are better ones to follow. I know that because I know wireless amateurs never will let well alone; they want something better. And their happy combination of optimism, energy and ability will also ensure progress from success to success. I will look forward to succeeding numbers of 'Amateur Radio' and would be glad to co-operate in any manner practicable. Yours sincerely, J. Malone."

"Amateur Radio," the only 100 per cent. ham publication in Australia, is yours. Read it, criticise it, and become magazine conscious; then put your thoughts to paper and send them to the editorial staff.

Endeavour, by virtue of building up our subscription list, to "Help us to help you!" We promise we shall do our job. Will you do yours?

—THE EDITORS.

A.O.P.C. (VICTORIA).

The long looked for class of instruction for the amateur operators' certificate of proficiency exam., run under the auspices of the Wireless Institute, will be starting in three weeks' time.

These classes in the past have been very successful, 95 per cent. passes having been obtained. The fees charged are the lowest of any classes of this nature.

Each pupil will automatically become a student member of the Wireless Institute, and will receive all privileges and the magazine "Amateur Radio" for one year.

Write and post a letter for prospectus, terms, and starting date to the Secretary, Class of Instruction, Wireless Institute of Australia, Kelvin Hall, Collins place, Melbourne.

RESULT RADIO PICTURE.

This competition was won by Alan Hutchings (3HL). The title was "Closing down, too much juice in the tank."

Other possible titles, which were not submitted, were:—"Time signal," "Automatic volume control."

We hope Alan does not practice what he preaches!

A Self-Contained Portable Transmitter-Receiver

By VAUGHAN MARSHALL (VK3UK).

Portables, for some reason unknown, have never had a very widespread popularity here, and it is with the idea of drawing attention to one of the most fascinating sides of amateur radio that this article has been inspired. Those who have never known the thrill of a QSO out in the open, with an aerial slung to the nearest tree, have missed something that is akin only to that first DX QSO.

When VK3UK started travelling, a portable transmitter became an essential—who ever heard of a Ham who could be away from his beloved hobby for more than a week at a stretch—and the outfit described below was the result. A portable, to be a portable, must be light, compact, of rugged construction, and, above all, self-contained. This little job is in a leather case measuring $19\frac{1}{2} \times 13\frac{1}{2} \times 5\frac{1}{2}$ in., it weighs 24 lb., and contains receiver, transmitter, A & B batteries, aerial, two pairs of phones, key and log book. It took a full week-end, with pad, pencil and paper to “dope” out an arrangement of parts so that all would fit in snugly, but the finished product has utilised every available nook and cranny, without cramping any of the components.

The design being finished, the transmitter and receiver were built on to a T-shaped frame, with the top of the T representing the front panel. Above the division is the shielded receiver, B batteries, receiver A battery, and at the rear the extra tube base receiver coils. Below the division is the transmitter, separated by a partition from the compartment containing the phones, aerial, log book, etc. Looking from the top, the front panel contains receiver aerial terminals, one each side of the reaction control, receiver tuning dial, filament control phone jack. Then come the transmitter aerial terminals, one each side of the D.P.D.T. switch (which switches the B batteries from receiver to transmitter and vice versa), milliammeter, tang tuning dial, transmitter filament switch, and finally the key.

On reference to the circuit diagram, it will be seen that the transmitter is a Hartley, using an A415 valve. This circuit was decided upon because it is easy to adjust, and, more important still, it requires a minimum of com-

ponents. The receiver is an O-V-I, and, with careful selection and placement of parts, can be built into a very small space. In this job it occupies only $6 \times 4\frac{1}{2} \times 4$. This leaves as much room as possible for the batteries.

The filament battery for the transmitter is housed over the valve, and is controlled by the push-pull switch just over the key. After a lot of experiment with various types of aeri-als a voltage fed Hertz, 63 feet long, was at last decided on. It is wound on a half-pound wire bobbin, when in the set, together with thirty feet of fishing line. When “on location,” the bobbin, to which the line is attached, is thrown over a convenient limb of a tree, or other object, and then the aerial is pulled aloft. It takes about three minutes to put the set on the air, or to pack up when finished, as the only thing to be done is to put up the aerial and plug in the phones. Change over from “send” to “receive,” or vice versa is simplicity itself, as one has only to flip the B batteries from transmitter to receiver, by means of the switch in the centre of the panel.

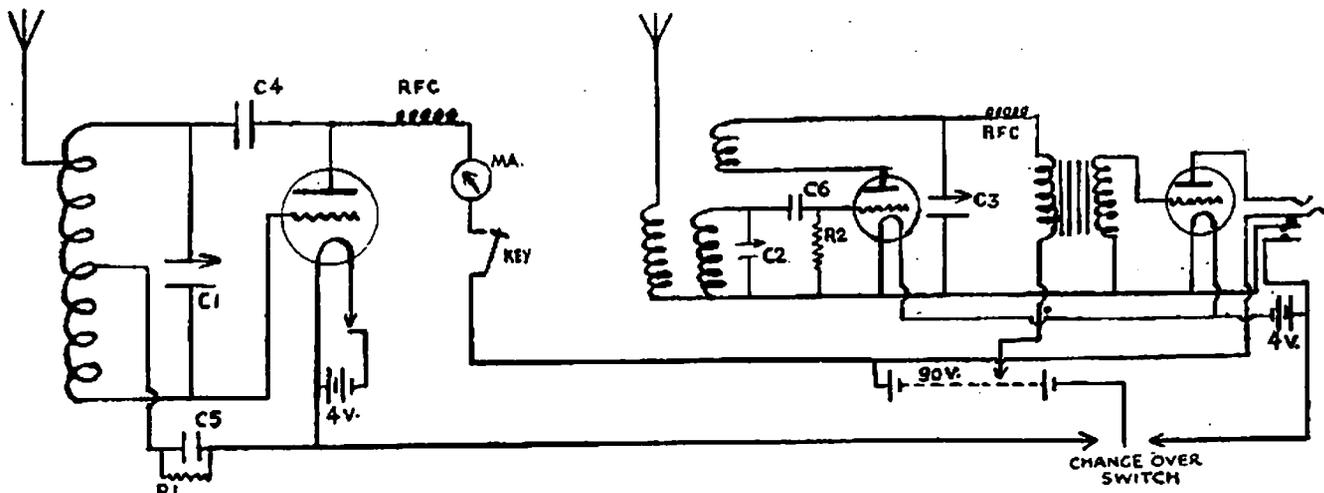
Although this little outfit is used almost solely for keeping in touch with VK3 stations, ZL has been worked on three occasions with an input power of .8 watt. The writer has consistently worked Melbourne, on schedule, from various locations around Sydney, as well as from all parts of Victoria. Anyone who has not had much experience with the capabilities and possibilities of QRP will find their ideas undergoing radical changes after a few weeks away, with a set such as this. 3.5 m.c. is the band mostly used, although a fair amount of work has been done on 7 m.c. Skip distance is, however, the main trouble on the latter frequency, for the “short haul” work to which a portable is most peculiarly adapted.

Many new features will, no doubt, present themselves to the average amateur about to build a similar set, and individual taste, in both layout and design, will influence his finished job. It must always be remembered, though, in portable construction, that one's layout and selection of parts must primarily have in mind a finished set which is compact, light, and of rugged construction. Probably the

first thing that will suggest itself to the intending builder, in the way of modification, is the incorporation of C.C. There are many things to be said for and against the use of crystal control in low-power portables, and the writer has had many discussions on the subject. However, in order to gain the necessary data, to make an accu-

rate comparison, the set described is being converted to C.C. and will be worked from Wollongong, N.S.W., during the coming Christmas holidays.

In conclusion, it should be remembered that it is essential to obtain P.M.G. permission, before operating a transmitter away from the address at which the station is licensed.



C1 .0003 mfd.
C2 .00015 mfd.
C3 .00015 mfd.
C4 .002 mfd.

C5 .00025 mfd.
C6 .00025 mfd.
R1 10,000 ohms.
R2 2 megohms.

RULES GOVERNING THE FISK TROPHY COMPETITIONS AMONG AUSTRALIAN AMATEURS.

Rule 1.—The Cup shall be competed for among the amateurs of Australia, each State acting as a team in each of the contests arranged to develop friendly rivalry among the amateurs.

Rule 2.—The trophy will remain the property of the Federal Executive of the Wireless Institute of Australia until won outright by a State Division or other body representing any State that is admitted from time to time by the Federal Executive. (A.R.A. admitted on behalf of VK2.)

Rule 3.—Contests will be arranged by the Federal Executive to take place at intervals of not less than six months and to be spread over a period of not more than three years.

Rule 4.—There will be five contests in all.

Rule 5.—The rules of each contest will be decided by Federal Executive and arranged to give an equal chance to each State.

Rule 6.—Upon a State winning the contest such State will be given the custody of the trophy until the conclusion of the following contest. Details

of each contest will be inscribed on the trophy.

Rule 7.—The State winning the contest will pay the freight on the trophy from the immediate prior holders and shall take full responsibility for its proper housing and meet all expenses.

Rule 8.—When the result of each contest is notified by Federal Executive to the holders they shall be prepared to despatch the trophy to the next holders on demand by them.

Rule 9.—The State having the largest aggregate of points at the conclusion of the five contests shall be deemed the outright winners and will receive the trophy for its personal keeping.

Rule 10.—The points for the aggregate are as follows:—Leading State, five points; second, four points; third, three points; fourth, two points; fifth, one point.

Rule 11.—East State is asked to award separate prizes to the leading stations in each contest to encourage competitors individually.

Rule 12.—No member of Federal Executive is permitted to operate his station as a scoring member of the State team.

CUTTING THE COST OF C.C.

By VK3ML.

The time-worn discussion of crystal control versus self-excited transmitters can now be definitely concluded. Since the advent of C.C. there really has not been any great attempt to increase the efficiency of this type of transmitter beyond improving the components and layouts. It has always been the custom to employ one tube for the oscillator stage and one for each frequency doubler desired, followed, in most cases, by a neutralised power amplifier. This string of tubes has naturally frightened many hams off xtal. control on account of the high cost of components, and trickiness in operation.

Those who read Lamb's article entitled "A more stable crystal oscillator of high harmonic output," which appeared in QST for June, 1933, might have passed over it without realising the great possibilities of such a circuit. It is not intended to go into the operation of this circuit here, because it is explained fully in that particular article. However, being in a playful mood, one evening it was decided to try it out with a spare penthode on hand. The results obtained were excellent, and before the night was out the 100-watt transmitter was remodelled along the new lines.

Such an oscillator as shown in the diagram is capable of delivering enough second harmonic output to fully excite a 100-watt tube directly without the aid of the usual frequency doubler. The fourth harmonic is less, of course, but quite sufficient to control about 60 watts. With this scheme installed, it is possible to do away with all doublers, even down to 28 mc. Thus, it is hoped that this two-tube C.C. transmitter will replace the old T.P.T.G., etc., not only because it will be cheaper to install, but more simple to operate. Then, again, those who were in the habit of using 3, 4, or 5 stage rigs can save power and gear by giving this hookup a trial. This transmitter uses a 3.5 mc crystal and can be of anything up to 100 watts input if the right tube is available. However, this article caters for the more commonly used tubes, such as 210, TBO4/10, '46, etc., either straight or in push-pull, as the power amplifier

can be altered to suit the particular case; the important stage to be considered is the CO.

The oscillator tube used at VK3ML is a Mazda penthode type A.C./Pen. It is an indirectly heated valve, which is essential. However, other tubes have been tried with success, such as the 59, 42, etc., or any other type available, but it must be of the cathode variety.

The Mazda tube was being sold in Melbourne for about 7/6 recently, and has proved to be the best "buy" ever made. It will carry any voltage up to 1000 on the anode with 200 on the penthode grid. Using this tube alone and coupling the aerial coil direct on to the tank circuit tuned to 40 metres one can obtain excellent output.

It will be noticed that all the components have been rated in the diagram. Such items as variable condensers, in certain cases, can be substituted for whatever is available. They are of little importance. The oscillator has a tuned circuit connected between the cathode and ground, with the crystal between grid and cathode. This circuit is tuned to the fundamental of the crystal. The tank circuit decides the harmonic to be used. It is tuned to either 3.5, 7, or 14 mc. However, it must be borne in mind that when it is tuned to the fundamental of the crystal the cathode-ground coil must be shorted out completely, otherwise one is liable to shatter the crystal owing to the poor screening effect of the penthode grid. The circuit is then a straight penthode type as ordinarily used. Shunt feed is employed in the CO to an advantage. The dispensing of the grid choke in the PA has abolished many a worry. There is little to be said about the CO now, as the circuit is straight forward and there is nothing tricky about it. To get it going after hooking up use a single turn of wire shunted across a pea lamp as indicator, and tune the cathode coil to the fundamental of the crystal. Plenty of output may be obtained here. Then do the same with the plate coil, tuning to the desired harmonic. It will be found that an increase in output of the tank circuit is obtained when the cathode coil is detuned slightly.

The PA is quite the ordinary standard series fed type, with neutralisation. The method of neutralising is the usual, the HT feed tap being

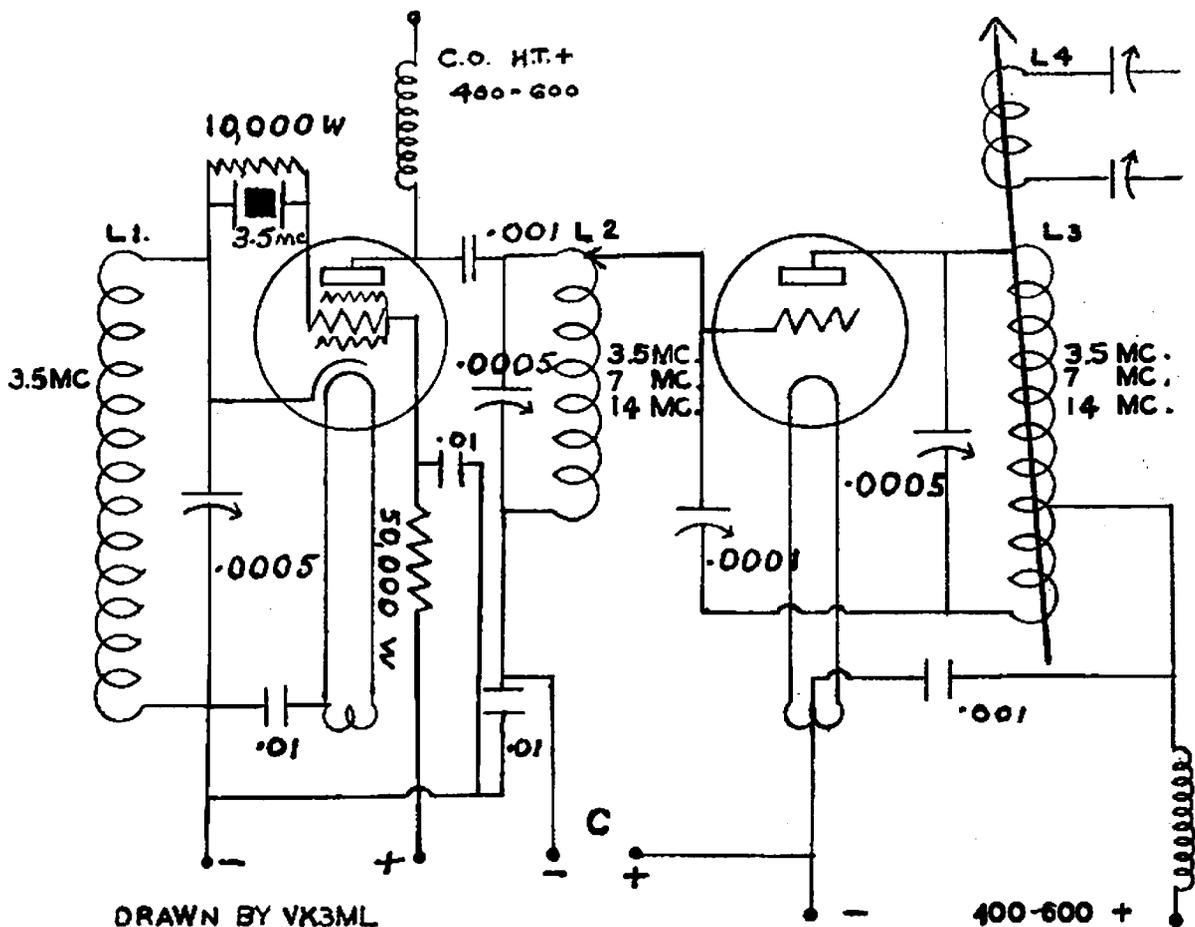
about one-third the way up the tank coil. Keying is done also in the usual way; at VK3ML it is done in the centre tap of the PA. It is advisable to mount the coils at right angles to one another if possible, as this lessens the feed back. Little need now be said of the operation of this set, as the every-day manner of operating a C.C. station applies throughout. The coils can be those

now being used, but for comparison those used by the writer are listed below for guidance.

L1.—30 turns 20-gauge bare copper wire wound on a 1½ in. former.

L2.—Do. L1 for 3.5 mc.; 10 turns for 7 mc.; 6 turns for 14 mc.

L3.—¼ in. copper tubing, 2½ in. diameter, 18 turns for 3.5; 8 turns for 7 mc, and 5 turns for 14 mc.



HINTS ON PHOTOGRAPHING YOUR STATION.

Many hams have often wanted to take a snap of their gear, but have shelved the business, feeling that it was only a professional photographer's job. This is not the case, however, for even the veriest tyro. can take first-class photos. indoors with an ordinary camera.

Get a 200-watt globe and make a reflector for it, by cutting a cone, about 18 in. diameter, out of a piece of white cardboard. Place the camera on a steady base and focus on the piece of gear desired to be photographed. Set the shutter at time exposure, and the

lens to a fairly wide aperture. Open the shutter and expose, for from three to six minutes, depending on the degree of light and shade in the subject. All outside light should be excluded from the room whilst the photo is being made, and care must be taken that no direct rays from the globe shine on the lens. In order that no shadows will be apparent, an extension lead should be used on the globe and reflector, and it should be slowly waved back and forth, whilst the shutter is open.

VK3UK.

(Give this a trial, fellows. we want some good photos. and descriptions of your latest gear.—Ed. "A.R.")

VK3 SECTION NOTES

Conducted by J. H. WINTON (VK3XR).

Key Section

A casual observer dropping in to the key section meeting on Tuesday, October 3, would have been at a loss to explain how an otherwise normal collection of fellows could be so quiet on a meeting night. Indeed, even our DX fiends (no, this is not a linotype error of "friends") and QSL hounds were effectively silenced. And what, may you ask, caused this sudden collapse of the "rag-chewing" capabilities of your brother hams? "Amateur Radio"—nothing less. The first issue of our eagerly awaited and hungrily devoured little magazine made its bow to a long-suffering public on this day, and the result far exceeded expectations.

That you will pardon our rather obvious pride in "Amateur Radio" we know, because we know that you are proud of it yourselves. But don't be mean about it. We want you to tell all the "unfortunates" who did not see the first issue just what it was like and what they will miss if they don't get their copy of this issue right now.

We had the pleasure of welcoming two new members to our meeting, they being 3CW and 3LE. Welcome OM's and our sincere wishes that very happy times will be spent by you as members of the key section.

Once again we were honoured by a visitor, this time G5TI, who is a shipboard operator. So interesting was his talk on operating conditions in England that we print the following extracts:—

"In my home town there are two other hams, G2DC and G6GZ, who, together with myself, have been experimenting with a five-metre equipment. From our experiments it would seem that power is of no advantage at all, equally good results being obtained from a small receiving valve, with 90 volts on the plate, as high-power rigs. The transmitter at G5TI is suspended on a pole 15 feet high in the back yard, and the antenna wires led straight off to each side. Horizontal aerials have proved more effective with us, and using a buzzer modulated plate supply to the transmitter, R max. signals have been received from a plane 250 miles away.

"Concerning the United States hams, I have noticed that very few build their own transmitters, and I should say that 14 out of 15 buy their rigs ready made.

"In England there are no restrictions on the times of operating unless interference is caused, under which conditions silent hours must be observed. As a 10-watt licence costs 20/, with an extra 10/ for each increase of 10 watts, the "high power ham" is the exception rather than the rule. Also our regulations declare that a station may be operated for a total of two hours only per day.

"Unlike the W.I.A., the R.S.G.B. cannot make representations to the British Post Office on behalf of an amateur who has infringed the regulations."

After these remarks you see that we in VK are living in a paradise compared with our English friends, and, while we do not wish to be unduly pessimistic, we can see curtailment of our present liberty if all you fellows do not give your wholehearted support to the Institute.

G5TI also mentioned that "quiescent push-pull" was finding very great favour in England at present. In the very near future we hope to have some firsthand dope to give you on this subject, as a result of experiments at present under way at 3XR. For the present it will suffice to say, that quiescent push-pull is a form of push-pull audio circuit on Class B lines, but requiring no grid (input) power, and giving about twice the normal push-pull Class A audio output. It is especially suitable for 5-metre portables and battery-operated sets.

By the time this appears in print the first round of the "big fight" for the Fisk shield will have taken place. Elsewhere in this issue you will find details of this trophy. When you have read the article we feel sure that you will be a starter in the second five-point delay contest, and by so doing, helping VK3 on the way to winning the shield.

Arrangements are in hand to put the Institute short-wave transmitter, VK3WI, on the air. Schedules have not been finalised yet, but we would appreciate any offers from Melbourne

hams who can spare one or two nights per month to operate the station. Also we would be very pleased to make schedules with any station, either for a chat or general experiments. Just drop a line to the writer so that a working schedule can be drawn up without delay.

This issue contains an article for would-be photographers, instructing them in the art of taking a respectable photo. of their gear. Now there is a reason for this. The writer has heard a rumour that the mag's star reporter is going to call at several amateur stations in the near future. A short description of each station will be published in "Amateur Radio," together with any photos. available, so don't say you weren't warned. The reporter has also mentioned that light refreshments will be accepted, but not for publication.

By all accounts, "things do' move" on five metres at last. The latest information to hand is that several portable and fixed stations will be operating by Christmas, and, judging by the wealth of technical data at present to hand, "Amateur Radio" will be crammed full of technical articles on the latest developments in this absorbing field. Arrangements are being made for some long-distance tests to take place, and several of the gang are considering camping in locations especially suitable for five-metre work.

As Cup Day happens to coincide with our meeting night, and we were unable to shift Cup Day, the next meeting of the key section will be held on Wednesday, November 8; that is the night after Cup Day. Don't forget that there is plenty of room for your friends who are not members. Bring them along as your guests, as there are several important matters to be discussed, and we want your support.

VK3 Phone Notes

In reporting the notes from the phone section for the month I must first of all pass on a report from Mr. J. Kerley, of the Allocations Committee.

Due to lack of space, I will pass over the first few lines of Mr. Kerley's notes, since these only refer to 3BY and myself personally.

Allocations Committee.—At the phone meeting held on Tuesday, October 10, the Allocations Committee met to allocate frequencies for the

ensuing month. This was the first meeting of the enlarged Committee, and was highly satisfactory. The Committee wishes to draw the attention of the "gang" to the following important matter, which was overlooked at the last meeting. In future any station which runs after the closing time of any session will be "docked" half a mark for every half-minute that the station is running late. Owing to the fact that some of the commercial stations commence exactly at the conclusion of our sessions it will be seen that the above is necessary in order to curb that tendency of some of the stations to run just a little bit longer to finish that last record.

This system of penalising will come into force on the first Sunday in November.

A request.—Will the "gang" kindly announce their station call sign between each item (two-part records excepted)? This will greatly facilitate the work of the observers.

A few observations on the country stations:—3GZ, KW, EK, LM, KX, RG, LH, PY. At the observation post (Geelong) these stations were all coming in satisfactorily on a five-tube super. A new set is under construction, which will "sport" seven tubes. With this I hope to be able to listen to more of the country stations which are running during the daylight sessions.

—J. C. Kerley, Official Observer.

While on the subject of country observation posts, I must mention that we have Mr. Ivan Hodder (3RH) and Mr. Charles White'aw (3BH), whose reports go towards compiling the country allocations.

Besides the usual business of allocations, etc, at the September meeting of the phone section, the subject of articles of general interest for contribution to "Amateur Radio," was much discussed, and let us hope that the members went away from the meeting with this idea still foremost in their heads, and that henceforth there will be a flood of articles from the phone section. The discussions which took place were mainly with regard to the subject matter of the articles. It was readily agreed that articles of a highly technical nature were wanted, but that we must not overlook the value of, for instance, a constructional description of an advanced receiver, or anything that would appeal to the majority of readers.

At this juncture I would like to remind not only the phone men, but everyone, that the W.I.A. class for students wishing to reach the A.O.P.C. standard or higher is well under way. Immediately a sufficient number of students enroll the lectures will begin. The organisers report that at the very latest the end of November will see the lectures commencing. At present there are on the rolls 15 intending students. Now, here is your chance, phone transmitters, to swell this number to a maximum of 40 in record time, by your publicity. The last instruction course held by the W.I.A. included the teaching of code, theory and practice and proved itself most successful.

With regard to the activities of the phone transmitters, again nothing of outstanding interest was received by the phone section reported via the QSO's, on Sunday nights at 12 p.m., but, of course, a lot may be attributed to the fact that the intense activities of 3BY (operated by 3TH until about 1.50 a.m.) has prevented 3DH's appearance on all but one night up to date this month. However, we may enlarge on this scheme by reporting "dope" for "Amateur Radio," also to 3BY when that station is holding the fort, as it were. DH will be listening.

One most interesting and technical (?) Q.S.O. was heard on the night of October 13, between 3FY and 3CB, or, rather, the respective Y.L.'s of these stations. The only technical remark heard during this half-hour contact was to the effect that 3FY had put two crystals together sandwich fashion, to reach the wave-length of 269.2 metres in order to facilitate reception at 3CB.

At the meeting of this section for the month the subject of crystal control, becoming compulsory, was discussed at considerable length. We all realised that this was a question which had to be decided by the majority, of course, and in any case there was sure to be someone to whom this scheme would not appeal—i.e., the man who uses a self-excited oscillator, be it alone or followed by two stages, and who is never reported off wave. However, the motion on the books to the effect that all stations using wave-lengths of from 199.9 metres up (inclusive) were to be crystal controlled, was carried, and the members were reminded to bring along their crystals to the next meet-

ing. The system to come into force in November will be that of a crystal "pool," whereby crystals will be exchanged between members whose wave-lengths are altered. As mentioned in last month's notes, new allocations will not become effective until the first Sunday in the following month. This, of course, creates a difficulty, since our meetings fall on the first Tuesday in the month. I would like to suggest to the members that serious consideration be given at our next meeting to the proposal which was brought up at our last meeting, to change the meeting night to the last Tuesday, as this would see us through the difficulty.

—Ivor Morgan (3DH).

THE ASSOCIATION OF RADIO AMATEURS (N.S.W.)

President.—Frank M. Goyen, esq.
(2UX).

Publicity Officer.—W. Moore, esq.
(2HZ).

Secretary.—Robt. H. W. Power, esq.,
Wembley House, 841 George
street, Sydney.

At the outset the A.R.A. wishes the Wireless Institute of Australia (Vic. Division) every success with their new magazine, and we can assure the Federal Executive, the VK3 Division, and the whole of the amateurs of the Commonwealth, that we are solidly behind this attempt to firmly establish a really 100 per cent. amateur journal for the Commonwealth. At the same time, every "ham" and every "ham" organisation in Australia must realise that, efficient and capable as the VK3 organisation undoubtedly is (and it is thought that they themselves will assuredly agree), it will be impossible for the magazine to thrive and prosper as it deservedly should without the wholehearted support of all those interested in its success.

The Executive of the A.R.A. is determined to do all possible in its power, within its own territory, to ensure the success of "Amateur Radio," and urges all members to do their little bit, with the same end in view. It is hoped, with the earnest co-operation of all A.R.A. zone officers, to provide the section of this publication which has been allocated to the A.R.A. by VK3 with notes of real interest to all members and

others. Our publicity officer (2HZ), unfortunately, just at the time when he would have been concentrating on notes for publication in this issue, received a transfer to the country, with consequent disorganisation to domestic and other arrangements, with the result that, possibly, our section this month will not be up to the standard, which we have laid down. However, 2HZ is now settled in his new quarters at Port Kembla, and it can safely be assured that future issues will be right up to the mark.

It might be mentioned at this stage that all notes and technical data for publication from anywhere within the State will be welcomed (and, as a matter of fact, are earnestly asked for), if addressed either to the secretary as above or 2HZ. It is particularly requested, however, that all notes be forwarded to reach us before the 18th of each month, in order to ensure publication in the following month's issue.

Now, regarding subscriptions and orders for the Journal, the Executive of the A.R.A. is particularly anxious that the number of copies sold in New South Wales should eclipse the figures of any other State, and for that reason asks that every member of the A.R.A., and all other interested readers, should "be up and doing" and forward their subscriptions at the earliest possible moment; but here note that N.S.W. readers should forward subscriptions to the secretary of the A.R.A. instead of to Melbourne, as N.S.W. supplies are being forwarded in bulk to the A.R.A.

Now, N.S.W. "hams." just one word in conclusion, and at the risk of being faced with the charge of vain repetition, "be up and doing" and assist to firmly establish the Journal of your own that you have been looking, waiting, watching and praying for, since the days when Adam and Eve used their antenna for drying their scanties.

FRANK M. GOYEN, President.
ROBT. H. W. POWER, Secretary.

ZONE NOTES

Zone 1.

2PE, way back o' Bourke, has missed with his notes for this issue.

ZONE 2.

Things seem to be looking up in Zone 2, and all districts, including old

man static, are coming in well on 40 and 80 metres of late. ZL's on 80 can be worked with usual ease and DX is FB. VK2BE QSO'd W9ASV on 80 and has been reported heard by two other stations on that band. Also QSO'd PK, EAR, in early hours of morning and a G last Sunday afternoon. John's gear now is three-stage xtal, using the old 210 in P.A. on full wave 80 metre Zepp for all bands and now QRL looking for somewhere to put a spare 211E. VK2KN very QRL with records and comes in FB here anywhere from 20 metres to 100 metres hi! Will soon be rebuilding TNT 45's to xtal. VK2KR active sometimes of late. What's wrong, Cess, YF'itis? Time you paid us another visit! Your absence seems to have spread to the Tamworth 6-watter 2CR. 2JF still inactive here, QRL power leaks and BCL sets. 2HC manages to get on now and then with usual FB stuff and occasionally keeps his sked with 2BE if not QRL fumigator, QSL'ing and YI's. So much for Ray. Arthur, of 2ZP and sec. op. Tommy Thungate, have been busy building talkie amplifier with all the xmtr parts, so guess the feeders may acquire some cobwebs. 2HV and Col., sec. op. been rebuilding. Harry has dusted everything from RX to PA and keeping up the high standard of Zone 2 by putting in xtal. Harry blew a couple of 280's trying to rectify 650v. a side and the smoke cleared before he could reach the switch. Says he had 'em shunted. What OM? Plates and Filaments? Or, maybe, "2HV" stands for "too high voltage"! Had short QSO with 2LM, often on with 2WH, last I heard was trying to get Duplex fone going. 2WT shows some signs of reactivity. Stick to it, OM.

Old 2SS, of Coledale, is now reactive up here at Coolah, and puts out FB xtal. sig. Another old-timer back and sure good. 2MO still puts out FB sessions, especially in morning and is even interested in "ham" radio. Guess Quirindi will have to form a QRM Club if any more get on the air here. Now four active stations here and John and myself just awaiting call signs, so 2BE will be changing call soon. I will be on CC with 247 and P.A. 210 for start, using half-wave 40-metre ant. Hope see all the gang then. All up here are behind the magazine scheme. Fine idea, so let's use it, OM's.—VK2XQ (late 2BE), Officer Zone 2.

The Quirindi gang all fairly active and on regularly. Eddie, of 2KN, still push-pulling with 45's, and will be on xtal shortly. Pretty QRL with study of late and mostly on 80 metres. John has parked himself on 20 metres with 3-stage xtal and worked OH3CP 11 p.m. the other night and fell off the chair when he finished and heard G2ZQ calling him. John ex-2BE now VK2XQ put up new masts and back from the full wave 80 Zepp to half-wave. 2JF second op. thinking of starting up again. FB, OM, keep thinking of it, but, oh, boy! the QRM with four hams in half a mile of each other. 2EG, new ham up here, QRA, Box 12, Quirindi, has three-stage xtal 45, 47 and 210 with half-wave 40's Zepp going QRO soon a la 2BP with push-pull-parallel 46's in final attempt to drive the QRM, here, down to 5 metres. Hi! I have hit BCL trouble here and QRT till 10.30 p.m. Ray 2HC on and off often heard QSO'ing 2BE. Has visitor at present in Treblecock, "Overtone King," from South Australia, so has been on, even in lunch hours, and that sec. op. sure has nice fist to copy. Have been QSO'ing the Willis Island gang 4KR on 40 metres often of late and ICW and fone from there nice to copy and very interesting dope to hear from those boys. 2KR still active on 80 and 40 metres and entering the tests although, as Cess says, only 3½ watts. Gets out nicely, though using single wire fed Hertz. Heard 2LM often, FB fone OM, QSO, 2WA. 2CR on periodically with 6½ watts (?) xtal fone, but don't know what has happened to the Tamworth boys. No dope from 2HV except that he has been blowing things and rebuilding and 2ZP also active, I believe. QRN bad here of late on 80 metres, but Yanks FB on 40. Lots ZS, ZT, ZU, heard here on 40 metres, round about 11.30 to 1 a.m., and plenty PK, I and PA from then on. Look for the Quirindi gang at middays, OM's; the boys are always on 40 metres or some, between 12 and 2 p.m., and usually things are dead as dead.—Yours, hamfully, Ivan (2EG), Asst. Officer Zone 2

ZONE 3.

2XO at Bellingen has also, owing to overwork, or YL's (possibly a little of each), slipped with his notes this month. However, it is hoped that his notes next issue will contain twice the amount, to make up.

ZONE 4.

Activities in this zone at present are centred around 56 mc and some FB work has already been accomplished. 2ZW and 2FN started the ball rolling on this band the other day by putting duplex fone over a distance of about three miles, between their respective shacks. 2ZW's rig consists of a pair of 210's in PP Heising mod., with a 250 and using the 40 metres Zepp as a radiator. 2FN has followed QST practice with a Unity coupled osc. modulated Heising. Much frequency measuring has been done, using Letcher wires. At present the properties of different radiating systems are being studied with a view to obtaining good signal strength at long distances. The portable rig is nearly ready, and should have an input of four watts grid modulated. Stan Crighton, of VK2KH, blew in on Saturday last and became interested at once in the possibilities of this band, and he and 2ZW spent the afternoon racing round Newcastle and outlying districts in the car with the portable 56 mc receiver. It was found that quite good signal strength could be obtained almost anywhere in the suburbs except in places where the transmitter was screened by high hills. On several occasions we were mistaken for the police wireless patrol, Hi. Mount Sugarloaf is visible from the roof of 2ZW's shack at some fifteen miles distance, and also several peaks around Barrington Tops some 70 miles away. It is hoped that next month will tell the tale of the first real dx duplex fone contact from these points. Congrats. to Charlie Headley, who has just received word of his success in the A.O.P.C. He has applied for the call of 2ZJ. He has already got a 45 ready in a Hartley circuit, a receiver (battery), and a good monitor. Anyone wanting to see a really modern three-stage xtal rig should pay a visit to 2FX, who has just completed a new job using a 47 co, 46 doubler, and a pair of 59 pp pa. It is built upon an aluminium base with plug-in coils, which can be screened with aluminium cans. Frank tells us that the set is very efficient, even though the driver coils are screened after BCL practice. It certainly is a credit to you, Frank. 2UF is to be congratulated on his good work on 56 mc. Frank believes in grid modulation for portable transmitters, and is already putting out good duplex

fone on this band. 2KB is starting to rebuild his rig using an 852 in the pa. Allan is going to screen each stage in separate aluminium cans and hopes to use 2500 vols on his 852. When are you going on QRO, Allan? Nothing has been heard of 2JZ for some time. Maybe the YL's have got him properly this time. 2KH tells us that there are quite a number of new and budding hams in the Maitland district. He hopes to have five-meter fone going shortly.—Stan Grimmett (2ZW), Officer Zone 4.

ZONE 5.

Conditions of late have been variable on all bands, which appears to be usual for this time of the year. 80 metres still appears to be the Mecca of the fone addicts, and QRM is pretty heavy of a week-end. Lately QRN has been too heavy on this band for comfortable QSO's, so we have been exploring the 40 and 20 metres band. 40 mx has been a DX paradise for a few weeks, and, strange to say, a few R3 sigs. have been filtering through on 20 metres, which is strange for this location. As far as 20 metres is concerned on the mountains, there's nothing doing. Activity seems to be gradually centring on 5 metres, and we have been trying to get a receiver to "perk" during spare time. It goes o.k. on 7 metres, but 5 metre stations are still conspicuous by their absence. 2XJ seems to be getting his share of DX; have heard as many as five Yanks answering a call from him. 2XC also doing sterling work with the Yanks. 2RJ and 2NS, the only other active hams I know of in Zone 5, are usually heard of a Sunday evening on 80 metres with good quality fone. 3BZ is still putting out some of his usual high quality fone, and is heard here with plenty of punch on 40 mx. 2FI, with QRO, has been heard here, and it sounds the goods. Guess by the time Athol has finished installing gadgets all he will have to do is talk to the transmitter and it will do the rest, Hi! 2BP, Eric, has been putting in a profitable time on 40 metres with a four-stage xtal rig. Between August 15 and 31 his contact log shows 105 QSO's. out of which there are only 25 VK and 6ZL contacts, the rest being DX and some. The second op. worked 23 Yanks one night. Hi! Only two reports were as low as QSA3, R4, the rest ranging from R5 to R9. The best reports being R9 from W6QD, QSA5, R6 from G2ZQ,

R6 from CT1CQ, R7 from JIEE, R8 from K6CGK. The second op. was responsible for most of the hard work and reckons WAC is child's play. Hi! VK2BP, Officer Zone 5.

ZONE 6.

Zone Officer, 2QA, of Nyngan, also missed the bus.

ZONE 7.

Zone Officer, 2PN, of Tumut, also missed the 'bus.

ZONE 8.

2JJ is very QRL shearing of late, which, combined with a touch of "fed-ups," he has not been on the air very much. His generator is driven by a Diesel engine, with a two-belt drive, the belts sometimes slip, and so does the output. Hi! It is also humorous when the Diesel runs out of "gas" in the middle of a QSO and Jos. has to sprint pronto to the Bowser to give her a drink. He is often so exhausted getting the engine "started" that he is QRT before getting back to the shack. Hi! No wonder you get "fed up," OM. Looks like a case of going back to QRP and work in peace with a couple of watts to a 201A (Jos. has previously had good results with this gear).

2DN is just recovering from a 'flu attack, and, with the receiver at the bedside has done more listening than sending. The following fones heard:—QSA5, R7-8, VK's, 2RS, 2QA, 2FJ, 2JQ, 2KH, 2HU, 3Py, all on 80 metres. Jack hopes to have a 3-stage cc. job on 80 metres in the near future, and when he suppresses a few BCL receivers all will be well (also a touch of that here, OM. Hi!) 2VF will be inactive until after his exams.

Noel (VK2OJ), Officer Zone 8.

NORTH SHORE ZONE.

Back to the game again and rebuilding rx and new transmitter. Putting in 2-stage xtal rig for 80 metres and good quality fone. Retaining T.P.T.G. push-pull rig for 40 metres (210s in pp.). Building new AC receiver. Called on VK2LB at Young recently and found Allan in good heart. He has a good looking rig and is keen as mustard for skeds, etc. Also called on 2YA, the QRP artist at Rugby, via Boorowa, Rex is troubled by BCL's, although he is some miles from the nearest house. The people have a new 8-valve superhet, and it manages to drag in 2YA's 6-watt sigs. in an alarming manner.

2YA has to wait for the BCL's to finish before he can go on the air. Called on 2BP on another mobike tour. My next-door neighbour wanted to know if his receiving aerial would interfere with my transmitting. How's that for a neighbour? Another neighbour said that he was delighted to hear my sigs. in his broadcast receiver. Hope he remains in that frame of mind. 2DR (on 40 mx) recently worked a ZL on 20 metres (on harmonic and overtone respectively). ZL gave me R7 and I gave him R6.

Don. W. Reed (2DR).

VK5 (SOUTH AUST.)

The last general meeting was held on September 27, and was attended by a large number of members, and they listened to a very fine lecture by Mr. Rupert Barker, an old Ham, VK5RM. He is an engineer with the Western Electric Co., and spoke on talkie equipment. Several of the well-known "5" gang were seen to burst into tears when he nipped the top off a "50-watter," W.E. type.

VK3's very fine magazine "Amateur Radio" was received during the month. They have certainly accomplished something, and deserve great praise for their very fine publication. We wish VK3 every success with their effort.

Although every State seems to have won the Fisk trophy already, VK5 are going to be there with their bugs running hot.

A field day was held on October 8, and experiments were carried out on the 5-metre band. VK5RD, 5RT, 5RP, 5BV, 5DA and 5WP were present, and much information was gleaned from their experiments. Here are a few comments on the doings of the "VK5 gang."

5 a.m.—Heard rag chewing with W6QD the other night; has a very fb. sig. on 7 m.c. 5AL heard one with a sig. that would make a spark transmitter green with envy. 5BC uses a mopa and gets a nice signal; also heard on tone, good quality, but modulation only fair. 5BV fb. rag chewer and has perfect fist on his bug, but slightly handicapped since he partook of a wife. 5BM Hartley, with QRP, has two sigs., one PDC, the other, well, we will not mention it here. 5BJ, "The Old Bobby," can always be relied upon to say the right thing at the right time. 5BP is doing a swell job as Federal President, spending quite a

lot of time making condenser, and velocity mikes, but has a bad memory. Once loaned a Jewell meter and forgot who borrowed it! 5CX is heard working duplex with 5WB on 200 MX; transmission excellent. 5DA uses three stage xtal. on five metres. Am told he has worked duplex on that band, also fb. worker for local T.D.S. 5DC activities confined mostly to 200 MX tone. 5DQ is now living in town, and is one of the local firm's radio experts. QRK for a 99 to come by post for QRP? 5DX is still experimenting with antennae, reported to be using the grape trellis as a reflector. How's the performing dog, Don? 5GK is now on three-stage Xtal., with nice note working plenty W's. 5GR is DX as usual. What's the matter, Gordon? Why, W.A.C. only once this year? Another hard worker for Federal Executive. 5GW is using P-P210's; gets out very well; always P.D.C. 5GH is still working W2CC and other W's on sked.; probably the foremost DX station in Australia. 5HW has been working G and F stations on 20 metres, with 2 watts c.c. Fine effort, om. 5IV was heard on phone using pair 201A's; modulation deep and quality excellent. 5JA has his periods of activity, crystal (set) controlled, hi! Also has increased his sending speed to 10 W.P.M. 5JH is now on two-stage Xtal., with nice sig., heard working Z14CK. 5KH QSV to 200-meter phone band; good stuff, Keith, om. 5LG heard QSO with 5LD fb DX om; understand he is troubled with power leaks. 5LR not heard much down this way; guess this is due to skip. 5LX: Congrats., "Mac," om; am told you are a deputy R.I. now; look out, chaps, better use 201 A's when he visits you. 5MH: What's up, Dick, QYL? 5MB: QRL with A.O.P.C. classes and Air Force work; congrats., Merv., on obtaining your first-class ticket. 5MK: Guess you are the most consistent VK5 om; keep it up. Anyone wanting good rag chew; apply above. 5MV: Doing fine work as secretary of transmitter's section. Worked EAR at last; most consistent VK5 in early a.m. Using single sig. superhet. 5MV: The "pastie" king. On phone sometimes good, sometimes bad; good headphone strength around the next block, hi! 5MF: 5-stage xtal. rig can work 20, 40, 80 by throwing switches; has just passed his limited B.C. operators' exam. Congrats., Al, 5ML: Believed to have been grinding out canned

music lately. Has been working good deal early morning. 5LD. QRX for BCL receivers that do not pick up bumps. 5LB works ZL's or QRP with three stages, using '46 tubes; nice bell-like sig. 5LP on all day; uses Hartley; 23 watts input to 245; nice PDC sig. 5LN has been rebuilding, and has three-stage Xtal. rig, works as well. 5JO has new panel job three-stage Xtal. with E406 in PA; nice sig., A1. 5QR: Not heard since last school holidays; believe he is on QRP somewhere near Loxton. 5RD: Very keen on 5 metres; Don will have to give us a lecture on sigs.; he doesn't hear down there. Another keen worker for F.H.Q. 5RH: QRA now North Adelaide puts out nice sig. with mopa on QRP. 5RP: Another 5-metre enthusiasts; is also heard on 40 with well-modulated tone. 5RT: King of Haywire; has a transmitter hooked up with fuse wire; Bob shows the true experimental spirit, and always has something new; has just finished a S.S. superhet; anyone wanting duplex QSO on 40 apply above. 5RW: Not heard of much these days. 5RX: Works plenty DX and hears more than anyone in VK5; has chirpy DC signal. 5WB: 200 meter tone, above criticism. 5WJ: Heard here a few weeks ago, using Telefunken modulation, has new T.R.F. receiver. 5WP: Did some useful work on 5-metre field day; kept the gang in touch with the outer world on 40 MX portable rig. 5WR has cured BCL. QRM is heard quite a lot lately with nice P.O.C. sig. 5VK. Heard (!) regularly on Saturday nights; another S.S. superhet, which works well. 5Z puts out good tone on 7MC; uses Heising incorporating direct coupled speech amp 250 modulator; complains about being in 5MU's skip.

The conditions here in VK5 have been very patchy; DX on 40 metres seems best from 0000 to 0330, when Europe can be worked fairly easily. 20 metres is rapidly on the up-grade, as several European countries are being heard, and a few worked. The main weekly feature in VK5 seems to be the 4 and 5 way QSO's on fone; 5RT, 5ML, 5RP, 5GR, 5MD, 5MV, 5QO, and 5FM are the stations heard most, and the idea seems to be enjoyed by all. Why not come in also, you VK2, 3, fone experts? Hope all VK hams will give this fine publication the support it deserves. Tell your friends about it, and send in your subscriptions.

VK5FM.

VK4 (QUEENSLAND DIVISION)

The monthly meeting of the Wireless Institute was held at headquarters, Heindorff House, Queen street, Brisbane, on Friday, October 6, before a good attendance of transmitting and student members.

It was arranged that a direction finding field day would take place on Sunday next, October 8, and it is hoped that there will be a good roll-up. After the usual business Mr. David Laws, VK4DR, gave a very interesting lecture on his experiences with the Chapman gold expedition to the Granites. This young man acted as chief wireless operator and gave us some idea of the hardships that have to be put up with in these far-away places. He also gave us very interesting information on his wireless equipment and power supply, this being much appreciated by members present. Mr. Laws intends to continue with this lecture at the next meeting, and I am sure will be looked forward to by all members.

Jottings.

VK4WI regular transmissions have taken place every Sunday morning 9 a.m. to noon on 205.48 metres. Reports on quality and strength are being received over a wide area. We wish to thank all those Interstate and New Zealand listeners who have reported on our Sunday morning and special night transmissions. The equipment is shortly to be removed to headquarters located at Heindorff House. Reports on 4WI transmissions should be sent to Box 1524, G.P.O., Brisbane.

4MM and 4KH intend paying a visit to Sydney shortly, and are taking a portable outfit with them to keep in touch with the boys back home.

4NG, now working on new power lines, down Coomera way, Roy intends using a portable rig. We do not know if he will be using those 33,000 volts for B supply, hi!

4AW has been very QRL lately with Air Force reserve work.

4GZ is busy working on his rig prior to erecting it at his new QRA, which will be in VK2. Hope the B batts. stand up until the A.C. is switched on.

4JM has now dumped his B batts. in favour of a 240 alternator driven by a motor bike engine, using pair '45 in T.N.T. and pair '45 as Heising

modulators; puts over phone to ZL on 80 MX, CW to VE's, W's, etc., on 40 MX.

4WH has not been heard lately, owing to 'flu.

4LS is back on the air after a long spell working A.F.W.R. skeds.

4RB is still coaching the lads on Morse each Wednesday night, and has built a vy fb condenser mike, which is at present in use with 4W1. Has duralumin foil, which is available to any of the gang. Bob is still in charge of the finances of the Qld. Division, and is never happier than when issuing receipts for overdue subs.

4LJ: They all come back, even old Leo. has decided to again enter the ranks of the amateurs; very pleased to see an old-timer back again on the air. Leo. is using 210 in T.P.T.G. with 500 volts.

4FB.—Heard a lot on 40 MX with a fb T9 sig. Fred is very popular with the boys here, turning out fb xtal. holders and gold plating mike electrodes.

4DR, testing electron coupled xtal. osc. doublers, using type 59 tubes, says they are the berries. Doubling, quadrupling in the plate circuit are easy matters with this tube, but tripling produced only poor results. Is very keen on 46's as p.a.

4VJ has been relaying 4WI 200 MX phone on 7 MC, and is getting Interstate reports of reception.

4WT.—Bill has now added another stage to his xtal. rig and says its fb. Pleased to know our secretary still finds time for a QSO and a bit of DX, hi!

4RJ was heard lately testing out a new Unity coupled rig on 20 MX with a d.c. note; believe he has had trouble with faulty valve sockets on his 200 MX rig; hope all o.k. now, om.

4BB on regularly with d.c. note on 80 MX; coming in fb in VIB.

4JB, 4GY, 4RY recently paid a visit to 4NJ, at Tallebudgera. Norm., 4NJ has not been active for some time owing to lack of power supply; however, we hope to hear him before long. On our return we tried our luck at fishing, but, as fish were scarce, we decided to return to our shacks and fish for DX, which seems more in our lines. Say, Frank, did you say Ock likes hard-boiled eggs and camp pie?

4UK is now putting the finishing touches to his new xtal. rig; expects to move to the A.C. area shortly,

when we hope to hear a fb sig. from Vic.

4JF, 4TS, 4GS are all getting their share of DX; heard 4TS and 4GS testing on phone recently and quality was very good.

56 MC.

Activity on this band is fast gaining popularity in VK4, the principal active hams in this particular line being 4AW, 4GK, 4RY, and 4CG. Duplex phone has been worked between 4AW and 4RY, 4RY being situated on 7 MC and who reported R7 signal from 4AW.

4GK and 4AW frequently work two-way phone at R6 over a distance of eight miles. All oscs. used are of the super regen. type. The ordinary 40 MX radiating systems were used and were found much superior to fundamental types situated at lower heights, due to the fact of their being raised above surrounding objects. The elevated pickard type of radiator and transmission line is at present being tried by 4GK and 4AW, and they expect a much more effective signal to result.

Kindly note all communications should be addressed to the Secretary, W.I.A., Qld. Div., Box 1524V, G.P.O., Brisbane.

Cheerio, 73 Cul. (R.Y.).

VK6 (WEST AUSTRALIA)

The recent exhibition held in the Perth Town Hall was well attended, and some very fine exhibits were displayed. The Subiaco Society had a fine show of transmitters, amongst which was a fine panel rig built by 6MU. A novelty on this stand was an amateur talkie projector, which attracted good crowds. The Victoria Park Club had several fine rigs, one built by 6PK was excellent, and 6WP had a very nicely-finished rig on 245 metres. Amongst Institute exhibits was music on light by 6BB, and 6WI was in operation on 42 metres, working outside stations.

Our field day was marred by wind and rain, but several braved the elements, amongst whom were 6AG, 6BB, 6FT, 6LK, and 6RL. 6AG was the winner of the trophy presented for the day. 6BB has loaned his fine big audio oscillator for the Morse class. This uses six tubes, and a dynamic speaker, hi! 6AC has obtained work and gone to the country. 6BB has built a six-tube portable for

the aero. pageant. 6CX has got his time cut out looking after the pennies for the W.I.A. He is treasurer. 6DR is doing good work on 7MC. His son is second op. and has a fine fist. 6DX threatened a comeback, but, after being heard once has gone into the blue again. 6MU and 6FL are our active country hams. Both are heard consistently. 6AG was heard from 6FM's during the week; he is up at Wiluna installing talkies. 6HD is still plodding along, both on phone, and CW, using a pair of 245 tubes in TPTG. 6HF is quiet at the moment. Hugh is waiting for the DX season. 6JK is very busy as secretary. 6JS is handling aero. pageant radio section. Jack is very QRL this stunt. 6KB joined in holy matrimony, and the gang wish him luck. 6LJ is still making a big noise. 6MN has taken over R.A.A.F.W.R. from 6JS, with 6FO as his offsider. 6RL is out for the Fisk shield.

NORTH SUBURBAN RADIO CLUB (VK3FY)

The meetings of the above club during November will be held on Monday, the 13th and 27th, at 8 p.m. at the club rooms, 354 Rathdown street, North Carlton. Two very interesting lectures have been arranged, and should be of interest to the novice, as well as to the advanced experimenter. All interested are invited to attend.

At the last meeting held on October 16 a very enjoyable lecture was given by one of the members of our technical committee (Mr. A. Stow, 3AS) on the "New Tubes."

During the last month the following radio enthusiasts have joined our "Live Wire" Club:—W. Murden, Thornbury; G. W. Dowd, Brunswick; R. Ball, Brunswick; E. O'Donnell, East Malvern, and last, but not least, S. Saffir, aged 11, who is now our youngest member. This lad is determined to delve into the mysteries of radio, and the members are equally enthusiastic in helping him to that end.

During November the publicity phone station will operate on 190 metres (1563 KC), from 8.30 till 10 a.m., and on 222 metres (1350 KC) from 10.30 p.m. till midnight. These broadcasts are controlled by our staff of operators, namely, Messrs. A. Stow (3AS), F. Maher (3FZ) (better known as "Frankie"), R. Pinkney (3OQ), and

T. Evans (3RK). The members whose voices are heard through the "mike" are:—Dave Abbott, Stan Sanderson, the Secretary, Bill Wonder, and Jack O'Brien. Jack, I hear, is building a "crystal-controlled audio amplifier," built on a chassis 4 ft. x 6 ft., and amounts to a crystal detector, with four stages of amplification. 3OQ is changing from TNT to MOPA.

A three-stage crystal rig has been built for 3FY, and on November 24 a special DX programme will be broadcast on the 80-metre band from 10.30 p.m. till 11.30 p.m., when the programme will be continued on 222.1 metres until 1 a.m.

Applications from members will be received by the Secretary for the positions of announcers on the 200-metre band. Entrants will be subjected to a test and the "cream" will be selected. The closing date is November 2.

A party of 3FY members is contemplating a week-end trip with a portable operating on 40 metres. Howard Harrison, "the big noise," is driving the "gang" and their gear to the country rendezvous. Listen for 3FY's chirps from the portable.

All inquiries should be addressed to the Secretary at the club rooms, and will be promptly replied to.

VICTORIAN QSL BUREAU

Cards for the following stations are on hand at the QSL bureau, 23 Landale street, Box Hill:—

3AB, AH, AN, CG, CJ, CR, CP, DR, EM, EP, FC, GU, GX, JM, JN, JU, KU, KM, LP, LY, MI, MM, NC, NG, NR, OX, OZ, PA, QJ, RN, RQ, RT, RW, TM, TP, UJ, WH, WO, YL, YW, ZK, ZL, ZY, Messrs. Burnell, Coghlan, Mason, Henrichson, White and O'iver.

Hams and listeners having definite arrangements for the disposal of their cards are not included in the above list. The above cards will be forwarded on receipt of stamped addressed large envelope.

Stations are reminded that all cards are returned to their senders after the expiration of six months from date of receipt, and this rule is rigidly observed. The Bureau is pleased to report that, following protracted negotiations, it has been successful in inducing the R.S.G.B. to again handle cards for British non-members. The council of the R.S.G.B. is especially

thanked for their tolerant attitude, and the conciliatory nature of the negotiations.

Stations owed a card by FM8IH (and who isn't) will be interested in the following, which appeared in the September issue of "Break In," the official organ of the N.Z.A.R.T.:—"Those who still hope to get a card from FM8IH may as well abandon all hope. He is the world's worst QSL-er. The only way to get his card is to call on him personally. FM8IH is very tall and dark, about 7 ft. high; he is studying to be a surgeon, and is like most FMS, 105 per cent. tired. He has a wonderful QRA on top of a 1000 foot hill outside Algiers."

Stations signing VPIAK to VPIAN are situated in the Ocean Islands. VP1AM, Roger Greene, is at present holidaying in Melbourne.

— VK3RJ, QSL Manager.

INTERNATIONAL NEWS

AMERICAN NOTES.

By Harry Washburn, W2CL (by Radio to VK3RJ).

American amateurs are now under the new regulations, which prohibit the use of modulated telegraph sigs., such as RAC, of any frequency. It is a question of whether this will be enforced very strictly, therefore the general quality of W sigs. will depend upon forthcoming action to weed out the grunts, growls and mush from our bands.

The last international DX contest nicely proved the superiority of the DC signal.

DX is not very encouraging in the Eastern States, especially on 7MC. VK and ZL signals still come through consistently, but the average signal strength is less than last year. Perhaps it is caused by solar activity, which should reach its minima during nineteen-thirty-four, and render 14MC practically useless.

"QST" has a very interesting article in the October issue regarding frequency multiplication. Two tubes are all that are required to multiply down to 28 MC efficiently with power enough to run a thirty-watt amplifier on that band with the use of an 80-metre crystal. It should encourage the use of crystal on 14 and 28 MC, where the chief drawback heretofore has been the large number of doubling

stages necessary to work down from eighty metres.

Among other technical developments is a new medium power tube designed for high-frequency operation. It will take up to 1200 volts at 85 mils. on frequencies as high as 30 MC. The type number is 800. Plate and grid leads are brought out to caps on the bulb instead of through the base.

BRITISH NOTES.

By J. Clarricoats, via G2ZQ, ZL4AO, VK3WL.

September was an uneventful month, as was to be expected, but now that the autumn season is at hand interest is taking shape on all bands.

The second of the 1933 band occupancy checks was carried out in September, and, in spite of the reduced activity noticeable between seasons, it is believed that increased activity will be reported on all bands when the summary is available. Overseas societies would find these checks of great value if arranged bi-annually.

The opening series of R.S.G.B. tests will be held during the first two weekends in November, when the 3.5 MC band will be the centre of activity.

The B.E.R.U. contest rules will appear in the November issue of the T. and R. Bulletin.

An outstanding example of the effectiveness of amateur communication has recently been demonstrated by ZL4A1 and G2ZQ. Acting on a request in the September issue of our Bulletin for an article on electron coupled oscillators, ZL4AI prepared a 1000-word article and information for circuit diagrams, which he then transmitted to G2ZQ in time for publication in the October issue. His historic feat deserves universal appreciation.

Useful articles on 56 MC gear appear in the October issue of the Bulletin, together with the first part of an article written by G6YK, describing a new receiver employing a new wave-change device.

Copy of Message sent to VK2HC re 28 MC tests of 6WY.

To Editor of Ham Magazines in ZL, VK, VS6, VU, etc., via G2ZQ, ZL4AD, VK2HC.

Please give the following fullest possible publicity:—"G6WY will call test ten on 28452 KC's every Saturday in December and January,

from 1200 to 1210, from 1220 to 1230, and from 1240 to 1250 GMT. Power is 150 watts, crystal controlled, and reports are requested from all stations hearing the transmissions. Thanks. Oms. sig. G2ZQ."

1200 gmt. is 2200, or 10 p.m. Sydney time.

See what can be done to do some real DX with G6WY.

B.E.R.U. Contests.

3.5 mc contests.—November 4, 5, 11, 12, 1933.

1.5 mc contests.—January 7, 8, 14, 15, 1934.

B.E.R.U. contests.—February 3, 4, 10, 11, 17, 18, 24, 25, 1934.

Low power contests.—March 3, 4, 10, 11, 1934.

National field day.—June 10, 1934.

The rules for all contests, except the B.E.R.U., will appear in October T. and R.

B.E.R.U. Organisation in Australia is as under:—

Australian Representative. — Ray Carter, VK2HC.

Empire Link Stations.—VK2HC, VK6FO, VK3WL.

Sub - representatives. — N.S.W., VK2YC; Vic., VK3WL; S.A., VK5GR; Q'land, VK4GK; W.A., VK6FO; Tas., VK7CH.

Inquiries re the B.E.R.U. should be addressed to above officers.

A SIMPLE OVERLOAD RELAY.

By VK3HK.

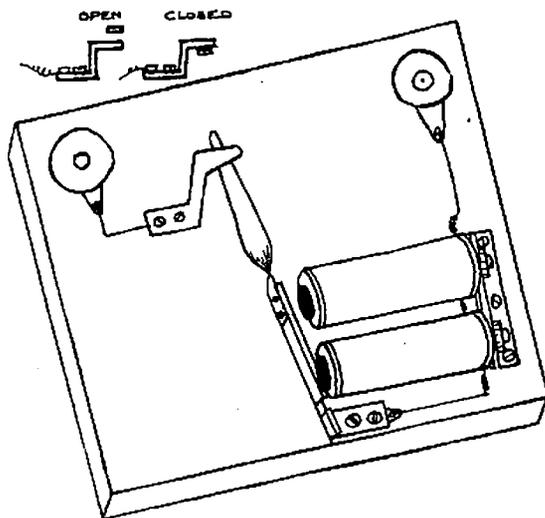
Most experimenters have at one time or other lost perfectly good tubes or other gear because they could not reach the power switch in time. It only needs a crystal or UX210 to blow up once and the unfortunate owner of the late departed looks for a means of prevention. Most buzzers, trembler bells and relays can easily be converted into effective overload relay switches in the following way:—Remove any contacts, springs or back stops, but leave the armature in position. To enable the operation point to be adjusted, the armature should be able to swing any distance up to $\frac{1}{2}$ in. from the polepiece.

Mount the relay on a wooden base in a horizontal position—i.e., so that the armature is edge on when viewed from above.

From light, springy brass sheet cut a strip $\frac{1}{2}$ in. wide and $1\frac{1}{2}$ in. long. Sol-

der this strip to the free end of the armature and twist it 90 degrees (lengthways) so that the spring tension is upwards.

Next cut out of heavier sheet brass a strip $\frac{1}{2}$ in. wide for half its length, tapering to $\frac{1}{8}$ in. at the end. The length depends on the size of the relay. It is bent to form a bracket, and the narrow end bent at right angles for about $\frac{1}{8}$ in. The height of this bracket is just enough to hold the end of the armature extension under slight



tension, when the relay is in the open position. Screw the other end firmly to the baseboard.

Connections are through the coil, to the armature, and along it to the bracket and out.

Operation is simple; when an overload occurs, the armature is pulled toward the polepiece and the extension is pulled clear of the bracket. Its natural springiness throws it upward, and it does not make contact again when the armature springs clear. It must be reset by hand, which is no hardship, as it is not often required to work in normal operation.

The relay coil may need rewinding if it will not trip on the current desired. Variation of the gap between armature and polepiece controls the operation point or maximum current that it is desired to pass, and this is easily accomplished by bending the springy armature extension in or out.

Several relays of this type have been in use at 3HK for some months and give very satisfactory results.

G5T1 says a full beer bottle stops his aerial from swinging in the wind and keeps his signal steady.

Now we know why his sigs. swing!

R.A.A.F. Wireless Reserve Notes

General.

Great interest is being shown in the current Adelaide-Perth pageant flight of R.A.A.F. machines. Three Wapitis and three Bulldogs took off from Laverton and Point Cook respectively on Thursday, 12/10/33, headed for Kaniva (Vic.), where they stayed the night. Before leaving the O's/C were supplied with reserve weather reports prevalent on the morning of departure.

On arriving at Parafield (S.A.) the District Commander for South Australia immediately arranged for a traffic channel back to Air Board, via the C/O's station. As a standby, in case of poor conditions, the reserve station at Alice Springs was detailed to relay messages. This was found necessary on the first morning of communications. However, conditions improved later, and R9 contact was made direct with Melbourne.

Before departing for Kalgoorlie the O's/C of the flights were again supplied with weather reports from the West.

Although, in all States but Victoria, the reserve is non-existent, in an official sense, much interest has been displayed in getting those who applied for enrolment into preliminary training by arranging watches for them twice a week, with their D/C's. The D/C's are supplying the latest information, and items of interest by broadcast methods. As soon as all are fully enrolled the allocations into sections will take place, together with an assignment of call signs and frequencies. Then the complete reorganisation will take effect.

For those who belonged to the old R.A.A.F. Amateur Wireless Reserve and for those in the present reserve there was conducted a test broadcast for the Ramsay trophy, which has been donated for the most efficient member in Australia each year. The first test was a failure owing to poor conditions, but it will be competed for again from Laverton and transmitted on three frequencies simultaneously. Higher power and better hours should prove fair to all localities.

District Notes.

2nd District (N.S.W.).—This district promises to develop into one of the most active of all districts, judging by the applications for enrolment

and the amount of time the acting District Commander (2BP) has devoted to the Reserve. Like the 3rd District, N.S.W. is fortunate in having an R.A.A.F. Squadron at Richmond, from whom we can expect much co-operation. This may be extended to the 4th District (Queensland) at a later date.

Already, broadcasts are being conducted weekly, and a large number of amateurs are being given preliminary training that will enable them to step right into their positions as sections. The district is well represented all over the country by intending members, who have it in their power to establish an excellent network of communications.

3rd District (Victoria).—The main item of interest this month is the Ramsay trophy contest, which was held on October 1. Unfortunately none of the Victorian country stations were able to get "solid copy," owing to the fact that they were in the skip area for the first two messages, on 6555 kc. and 14120 kc. and QRN made decent reception an impossibility on 4155 kc. In consequence, the test was cancelled and another will be held on October 22, when the transmitter will be keyed simultaneously on three waves. It is to be hoped that all Australian districts will get a QSA 5 signal, so that they will all stand an equal chance. The test consists of a 250-word message, in which both procedure and text are mis-sent. Anyone who has not copied a message, in which the words contain deliberate errors in spelling, has no idea how really difficult it is. One finds it essential to copy "right up" to the sending, instead of about three words behind, as in normal copy, and it is absolutely fatal to anticipate a word. Nevertheless, it is a wonderful test of copying skill, and after the experience gained in the last test all stations are eagerly looking forward to the next, especially as Victoria is determined that one of its members will be the first holder of the truly magnificent trophy.

All sections have now settled down into their old swing again after the convention, and traffic is "slipping" through even faster than before. Conditions are gradually getting worse on 3.5 mc. in the mornings, and often

a message will have to be relayed twice in order to reach its destination. However, a traffic net, to be efficient, must be able to function 100 per cent. under any circumstances, so the changing conditions only have the effect of giving the sections more practice, both in correctly routing traffic and also in copying weak signals "solid."

Every week a bulletin is sent out to each section commander, containing explanations of many knotty problems in procedure, hints on improving the efficiency of the sections, and also news of forthcoming events. Most of the sections are now running evening schedules, weekly, in order to increase their efficiency, and also lay plans to steal a march on their rivals for the "crack section" trophies, which will be presented at the next convention. The inter-section rivalry is very keen, and the judges will have an unenviable task, next June, to decide the winners.

The convention has stimulated a considerable amount of interest, and a number of new members have been enrolled this month. It will take some little time to get these stations on their frequency allocations, and familiar with the procedure and working of schedules, but we hope to have two complete new sections running within the next few weeks. They have some hard work ahead, to reach the high standard of efficiency set by the older sections, but, if enthusiasm is any criterion, it will not be so very long before the established sections will have to look to their laurels.

Any amateur desirous of joining, write immediately for full details to the District Commander, 3rd District R.A.A.F.W.R., 5 Fordholm road, Hawthorn, E2.

—V.E.M.

4th District (Queensland).—

This district has been active for some time under the guidance of the Acting District Commander (4AW), and now has a well-organised system. To date this is the only district except Victoria that is organised into sections, and the members of which have R.A.A.F. call signs. Great opportunities exist for the Queensland members, because of the continuous activity of the R.A.A.F. in that State. With stations widely spread over the district, and at important centres the reservists have a splendid opportunity of making their district of great

value to the Air Force. Many of the members are proficient in Air Force procedure, and any persons intending to join will be welcomed with the amateur spirit and will find it very easy to get along with those already in the organisation.

5th District (South Australia).

Unfortunately, this district has not been blessed with more than a few country members, which rather limits the opportunities. However, most of the activity takes place in the metropolitan area, as the machines pass over Adelaide and seldom north of that city. However, to have a few members north is particularly desirable when flights from Darwin-Adelaide occur. Nevertheless, the member at Alice Springs has already proved invaluable, by his co-operation, to Adelaide members.

5MB, the Acting District Commander, has assured me that things are going to brighten up in S.A. again, and much enthusiasm will be put into the show in future. If all the country members in this State realise how important this district is to the R.A.A.F. they will surely buck up and make it "untouchable" from the efficiency standpoint. 5MB and his staff of deputies are proceeding with the training of newcomers, and the prospects of the 5th District appear to be bright.

6th District (West Australia).

From a communications viewpoint the 6th District is the most beneficial because of its geographic situation. When aircraft are operating away from their base in W.A. reserve co-operation is essential. This can be well supplied, because of the excellent localities of some of the members. The whole of the north-west coast is well represented. The metropolitan stations are being reorganised under the control of 6MN, who recently took over from 6JS, who, owing to pressure of business, could not spare the time he would have liked to put into the reserve. However, 6JS has trained some of the best operators in the West, and with this groundwork and the intense enthusiasm that is being displayed over the official organisation, the 6th District will give the others something to look up to. Bi-weekly training is about to commence from the Acting District Commander's station (6MN), and from that of his deputy (6FO), and items

of interest, together with instructions, will be broadcast.

7th District (Tasmania).

Being such a small State in area, the same method of sectionalisation as with the other districts cannot be employed. However, the island has been divided into two main sections—north, under the control of 7JW, and south, under 7CS. The whole district is supervised by its Acting District Commander, 7RC, who states that his district, although small in number, will outdo any other as far as efficiency is concerned.

Here, again, preliminary training is taking place by the broadcast method bi-weekly until everyone is fully enlisted.

It is unnecessary to mention that, being an island, Tasmania would depend entirely on its radio communications should the usual channel fail. Another reason why the Air Force should consider the reserve an invaluable adjunct to its activities, particularly with regard to this State.

In future the district notes will be written by the District Commanders and forwarded to the Reserve Headquarters, to arrive not later than the 23rd of each month. All members are requested to forward a short note by W/T concerning their activities to their D/C's correspondingly earlier. The reserve is a signal organisation, and consequently such material should be supplied by W/T and not mail!

HAMADS

TO LET.—Rent free, 2000 KC's on the 10 MX band. Join the stations at present located there. QSW 10 MX every Sunday a.m.—QSY.

WANTED.—Active Xtal. ground to near 7000 KC, or 3500 KC. Must be cheap. VK3OF, 207 Richardson street, Middle Park, Victoria.

FOR SALE.—45 ft. mast, 4 x 4 oregon, tapered and painted white, hinged to solid jarrah foundation. Professional job, in good condition. What offers? J.C.J., care of W.I.A. (Vic.), or phone Hawthorn 3318.

NAME PLATES for instruments, dials, etc. Same style as Lapel call signs described October issue, but suitable for screwing on panels. Blue or black background, letters bright aluminium. Price, 6d. each. Write, call or see VK3PS.

FOR SALE.—250 watt Transmitting Valve, little used, £5. Six new "General Radio Variable Transmitting Condensers," 2000 volts, .0001 MFD, 15/ each. Quarts xtals, 3.5 MC, guaranteed, or money refunded, 15/ each. Limited number of thick blanks for 200 metres, 5/ each. Will exchange two 3.5 MC xtals for two Philips Valves, A442, B443. "VK3HW," Greenhill street, Castlemaine.

SPECIAL FOR SALE.—Well-known 200 MX 25-watt xtal transmitter, Heising, modulated with 3-stage Audio Amplifier. "VK3CR," C/o W.I.A.

CORRESPONDENCE

"QTC"—10 METRES.

Dear Fellow Hams,—I take this opportunity of appealing for your cooperation on the 28 M.C. band during the coming months. The 10MX "DX" period is just about to set in, and any time Interstate signals are expected to be heard.

This band is never deserted during any Sunday a.m.; VK3CW and VK3OF are always on. 3NM and 3JJ are heard occasionally. Interstate we have VK4XN, 5HG, 7NC, 2BX, 2DQ, 2ZW, and a number of others; VK6SA may be on. Internationally we have ZL1AB and quite a few ZL hams, while American ears await our call.

Last year good work was performed on 10MX, and there were quite a few stations working there. All States except VK6 were reported from ZL, while VK3BQ had a qso with ZL1AB. This year we want a VK to qso W, J, and others.

So, hams, polish up your gear and make this year a bumper for 10 M.X. and show that this band knows no depression.—Yours, etc.,

MICKEY, VK3OF.

Any of the gang on 80 MX phone wanting a detailed report on their transmissions, advise Pat Greenough, of Dandenong, Victoria. Pat is incapacitated through war injuries, and his receiver is going all day. We are told he is a specialist on 80 MX phone reports. Send him a card and make a sked. with him, or, better still, give him a shout over the air.

RADIOTRONS

FOR

AMATEUR AND EXPERIMENTAL RADIO USES

● RADIOTRON UX-841 is a 3-electrode high mu, voltage amplifier tube, designed primarily for use in resistance-coupled circuits. It is also useful in amateur transmitters as a crystal-controlled oscillator, and as a radio-frequency doubler and amplifier. Filament volts, 7.5. Power output (Class C), 10 watts.

● RADIOTRON Type 852 is a 3-electrode 100 watt transmitting tube designed for use as an oscillator and r-f power amplifier, particularly at frequencies above 3000 kc. Filament volts, 10. Normal plate volts, 2000.

● RADIOTRON Type 864 is a 3-electrode tube of the general purpose receiving type, especially desirable in services where freedom from microphonic disturbance is required. Filament volts, 1.1. D.C. maximum plate volts, 135.

● RADIOTRON Type 865 is a 7.5 watt screen-grid, low-power transmitting tube for use as a radio-frequency amplifier, especially for frequencies above 3000 kc. It is also very useful as a crystal-controlled oscillator. Filament volts, 7.5. Maximum plate volts, 500.

● RADIOTRON Type 866 is a high-voltage half-wave rectifier tube of the hot-cathode mercury-vapour type. Its large D.C. current capacity and its low tube voltage drop make it ideal as a rectifier for the medium-power amateur transmitter. Filament volts, 2.5. Maximum peak inverse volts, 7500. Maximum peak plate current, 600 ma.

For additional information on these types write to

AMALGAMATED WIRELESS (A/SIA) LTD.

WIRELESS HOUSE, 167-9 QUEEN STREET,
MELBOURNE.

● Ask for RADIOTRON Characteristic Data Chart.

Homecrafts Pty. Ltd. 211 Swanston St.

The Amateur's Radio Service

OFFER

Tremendous Savings in MULLARD AC VALVES

Homecrafts have bought entire Australian Stock of Mullard 4-Volt A.C. Valves. The prices are amazing. Remember, every Valve is brand new and in original carton.

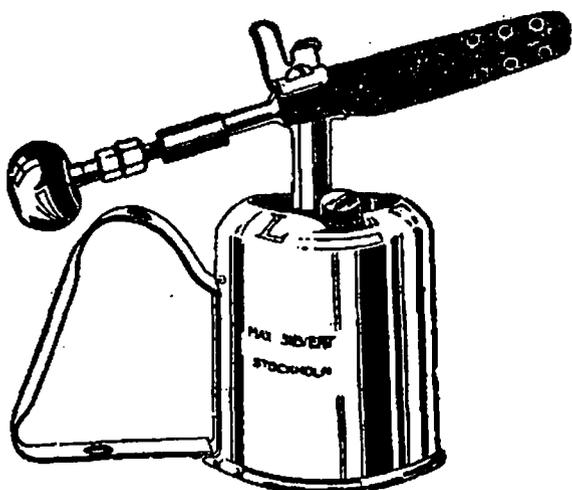
Present List Price.	Mullard Type	Base	Philips Equiv.	Osrarn Equiv.	Purpose.	Homecrafts Price.
16/6	354V	UY	E430	MH4	Detector or H.F.	2/6
16/6	104V	UY	E409	ML4	L.F. or Semi-Power	7/6
16/6	164V	UY	E415	MHL4	Det. or L.F.	7/6
16/6	244V	UY	E422		Spec. Det.	7/6
18/	S4V	UY	E422	MS4	S.G. H.F. Amp.	7/6
18/	S4V	Eng.	E442	MS4	S.G. H.F. Amp.	7/6
18/	AC064	UX			Power Amp.	7/6
18/	AC044	UX	E406		Power Amp.	7/6
18/	DU2	UX	506	U9	Rectifier	7/6
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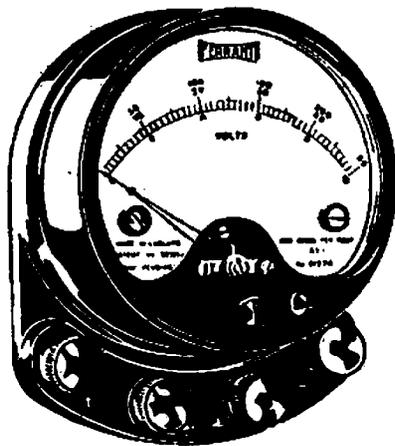
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Published by the Wireless Institute of Aust., Victorian Division.

Vol. 1.—No. III.

1st December, 1933.

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	TC 03/5	TC 04/10	TC 1/75	TB 2/250	QC 05/15	QB 2/75	
Filament voltage	4.0	4.0	10.0	11.0	4.0	10.0	V
Filament current*	0.29	1	1.6	3.8	1	3.25	A
Saturation current*	100	400	1500	2000	400	2000	mA
Anode voltage	150-300	200-500	800-1500	1000-2000	400-500	2000	V
Screen-grid voltage	—	—	—	—	75-125	300-500	V
Max. anode dissipation	6	10	75	150	15	75	W
Anode dissipation on test ..	10	20	100	200	20	100	W
Max. screen-grid dissipation .	—	—	—	—	3	15	W
Amplification factor*	6	25	25	25	225	200	
Mutual conductance (slope)*	2.3	2.0	5	4	1.4	1.4	mA/V
Int. resistance*	2500	12,500	5000	6000	160,000	150,000	R
Anode-grid capacity	—	—	—	—	.001	.02	mm/F

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EDITORIAL

It is with a feeling of pride that December "Amateur Radio" is presented with twelve pages more than our inaugural issue. This speaks volumes for the reception that has been accorded our magazine throughout Australia. Ham Radio here, in the same manner as in the rest of the world, must find a means of expressing itself, in order to more effectively tie the bonds which cement us into one big brotherhood and ensure our forward progress. Our journal provides us with a medium not only to keep us conversant with what the other fellow is doing, but also for the dissemination of information on what our experimenters are achieving. Amateurs are proud at the great part they have played in the History of Radio Knowledge, but it must be remembered that practically all Ham achievements, in the past, have been the result of individual experimentation.

As every amateur knows, the justification of our very existence, as holders of experimental licences, is dependent upon our contributions to Radio knowledge and our service to the community at large. The R.A.A.F. Wireless Reserve is undoubtedly a community asset, and in a time of national stress would be able to do an invaluable service. But, in the matter of experiment and research, our ideas and views must assuredly undergo a radical change. To-day is the day of combined, organised effort, and it will only be by collective group

experiment, when the brains and initiative of a number are amalgamated towards a common end, that future results commensurate with those of the past will be attained. It means, in effect, that we must aim for closer co-operation in all things connected with our Hobby.

Our magazine is a potential asset to the cause of Amateur Radio here in Australia. By making its success a certainty we help ourselves in a manner beyond comprehension. Increased circulation and direct support to our advertisers is the keynote to our continued success. Purchase only from those advertising in YOUR journal, and, at the same time, establish goodwill by mentioning "Amateur Radio."

* * *

As we go to press we are mindful of the prevailing Christmas spirit. We extend to all Radio Amateurs of Australia and those overseas our heartfelt seasonal greetings. May the New Year bring you DX and Radio friendships hitherto unknown. May "Amateur Radio" progress from boyhood to manhood in the manner it is growing to-day. May "Amateur Radio," your magazine, go down through the ages of Ham Radio as the finest publication of its type in Australia. Once again, in all sincerity, we wish our readers a Merry Christmas and all the happiness, prosperity and good fortune that the New Year may have in store.

THE EDITORS.

An Economical Vacuum Tube Voltmeter

By G. GLOVER, A.M.I.R.E.

A modern receiver, like the Single-Sig-Super calls for something more than mere voltage, current and component tests. In fact, it demands very accurate alignment if the high sensitivity and selectivity of which it is capable are to be fully realised.

To align such a receiver correctly one needs two instruments:—

- (a) Controllable source of R.F. energy, such as Modulated Oscillator*;
- (b) Resonance Indicator, such as Vacuum Tube Voltmeter (V.T.V.) or Rectifier type Output Meter.†

In this article the writer proposes to deal with the former type of Resonance Indicator only.

The diagram represents a circuit of V.T.V. employing cumulative grid rectification. This represents not only the most economical, but also the safest, form of V.T.V. to employ for this purpose. By safety the writer refers to the fact that with this type of rectification signal overload results in considerable decrease in anode current. Hence there is no fear of burning out or damaging the meter, as in the case of anode-bend-rectification, when signal overload results in increased anode current of dangerous magnitude.

Practical Considerations.

The simplest form of construction consists of a panel, upon which terminals or sockets for connections, adjustable resistor R2 and meter are mounted. If so desired, economy may be effected by using plugs and sockets in conjunction with meter, thus releasing the meter for other work, a method extensively employed commercially. The meter itself may have a range of either 500 micro-amperes, 1.0, or 1.5 milli-amperes.

One word of warning with regard to the panel. Do not employ Ebonite, as most Hams have a habit of leaving apparatus lying about, and daylight soon oxidises Ebonite and ruins its insulating qualities.

Shielding is unnecessary, as the meter is only intended for comparative readings, and external fields remain more or less constant under a given set of conditions, such as one encounters when aligning the receiver. Hence such fields need not be seriously considered.

Valve may be either D.C., A.C. or battery type, providing it has requisite characteristics for rectifier, such as American 199,01A', or 27', Philips 09, 15' or 24'. Any English valve having similar characteristics may also be employed.

Practical Operation.

Adjust anode voltage, using battery tappings, in conjunction with Rotation of R2 until meter indicates full scale. Now attach cathode to same earth as receiver and connection from grid condenser to anode of valve or circuit from which measurement is desired. The writer strongly recommends the use of Belden Shielded Cable and alligator clips for this purpose, the shielding of the cable serving the dual purpose of earth connection and shield.

Resonance during the process of alignment of Receiver will be indicated by the greatest reduction in anode current, or, in other words, the greatest dip of meter.

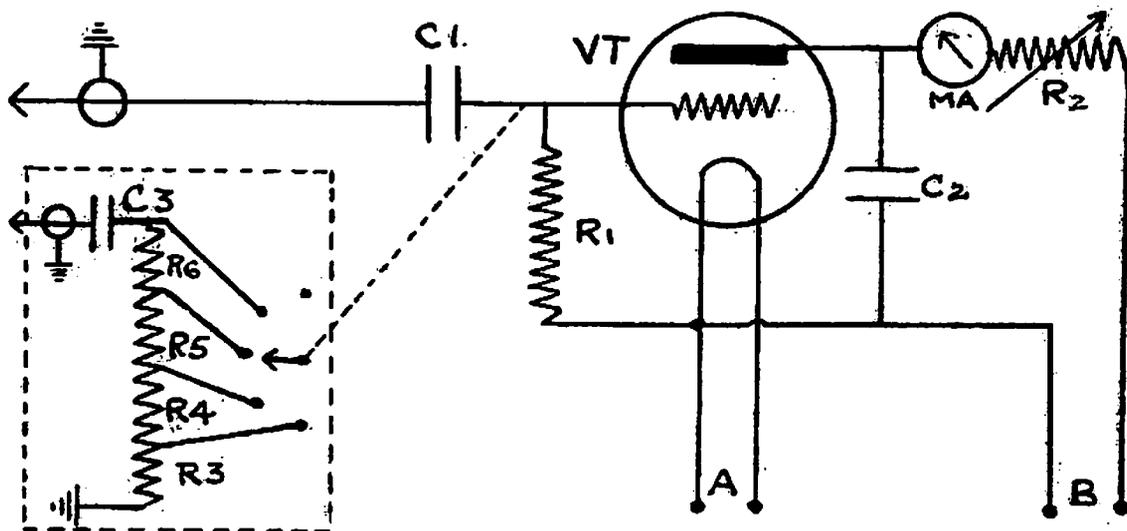
The unusual sensitivity of V.T.V. enables one readily to locate correct adjustment of I.F. Oscillator and Aerial circuits, and when adjusting I.F. circuits grid clip of V.T.V. may be progressively moved from anode of first I.F. to anode of second detector without interfering with the operation of the receiver appreciably.

Final adjustments can be made by reducing sensitivity of meter and connecting clip to output tube. Hence provision of tapped resistor and condenser C3 (shown in dotted lines in diagram). The addition of this section of apparatus is optional.

In conclusion readers are warned that R2 will have to be readjusted every time value of grid-leak is changed, owing to grid current effects. It might be of interest to some readers to outline effect of R2 on sensitivity. As current tends to decrease so does voltage drop across R2. This in turn causes application of higher voltage to anode of valve, the net result being in effect reduction in sensitivity due to opposition of R2 to reduction of current flow.

*Described elsewhere in this issue.

†As individual tastes may differ, next month we hope to publish details of a Rectifier Output Meter by VK3RS.



C1, 100 mmfd., R3, .1 meg.
 C2, 1 to 4 mfd., R4, .25-meg.
 C3, .01 mfd., R5, .5 meg.

R1, 10 megs., R6, .5 meg
 R2, 100,000 ohms, VT, see text.

INTERNATIONAL NEWS

AMERICAN NOTES.

By Harry Washburn, W2CL.
 (By Radio, via VK3RJ.)

The Byrd Antarctic Expedition left Boston on September 25th for the Antarctic, via Panama, and should shortly arrive in New Zealand waters. Two ships are conveying the expedition. The Bear of Oakland, whose call sign is WHEW, has for its radio operator Dick Watson, W1BGL. The other vessel is the Jacob Rupert, under the call sign KJTY. Both ships have 1-kw. transmitters, working on frequencies of 8280 kc., 11,240 kc., and 12,420 kc. At present they are working amateurs in the 7 mc. band and answering on 8280 kc. When bases are established it is the intention to set up outfits, but as yet no word of the frequencies to be utilised by the base stations is to hand.

Winter conditions have set in on the eastern half of the U.S.A., and for a few hours after sunset few signals are to be heard on the 7 mc. band.

Proof that numbers of East Coast hams are conforming to the recent regulations prohibiting modulated CW signals may easily be noticed on the 7 mc. band, where the intensity of the QRM has diminished to a surprising degree.

B.E.R.U. NOTES, VIA G2ZQ, ZL4AO, VK2HC.

November.

The most important event of the month was the 3.5 mc. contest, which had the support of about 50 G stations. High scores are predicted. W and VE signals have been heard on that band, but only one contact (G6FV and VE1BV) has yet been recorded.

Mr. F. Neill, GI5NJ, has been awarded a WBE telephony certificate and thus becomes the first member in the Empire to qualify for a WAC and WBE on both CW and telephony.

The band occupancy checks taken during September showed no less than 706 individual G stations active on one or more bands, an increase of nearly 200 since the March checks.

The rules for the 1934 B.E.R.U. contests appear in the November issue of the "T and R. Bulletin."

Harmonics.

P. Hardgrave (VK4PH) advises that he is maintaining a strict schedule of Morse practice on 7176 k.c. (41.8 metres), (crystal control), every Monday and Thursday from 1800 to 2000 [presumably E.A.S.T.—Ed.] He is transmitting at varying rates of 4, 8 and 12 words per minute, and is particularly anxious to receive reports on his broadcasts. His address is "Arawatta," 285 Montague road, South Brisbane.

A UNIVERSAL FREQUENCY METER.

By H.R.J. (VK3LH).

Since the application of the electron coupled circuit to frequency meters the poor old dynatron has been given the go-by. The application of the dynatron circuit to an oscillator produces a testing instrument for the service man, and a frequency measuring instrument for the amateur. The dynatron is versatile, stable and efficient, and, provided it is properly constructed, using good components, can be calibrated accurately, so that it will perform the functions of an expensive laboratory instrument. Moreover, it will maintain its accuracy indefinitely.

The instrument to be described is very easy to construct, and can be assembled in an aluminium box measuring $4\frac{1}{2}$ inches wide, $7\frac{1}{2}$ inches long and 6 inches deep.

The circuit has a number of interesting features. First of all, no batteries are required, and the oscillator can be used on either A.C. or D.C., according to the power supply available, and should be of interest to the country ham where D.C. only is available.

When used on D.C., modulation is obtained for testing purposes by means of the commutator ripple. On D.C. the positive terminal of the mains plug must go to end of resistor (9) and the negative to switch (10), and then directly to the filament.

A type '22 screen grid valve is used, and operated at such voltages that oscillations are produced when the tuned circuit is connected in series with the plate.

The tuned circuit consists of a plug-in coil, shunted by a variable condenser of the S.L.F. type.

The necessity for an accurate condenser and coil cannot be emphasised too strongly.

In order to cover a range from 3 to 550 metres, three coils are used; directions for coils are given below.

In order to keep the Broadcast coil small and compact, this is calculated with an inductance of 560 microhenries, so that it covers a band from 300 to 550 metres when tuned with a capacity of .00014 mf.

By taking advantage of the second, third and fourth harmonics, it is possible to tune the circuit to any desired spot between 3 and 550 metres. Extreme care, however, must be taken not to get on the wrong harmonic

when working on the higher frequency bands.

When the oscillator is to be used for the purpose of superheterodyne testing, a honeycomb coil may be substituted at (2). This oscillator may also be used to generate audio frequencies by inserting the primary of an audio transformer in the plate circuit of the tube.

The various required filament, plate and grid voltages are obtained by means of the voltage drop across the resistors (6), (7), (8) and (9). (It will be noted that the control grid is connected directly to the filament.) The four resistances are in series across the 230 volt mains. Resistance (9) reduces the voltage to about 60 volts, which is applied to the screen grid. Resistance (8) reduces the voltage for the plate. There is an (IR) drop of 3 volts (plus) across resistance (6) to provide the proper filament voltage. When used in conjunction with an output meter it makes a useful instrument for lining up the RF stages of a B/C receiver.

The Coils are as follows:—

Broadcast range, 300 to 550 metres. On a 2 inch diameter former wind on 130 turns of No. 28. In the original circuit enamel wire was used on all coils.

18 to 100 metres:—20 turns No. 26 enamel wire.

3 to 35 metres:—5 turns No. 24 enamel wire.

If trouble is found in calibrating from the harmonics, three coils can be wound to cover the range from 18 to 100 metres, using the harmonics of the 15 to 35 metre coil (5 turns) to drop to the ultra high frequencies.

.00014 mfd. SLF variable (3).

1 mf. (4 and 5).

150 ohms 25 watt (7).

1000 ohms 25 watt (6).

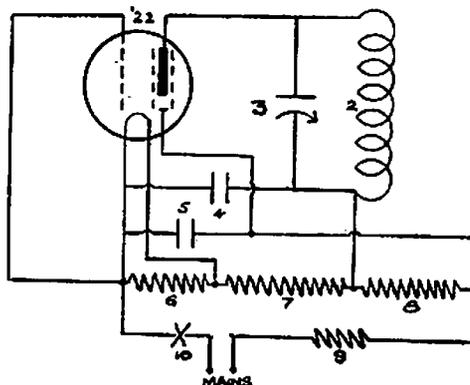
750 ohms 25 watt (9).

1000 ohms 25 watt (8).

AC toggle switch (10).

UX sockets.

Type '22 tube.



SIMPLE PORTABLE POWER SUPPLY.*

By VK6SA.

A Ford coil could be rewound to give, say, 300 volts, without the necessity of condensers to drag it down, but something designed specially for the job would no doubt be much better. No one would think of building a filament or a power transformer on an open core, owing to the low efficiency that would be obtained owing to the magnetic leakage, so why not build the transformer with a closed core for the job in hand.

I have tried various designs with considerable success, and the one in use will put 10 watts into a 201 when operating from a 6 volt accumulator. I have run it off four dry cells, but this is NOT economical. It is advisable to fit a safety gap across the secondary, so that HV surges will pass across it and save damaging the components. It might be that the output from these coils is not pure AC, and with the open type of core the voltage on the make of the circuit will probably be less than half of the voltage produced on the break. With the closed core job the difference is not so great, being about 75 per cent.

One of the main items needed to get a good output is a good interrupter. It is quite simple to get a fine, high-pitched note from a test buzzer, but when several amps are to be broken up it is a different matter. Vibrators made from Ford coil parts are fairly successful, but the contacts need frequent renewal and cleaning. With the open core type a fairly large condenser is needed across the contacts for two reasons—to get maximum output and to prevent arcing. With the closed core a condenser will make very little difference at all. With the open core the vibrator is usually made to operate on the magnetic pull of the core itself; but, of course, this is not possible with the closed type. An independent vibrator will be found the best, worked in a similar manner to the old Master Vibrator units on the old Fords.

It is quite reasonable to assume that the closed core job will be more efficient for what we want. The best one tried to date utilised the core of an old choke; core $\frac{1}{2}$ thick, by 1 by 1.

Primary wound with 50 turns of SCE.

Secondary wound with 3000 turns of 36 enamel.

This gives around 400 volts on load. No load volts are likely to surge and puncture the condenser, etc., therefore the safety gap.

An ordinary core type of transformer could be used, but it is not so compact. The interrupter is the next item, and the high note is the objective. This is obtained by filing the blade till it is thin and very flexible.

*[The above is an extract taken from a lecture given by VK6SA. After dealing with the many types of supply possible, VK6SA states that the one described above is the most efficient, and, moreover, is foolproof.—Ed. "A.R."]

HERE'S A DRAMA BY 3AH.

(From Ray White, VK3AH,
Shirreff street, Stawell.)

The place is interior of a ham shack: Time is 1 minute and 70 seconds after ham has dropped Reiss mike and let granules escape. Curtain rises on ham bearing stick of brush carbon and hammer. At given signal ham grasps hammer firmly in right hand and proceeds to take vengeance on carbon. Having made a horrible mess of the room in general, and the carbon in particular, our hero gathers up as much of the carbon powder as possible, and sifts this through an old pair of the YL's (well, perhaps we'd better not say it). However, some muslin will do instead. Ham now seizes newspaper, and, having tipped the sifted carbon out on a sheet of this, commences to give an impersonation of a prospector panning dirt. In other words, he rotates the sheet in a horizontal plane, causing the granules to run over it. This treatment soon causes the paper to go black, so a new sheet is taken and dealt with in a similar manner. As each sheet is "declared black" the carbon is transferred to a fresh one. Seconds pass. Minutes pass. Even hours pass, but sooner or later there comes a time when no amount of rotation, oscillation, tintinnabulation, etc., will make the paper darken. The carbon granules have now been roughly polished and all dust has been removed from them and deposited on ham's perspiring face and Sunday clothes. Ham fills mike again.

(Curtain.)

VK3 SECTION NOTES

Key Section

Conducted by J. H. Winton (VK3XR).

At the meeting held on 8th November we again had a very good muster, and the following new members were welcomed by the President:—3ZC, 3XL and 3KT. VK2OA, who is a "sparks" on the H.M.A.S. Canberra, was also present, and entertained the gang with a description of the gear carried on a warship. He rather amazed us when he talked of low power of a few kilowatts, and 30 amps. in the aerial! However, when he stated that the effective range was about 2000 miles we were reassured.

Apparently some of the members have been doing quite a lot of hard thinking during the past month, and as a result it was announced that at each meeting arrangements would be made for one of the gang to give a short account of the highlights of his ham career. To start the ball rolling Max Howden has kindly agreed to entertain us at the December meeting with an account of some of his early history-making experiments. So make up your minds now, fellows, not to miss the 5th December, and if your friends are interested, by all means bring them along, as we are only too happy to have them attend.

But this is not the only thing which has been causing headaches. For some time past we have felt that some additional incentive to the experimental side of amateur radio has been sadly lacking in our midst. Particularly noticeable has this become since consistent long distance communication has been proved within the reach of very QRP rigs. Expense, however, has proved the stumbling block of more than one would-be experimenter when endeavouring to put his pet theory to the test, and it was with a view to overcoming this obstacle that the following plan was devised.

Broadly speaking it consists of forming the hams into groups, so that they can work together on their own problems or lines of experiment suggested by the key section. These groups will meet together as often as required, and by pooling apparatus accomplish much more than would be individually possible. Furthermore, at the conclusion of their research

they would be asked to read a paper to the meeting on the results, and any worth-while developments incorporated in an article in "Amateur Radio."

Some of the subjects for investigation are listed below:—

Five-metre Apparatus and Conditions.

Antenna and Feeder Systems.

Interference—Key Click Filters.

Interstage Transmitter Coupling.

Harmonic Output Oscillators.

Modulation.

Selective Receivers.

Efficiency in Output Amplifier.

Portables—Power Supply.

Now, fellows, let's get together and give this idea some thought. Here are some reasons why we should support this scheme:—It will increase our knowledge of the science we all like. It justifies our holding an amateur ticket. It will surely contribute to the world's knowledge of radio. It will give each of us a chance of winning the trophy presented annually for the year's outstanding development in amateur radio, and, last, but not least, it will provide a rich source of material for "Amateur Radio." Let's give it a try, fellows!

Considerable work has already been done on VK3WI, the short wave station, and it will very shortly be operating on 40 mx and 80 mx. The 80 mx rig is a B443 C.O. and F443 P.A., with 400 volts DC from the mains on the plate. On 40 mx the old 3WU rig will be used. This is an AC job which gets its juice from a converter delivering 220 volts at 40 cycles. Using a Philips 50 watt bottle in the P.A., with 1000 volts on the plate, a fair signal should be pushed through. Schedules have now been drawn up for operating on Monday, Wednesday and Friday nights each week, and will commence immediately the rigs are ready. Look for 3WI and give us a call; we will be very pleased to QSO.

We were very pleased to hear that after an absence of 18 months from the key 3KN is now back burning the watts and the midnight oil. He is at present playing on 80 mx with Telefunken mod. on a TC.04/10, which he says is O.K. Let's hope it is. 3KT is also playing with modulation, this time Class B, and wants to know whether someone has taken the high notes out of his records. 3AX reports

that recently he worked seven Yanks between midnight and 2 a.m. After that we think that perhaps there is something in this DX business that keeps us up at night.

While on a trip up north 3PS called in on 3JK at Wangaratta. The latter is a dentist whose main hobby appears to be extracting unwilling molars from the local inebriates. Unfortunately for ham radio, he is rather QRL at present, but hopes to be making a big noise with Telefunken modulation soon. 3JK evidently believes in ultra-high frequency work, judging by the way he handles his X-Ray apparatus.

Experiments with quiescent push-pull are well under way at 3PS and 3XR. Developed in England, it is primarily designed for efficiency in battery-operated sets, it being possible to obtain 1.3 watts with an average current drain of less than one milliampere. The principle appears to be quite adaptable to amateur requirements, however, and it is hoped that an article on a cheap modulator unit will be available shortly. For the present, however, tests are being limited to its usefulness as a final stage for battery-operated sets.

VK3 Phone Notes

At the Phone Section meeting on Tuesday, November 14, a motion was carried to the effect that, in keeping with the new arrangement whereby allocations will not come into action until the first Sunday in the following month, our meeting nights are changed to the last Tuesday in the month. It was agreed that starting out with the new allocations on the first Sunday in the month was advantageous from various points of view, one of which was that it is obviously more on the lines of a definite system.

The subject of compulsory crystal control (or it was suggested we should use the term "piezo-electric control," as being more explicit) is still being much discussed, although the motion has been carried. A lot of people had much to say at the November meeting on the subject, not really that of piezo-electric control, but the organisation of a crystal pool, which must be provided, of course, as a consequence of the above motion. Some members did not quite like the idea

of passing in their crystal to be handed over to someone else, for fear of possible damage; but they were assured that suitable checking arrangements would be provided and a suggestion was made that members might put in a very small sum each month to a fund to provide for the maintenance of the crystals, also a possible replacement when necessary. There is really nothing that could seriously mar quite simple arrangements, as some members suspect. For instance, someone asked what would happen if four crystals arrived which were on the same frequency? This does not matter one little bit, since that frequency would be the particular one where there are at present four stations sharing the same frequency over the four Sunday sessions.

It is obvious, if one views the subject from the straightforward standpoint, everything becomes automatic, since every station will provide one crystal for the pool, being a crystal ground for the frequency on which that station is working, there will be available to all stations a crystal for the frequency to which they are allocated, be it a new one or their previous one.

Of the regular applicants for frequency allocations, two failed to send in applications. The allocations committee, after questioning the meeting to see if anyone was representing these people, carried on with the business, leaving these stations out. One of these stations did send in a notice to say that it would be out of action for the present. This brings to notice a rule which is by no means new, that members must send or bring along written applications for frequency allocation. Failure to apply will be taken as notice that a frequency is not required. This will assist greatly the allocations committee in their work.

The discussions then turned to the subject of the "Gadsden trophy." It was agreed to hold a competition, to include all stations in this section, country and city. We decided to elect a committee to deal with the arrangements which are necessary to stage this contest, and same was duly elected, comprising:—Mr. C. McPherson, 3LU; Mr. O. Holst, 3BY; Mr. J. Kling, 3JB; Mr. G. Thompson, 3TH, president Vic. Division; the chairman and secretary of the Phone Section, Mr. R. Dalton, 3UI; and myself, 3DH. It was agreed that we meet on

Tuesday, November 21, to carry on with the arrangements.

At this meeting Mr. G. Thompson moved that the competition be held on a date to be fixed, to include country and town stations, and that they should get their applications in at an early date. Handicaps will certainly be arranged which will give the man with lower power a better opportunity; in fact, the ultimate perfection, if it were possible, will be to bring all stations to a dead-heat. Further proposals are, to spread the whole competition over a much larger period than any previous one, possibly months.

On the last occasion stations were given something like half-hour sessions, to enable the whole number to be accommodated on a couple of Sundays, but we will probably make use of Saturday and Sunday nights only in this case, giving one and a half hours to each station, and that station will be the only one on the air during the actual test period.

The object of the night transmissions is to make possible portion of the judging to be made outside of Australia. Then there is the subject of "stunts." This idea met with the wholehearted approval of the phone meeting, and will undoubtedly give the chaps some scope for their technical abilities. It will not be necessary to put up a stunt in the elimination tests, but the proposed six finalists will be required to do so. To avoid the natural human possibility of one station improving on, say, the stunt of the last station heard, the finalists will be required to send along to the Institute a sealed description of their pet stunt, and they will be bound to adhere to the original proposals as set out in the sealed description as held by the Institute, and which will not be opened until that station is actually about to put on its transmission.

To enlarge on the "stunt" subject, it is rather a vague expression, so certain limitations must be made. Firstly, only the station's regular operators and off-siders will be permitted to take part in the transmission and the stunt; secondly, it must be strictly of a technical nature. That may sound a lot, but just have a think over it, "gang." There are plenty of things to do, and finally no other station may actively take part in the "stunt" at the time of actual transmission. All these details are still

open for discussion, and if the members can think up anything further, let us have it at the next meeting; there is still plenty of time to pick to pieces the whole affair, but we have started on the job now, and if we are very early, if the competition cannot be staged for months yet, due to weather conditions making reception at a distance bad, so much the better; there will be ample time to have the organisation perfect. On going further into the matter, from the point of view of amplitude of signals at distant points, the question of operating frequency came up. A most sound suggestion was made by Mr. G. Thompson, namely, that a fixed single frequency be decided upon and all competitors transmit on that frequency, using the same crystal which would be provided by the Institute. This makes the job of the handicappers a more reasonable one, since all stations would be working under identical conditions, commencing with the actual crystal. The Committee could not see any weak points about this proposal, because under any circumstances there is very little likelihood of any station not using a piezo-electric method of frequency control, and therefore the judges would hardly, with ordinary equipment, be able to make much use of points allotted for stability of operating frequency.

In conclusion, it would be as well to remind the phone gang that there will not be a meeting in December. The next phone meeting will take place on the last Tuesday in January, 1934, also the allocations made at the November meeting will become effective from the first Sunday in December, that is, December 3, and continue until the last Sunday in January.

There was also a motion carried to defer until the next meeting the compulsory use of piezo-electric control of stations on and above 199.9 metres.

I would like to take the opportunity of wishing the "gang" all the very best for Christmas and the New Year.

Ivor Morgan, VK3DH.

HARMONICS.

5LP is on now with P.P., T.P., T.G., 45s. Laurie is a fb. rag chewer, and it's well worth the power to give him a call. Remember, boys, Laurie can't walk like us, so radio is his hobby and helps to pass the time and long, dreary hours of sickness. Don't forget to give him a shout.

Shortwave Group W.I.A. (Victoria)

Owing to a misunderstanding our notes for the last issue did not reach the Editor in time, so they were unfortunately excluded.

Our Director and Investigation Officer (Mr. Sones) recently gave a very interesting lecture on "The Tuning Problems in All Wave Receivers." This subject is arousing a great deal of interest, and Mr. Sone has devoted many months of study to its development. After exhaustive experiments with split stators, series condensers, etc., a new idea suggested itself, the idea being that the normal .0005 or .00045 mfd. tuning condenser could be used for tuning both the medium and short wave lengths, so that the necessary coils would be limited to two per stage.

The various short wave broadcast bands could be spotted on the main dial, and then opened out by small ganged, parallel trimmers. The idea offers many possibilities, and preliminary work has already been done.

By the use of a signal generator it was found that by using a certain number of turns on the coil it was possible to tune from below 19 metres to a little above 50 metres, in one swing of the condenser.

Members of this group are those who are particularly interested in the reception of overseas broadcast and radiophone stations, and all are actively engaged in tabulating reception results. Very good work in this direction is being done by our country member, Mr. Cameron, who sends us regularly charts showing the various signal strengths, etc., of short wave stations heard in the Western District.

At the end of twelve months' observations the results are collated, and the annual signal variation or cycle is drawn up in graph form.

The results then show us the times for the maximum signal intensity at any part of the year, and for any particular wave length or station. Owing to leave being granted Mr. Sones, we regret to say that he will not be with us at the next meeting, but arrangements have been made for a lecture by one of the members on some current item of interest.

The next meeting will be held in the W.I.A. rooms, 4th floor, Kelvin Hall, on Wednesday, December 13,

and as this will be near Christmas it will probably be our final meeting for the year 1933.

Please note that meetings are held twice monthly—on the second and fourth Wednesdays of each month.

Address your inquiries to the Secretary, Short Wave Group, W.I.A., Kelvin Hall, Collins place, Melbourne.

C. M. SCOTT, Secy.

NEWS FROM FEDERAL HEADQUARTERS

By G. B. Ragless, Federal Publicity Officer.

This is the first opportunity I have had of giving members of the Institute an insight into recent doings and work under way by members of the Federal executive.

I would like to say how pleased we are to see a magazine published in Australia solely for hams, and the Victorian Division is to be congratulated on its enterprise. This magazine is the official organ of the whole Institute, and fills a long felt want in our activities. It is the duty of every member—nay, every ham in Australia—to give it his full moral and financial support.

Fisk Trophy Competition.

It was very pleasing to the Federal executive to see the enthusiasm with which this contest was received, and it indicates a bright future for the coming tests. The rivalry among the States and the keen competition among the individual stations in the various States was most striking. The trophy is well worth winning, and even if it adorns the clubrooms only temporarily it will always be keenly fought for by the States. We hope that the trophy changes hands many times and travels all over the Commonwealth before the five contests decide the permanent holders.

Full results are expected to appear in the next issue.

Last Annual Convention.

It will be remembered that after the last Convention a deputation waited on Mr. Malone, Chief Inspector of Wireless, and discussed various matters with him.

Inquiries were made by the department into two of the subjects raised, and an answer was received some time ago indicating that the department

could not allow third-party message handling, and would not raise the 25 watt limit to 100. In regard to the latter it was pointed out that the department would favourably consider granting permits to individuals for the use of high power.

10th Annual Convention.

Federal executive has decided that the next Convention of the Institute will be held in Adelaide towards the end of January, although the exact date has not yet been decided upon.

It is hoped that all Divisions will send a representative, and as a means of reducing the expense we are arranging for visitors to stay with local hams if desired. We suggest that the more distant Divisions find a suitable delegate desirous of making a holiday trip and arrange it to fit in with the Convention. Every member of the Institute who has a matter of importance to raise should get in touch with his Divisional Council and request that it be placed on the agenda. Business must be decided at this Convention that will vitally affect the future of the Institute.

General.

On behalf of the Federal executive I desire to offer the season's greetings to the Councils and members of all Divisions, and trust that 1934 will be a year of further progress and success for the Institute throughout the Commonwealth.

THE ASSOCIATION OF RADIO AMATEURS (N.S.W.)

GENERAL A.R.A. NOTES.

The executive of the A.R.A. takes this opportunity of thanking those zone officers and members of the A.R.A. who by their notes and subscriptions have assured "Amateur Radio" of at least a fair support in New South Wales. However, the number of copies of the November issue sold in New South Wales does not, by a very wide margin, equal the sales in Victoria, so once again we appeal to you all to increase your support, as we wish to make the December sales double those of November. Subscriptions should be sent to either A.R.A. zone officers or to the Secretary. 2YC (phone B5786) will be pleased to re-

ceive notes of interest from city and suburban members for publication.

The big event of the month, within the A.R.A. ranks, was the field day held at Toowoona, near Gosford, on Sunday, November 5. A wonderful roll-up of members was secured. As the A.R.A. star reporter for the day (2LZ), has been paid a "princely fee" for a special article (appearing elsewhere) on the doings of the day we shall not infringe.

The A.R.A. extends seasonal greetings to the Federal Executive, all Divisions of the W.I.A., and all radio organisations and "hams" throughout the Commonwealth, and trusts that interest in "Amateur Radio" will be more than maintained during the coming twelve months, and that this interest will be reflected in a growing popularity of "Amateur Radio," with consequent increase in sales.

FRANCIS M. GOYEN, President.
ROBERT H. W. POWER, Secy.
Wembley House, 841 George street,
Sydney.

ZONE 2.

Here's November with us, and for a wonder the QRN has not been nearly as bad as it was early last month, making DX more of a pleasure than it would otherwise be. The Quirindi gang are always on the lookout for a rag-chew, and very active; but not much has been heard of the New England boys of late. How come, OM's? 2WT has not been heard here for months. 2CR is on occasionally. The evergreen Cess of 2KR still punching the key day and night. He gets out remarkably well with a real 3½ watts input.

Last Sunday week was a real ham-fest at 2HC, when 2KR, 2FE (from the Garden of Eden), 2KR, 2MO (our local BC station) and 2EG paid him a visit. All the spare junk had been cleared out of sight, so the gang didn't have to keep their hands in their pockets, Hi. 2KN has been off temporarily, owing to something (?) wrong with his F203's, Hi.

2JF, I hear, is about to start up again. Ole John is still plugging away, and has improved on that bug, though the dots still splash and hit sometimes. He has had to spend a deal of his time explaining to the gang that he is now 2XQ and was 2BE.

2EG has taken 2XQ's tip and migrated to 20 MX, and first call got

R7 from J5CH. 2XQ has worked G, ON, PA, PK, OK, and OH, all in one night on 20.

Heard the first South American for months on 40 MX recently, OA4S, QSA5, R6, CC about 4.30 p.m. 2EG has his rig going O.K. now, and started off well in the tests, but QRM prevented keeping of skeds. Ole Roy, out in the cactus, has been and gone and done it, and I'm sure all the gang join me in heartiest congratulations on his engagement. FB YL, too. Best luck to Mrs. 2HC, 2BE, Hi! Hi! 2LM heard often with R8 fone on 80 MX, but not nearly as consistent as he used to be.

Well, boys, keep a look-out for the gang up here in the cactus.

IVAN (2EG),
A.R.A. 2nd Zone Officer.

ZONE 3.

During last month conditions were punk on the North Coast, QRN almost every night, with most of the gang QRT. VK2YK has been very much alive with his QRP rig, and, using a 40 metre crystal, is doing FB DX on 20 and 40 metres. Roy is using "B" batts. and 230 valves in his rig. He has also built up a 5-metre RX, using one 230, and will take this with him to Newcastle, where he will spend his Xmas holidays. 2GM hasn't had time to get on the air lately, QRL writing. 2GI, 2AO and 2CU have not been heard for the last three months. 2OU has not been heard on account of skip, but Sid. is too active a ham to be off the air: Can anyone supply Sid. with a 1.5 volt Trani? 2ZM is very consistent on 80 fone, using M.O.P.A. 2NY is a new ham at Grafton. 2GK is still building that RX, having taken eighteen months so far!

The Pirate Using the Call of VK2DG (?) if he has any sentiment would refrain from using this call, as QSL's are coming into the QRA of the late 2DG.

Conditions on 20 metres about 3 p.m. on Sundays are FB up north. South America and Africa have been heard on the last two Sundays. One South American station that was standing by for VK2 was coming in R8, using 2 valves RX. The J's come in about 4.30 p.m. All VK was heard, and ZL and the W's can be heard any old time. 40 metre DX here in the early AM is NG these last two weeks, although 2XQ has been getting FB

reports from G on this band. QSA5, R6. 2XO has not been very active of late, but is on 80 metres every Sunday night to stand by for any notes from the Zone 3 gang. Let's have some of your doings, boys. 2XO will be going on his Xmas holidays next month, and will take the portable 2FE with him, using "B" batts. and Ford coil for H.T., and will be pleased to tell the gang about the big fish that got away, Hi!

You all know about 2HC, so there is nothing more for me to tell you.

73's. CRIEFF (2XO),
A.R.A. 3rd Zone Officer.

ZONE 4.

The Newcastle gang are very active at present on all bands. 2ZW and 2FN are devoting most of their time to portables on 56 mc. Two 56 mc. transmitters are working at the shack of 2ZW, one consisting of a pair of 210's modulated by a pair of 47's built up into a small rack and panel, together with power supply, and can be used anywhere where 240 mains are available. There is also another transmitter consisting of a pair of 210's modulated by a pair of 250's, giving about 24 watts input. The antenna system is a vertical picard mounted on top of the two-storied building, with feeders about 40 feet long. The portable rig used by 2FN and 2ZW consists of a pair of 230's mod. by a pair of 233's entirely enclosed in aluminium. The receiver is a beautiful little job, which can almost be put into the coat pocket. Attempts have been made at long distance duplex work with varying success to date. On Sunday, 15th October, a party of hams, 2ZW, 2FN, 2KB and 2TX, set out for Carey's Peak. This is about 5300 feet above sea level and situated about 65 miles air line north-west of 2ZW's shack, and can be seen on a clear day with a good pair of glasses. The trip to the Peak is long and arduous. The party motored to Salisbury Rest House, about 14 miles from the Peak, and set out on horseback, with the gear on two packhorses. Leaving the rest house at 7 a.m., the Peak was reached at 11 a.m., and to say the least of it the beautiful mountain scenery made the trip a most delightful one. An 80 MX transmitter and receiver was immediately got into commission, and to our dismay the home transmitter, operated by 2OF,

was received at about R2, and skip was exceedingly bad. A very valuable hour was wasted endeavouring to get through on this band. Shortly after 12 noon the 5-metre gear was got into commission, and a new vertical antenna was made to replace the one which had been lost during the climb up the mountain. Almost immediately rain started to fall in torrents, and it was decided by the guide who was in charge of the party that an early start be made on the descent. The return trip was decidedly uncomfortable, heavy rain being experienced during the whole trip down to the rest house. The party arrived at the rest house at 4.30 wet through to the skin. The gear, however, was little the worse for the experience. The power supply consisted of six heavy duty "B" batteries, and stood up to the gruelling loads placed on them remarkably well.

All hands voted it a wonderful day, despite the bad luck experienced, and arrangements will soon be completed for a return trip. It is hoped that in the near future a party will go to the Peak and spend a few days up there. The position is ideal, in that a clear, unobstructed vision to the south and east can be had. Places as far away as Hazelbrook, on the Blue Mountains, are within the line of vision. It is also quite on the cards that Sydney hams will be worked, a distance of 120 miles away.

2CS has at last produced a brand new transmitter on 40 and 20 MX with a power of 120 watts. Three CQ's produced three Yanks, and a maximum signal strength was reported to be R8, QSA 5. The gang welcome to the fold 2MT, Charlie Headley, who has only been on the air a month, and has a MOPA going. Worked his first Yank and got R5, QSA 5.

2UF is also working Yanks, and has three continents and six countries to his credit. 2OC is rebuilding, and rumour has it that the B.E.R.U. Contest is being kept in mind. Owen has just completed a new modulator unit consisting of a pair of 59's "B" class. 2TX has a new 56 mc. transmitter going, using a pair of 45's modulated by a pair of 59's, and also a receiver. He hopes to do some DX work (56 MX) in conjunction with 2ZW and 2FN. We are very sorry to lose 2FX, who is now permanently in Sydney. Frank was fortunate to get into the Police Wireless Patrol. 2OF is still

rag-chewing on 80 MX with his beautiful cc. note and fb. fist. Cheerio, 73.

STAN. (2ZW),
A.R.A. 4th Zone Officer.

ZONE 5.

Conditions on the 80 and 40 metre bands have been only fair during the past few weeks. QRN on 80 MX has made pleasant contacts impossible, though some of the gang appear to be getting through the barrage. 40 metres has been rather patchy; reception conditions have been very bad owing to the QRN. A few weak sigs have been heard on 20 metres, but no attempt has been made to contact anyone on that band. VK2RP burst into life a short time back; but evidently the one day's activity was too much for him, as he has not been heard since. 2NS and 2RJ find time for a weekly chin-chin on 80 metres. Both Trev. and 2RJ seem always to be QRL. 2ZW and 2BP are arranging skeds on 56 mc. It's great to be optimistic, as the distance is over 100 miles; but the QRA's to be used are in sight of one another. 2BP has not recovered from the W.I.A. test yet; the strain of 90 hours from Sunday to Saturday of the test was too much. 2BP wants all hams interested in the R.A.A.F.W.R. to write to him. 2CK now measures QSO's by the mile, not by the hour. Geoff has a 1500 volt genny hooked up to the back wheel of a push bike. We visited his shack the other Sunday, and Geoff demonstrated how to pedal at 30 m.p.h. and send 30 w.p.m. on the bug at the same time. Cheerio, "gang," and a merry Xmas to all.

ERIC (VK2BP),
A.R.A. 5th Zone Officer.

ZONE 6.

On 80 metres conditions are really bad, static being very severe, and looks like a QSY to other frequencies until next winter. One thing that is very apparent on 80 this year is the number of city hams. Last year it was used almost exclusively by the country chaps, but they seem to have deserted lately. 2HU, 2DR, 2ND and 2ZV were on fairly consistently with good fone. Also a newcomer, 2NM, of Mudgee, was heard one night putting out some really good fone. Another old-timer has staged a comeback—2WH, of Forbes. He is working QRP fone on 80 metres at present,

about 1 watt fm "B" batts., but expects to get a motor-generator soon.

40 metres is still the same. CW, R.A.C. chirpy, D.C., Yanks with C.C. R.A.C. V.K.'s C.C. with about 70 watts to a poor old 210. Thousands of weak sigs, chaps up in the "wee, sma' hours" chasing the elusive DX. The now famous system of fone, grid modulation on a T.N.T. with an R.A.C. note. Some really FB fone with the ops playing gramophone records for hours without calling, chaps tuning oscillators right across the ham and adjacent commercial bands. Chaps calling CQ for fifteen minutes without signing, others signing every third time and calling incessantly for half an hour. (This is very prevalent in spite of all that has been written in Q.S.T. and other periodicals.) Q.R.N., Q.R.M. absolute bedlam. That is 40 metres at present. [Great stuff, 2QA! What about an article on these lines some time?—Ed. "A.R."]

The 5-point test is over. I think everyone had a good time. Some of the messages made quite interesting reading. Heard Jim, of 2PE, relaying messages at 15 WPM plus. Evidently enthusiastic again. We may hear some news again from Zone 1 soon.

This will have to suffice for now, as 2QA has been QRL "work." The first for about twelve months, and the interest has been transferred from ham radio thereto.

JACK (VK2QA),
A.R.A. 6th Zone Officer.

ZONE 7.

Must apologise for missing the bus last month. 2TA and 2LB have been bitten by the 56 mc bug, and for the last couple of months have been devoting all their energy (?) to work on this band. One record of about 33 yards, and through six or so walls, for readable fone has been established. 2WA has his new QRO gear going, and Jack certainly has a good show for it all. The latest report indicates that a certain ham from Liverpool, who is now with 2FI again, has changed his name from Harry to Harrie. Guess we'll have a representative at Canberra soon. 2FI is at present QRL with plenty of work, and can't get on the air much. 2EZ is still keeping the cobwebs off the good old QRP work. Jack has his transmitter going on 20 metres, but conditions there are not too promising yet. Here's hoping!

Referring to 3ML's oscillator doubler article in last issue, the circuit has been very successfully used here at 2PN, using a 59 tube. The same circuit is also applicable to an electron coupled oscillator by merely plugging in a .002 fixed condenser in place of the crystal, and grounding end of the grid oscillator coil. The rest of the circuit remained unaltered. By using this type of circuit, crystal controlled transmitters are easily rigged up for the ten metre band. So, buck in, you chaps, and help us make this summer the best 10-metre season yet.

The five-point relay contest is over. More support could have been given by some of the other States. 2UO at Wagga still has his long QSO's on 80 metres fighting against Old Man Static. Don't think the latter will lose before the summer is finished. You may wonder what some apparently feeble-minded hams mean by using 55 as an abbreviation. It is a suggestion of 7BC, to be used especially when you're in a hurry, and if you just say "55" it includes all the other business, such as "Vy 73 hope cul gud dx," and all that business. It means in all, and saves the uncomfortable long-windedness at the conclusion of a QSO.

ROSS (VK2PN),
A.R.A. 7th Zone Officer.

ZONE 8.

Conditions here on 40 and 80 metres have been almost unbearable for the past few weeks owing to Old Man Static. Previous to this, 40 metres had shown marked improvement, W stations being easy contacts, and PA, CT, and G's worked on successive mornings. On one occasion HB9Q was R7; but was unable to raise him. 2DN has his new three-stage c.c. job almost complete. Jack intends to modulate it Telefunken. 2JJ is heard occasionally on 3.5 m.c., and is always T9, R8. 2AK, after a long absence, is active again using c.c.

Well, gang, I hear Bondi calling CQ, so will answer the call for a few weeks.

NOEL (VK2OJ),
A.R.A. 8th Zone Officer.

NORTH SHORE ZONE.

Conditions during the month on 40 mx have been very favourable for DX contacts. Plenty of Europeans in the late afternoons, and W, PK, J, OM, etc., at night. Things are getting a trifle congested now on 40. Europeans are also strong between sunrise and

6.30 a.m. on 40. The 80 mx band is gradually being deserted, as QRN is digging in up there. However, there are still a good many die-hards doing their best to punch through the din.

2ND ordered a Comet Pro x.x. super from U.S.A. Better order a new lock for the shack, Norm. 2BA been toying with a big tube belonging to 2YA. Allan, of 2AH, been helping 2DR with the 5-pointer, and been punishing that bug of his quite a lot. Congrats on your WAC, Alan. An LU on 20 did the trick. 2AH has gone back to DC rx again, and is trying to wean others from AC.

Conditions during the 5-pointer were fb, indeed, both on 40 and 80 mx. A lot of time was wasted by W's answering the VK test calls, and as the Yanks were coming in as loud as our Interstate, and with their new DC sigs, it was difficult to pick them out. 2ZU, from out Epping way, entertained us on 23rd October at 7.30 p.m. with a lecture on milking cows, etc. 7.30 is evidently the country man's session!

John, of 2OZ, was very consistent, and seemed to be handling much tfc on 40. 2BP was unlucky enough to have to work on Saturday morning, thus lowering his total a great deal. 2CP, 2YL and 2FQ were all hard at it. Jim, of 2YC, is busy collecting city notes. 2UP (two up), official station of Australia's national game (hi), is active out Manly way. 2LQ, Hornsby, hasn't been on the air for years. 2VG heard a lot. What about the 40 mx fone debate, Ron? 2JY is tuning up again; hope the bug has bitten good and hard this time, OM. 2RC recently blew the dust off his rig to show it to a visiting BCL, but otherwise all quiet. Haven't heard 2ZZ start up at Asquith yet. 2GJ has been on 40 mx quite a bit, with DC sig. Len, of 2LD, is busy pounding Navy brass on one of the destroyers coming out to VK from G. Ian, of 2XC, is QRL Uni exams, but pushes the key sometimes. 2DU hasn't been on much lately; but he was happy when he landed OH3NP the other night on 40 mx. Dud has very fb. quality fone. The shack is way down below in the basement, and is a ham's paradise of gear. 2DU is building a 56 mc. rig. 2LZ is rebuilding, and intends to work all the DX on 20 mx. Alan, of 2HY, has landed some very fb. dx down on 20 mx. His bag last month was as follows:—7 G's, 15 J's,

40 K's, OH, F8, VS3, PK. When Alan and Con have strained out their bunch of DX on 20 there won't be much left over for the rest of VK. 2GU, alone in h's glory at Woolwich, reports by radio. Bill's QRA is in a very pretty spot, as it overlooks the Lane Cove River on the one side, and the Parramatta River on the other side. 2QR, at Beecroft, has only had his ticket for a month, but has worked 38 W's up to time of writing. Bob has nearly worn the points of his key flat in trying to hook EAR and G with the assistance of 2NR. 2NR takes a few years' life out of my phones when he gets on the air. Camooweal Radio VJJ recently asked me to radiate on 7000 k.c. for calibration purposes, and thanks are due to Frank, of 2ER, for enabling me to put my perk right on that wave. I take this opportunity of thanking 2ER for his co-operation in giving me frequency many times. Frank has some very fine freq. calibration gear at his shack, and is building still more gear to attain even greater accuracy. 2CE attended the 18BN Army camp at Liverpool and met 2YA there. 2YA and 2DR set off for the recent Wyong field day on 2DR's prehistoric mobike. 2YA's back inscribed with the legend, "Field Day or Bust." Unfortunately, "Bust" won the day, as we didn't get further than Hawkesbury River. (See article on our adventures next issue, if we get space, Hi.) 2LZ called us after the field day and brightened us up with news of the day. Congrats to Manly club's car for lapping home first. Also fb. ZBRC car coming second. 2EH (the king of patience) called 2DR same time as Con and I asked him to stand by. This he did, and right nobly, for about an hour. 2EH was receiving on the portable rig he had at the field day, and was using a frame aerial. 2EH's QRA is 6 Orange street, Pennant Hills. Laurie, of 2SL, is back again from trip to Melbourne, and can be heard on 80 mx with good quality fone. TRF rx. Heard that 2YM will be starting up again at his new QRA at Newcastle. Would like to get still more news on my watch between 7 and 9 p.m. Friday nights, as per circular sent to all North Shore hams. Please rally round, chaps, and make this a bumper section. In conclusion, I would like to extend to the amateur fraternity my best wishes for the merriest of Xmas and a bright DXey new year.—Don. (2DR).

VK4 (QUEENSLAND DIVISION)

The monthly meeting was held at headquarters, Heindorff House, Queen street, Brisbane, before a good attendance of transmitting and student members.

The resignation, owing to ill-health, of Mr. W. T. Wishart, 4WT, as secretary was accepted with regret. Major Feenaghty, 4LJ, in a short speech on behalf of members, thanked Mr. Wishart for his untiring efforts during his term as secretary.

Nominations were called for the position of secretary, and finally Mr. E. Shorten, 4TS, was elected.

It was decided to hold a week-end camp on the 25th and 26th November at Mt. Nebo and Cash's Crossing.

After general business Mr. D. Laws concluded a lecture on his experiences at the Granites, which was thoroughly enjoyed by all present.

Correspondence for the Institute should be addressed to the secretary, Box 1524V, G.P.O., Brisbane.

Jottings.

Conditions on the various bands have been only fair lately, although 20MX has shown some improvement, DX being better than usual; stations worked being OH3NP, G5HB, F8PZ, PK's and several Japs. Others heard: —OAIB on fone R4, SUIEC, OK2VA, VU2FP, and several G's. On 40 MX Yanks are still coming in strongly, and hold first place, next in order being KA's and PK's. On 80 MX can be heard ZL's and VK's on fone, but very little time has been spent on this band owing to heavy QRN.

Conditions in VK4 were rather poor during the test for the Fisk Five Point Relay. Stations 4AW, 4GK, 4DR, 4RV, 4UU, 4EW, 4JU, 4EL, 4MR, and 4YG were doing good work. VK2 signals came in solidly at times, and next in order, numerically, were VK3, 5, 7, 6. The approximate individual scores with which we were acquainted were 4AW, 670; 4MR, 50; 4DR, 305.

4GY still calling DX on 40 MX, although not so much as usual; using 3-stage xtal rig. 4UK now moved his Qra from Toowoomba to the AC area, and hopes to be on with new 3-stage xtal rig; intends keeping a self-excited mitter in reserve for fear of accidents! Hi! 4JB now talking xtal; says the old Hartley still perking O.K., but must have something more

in keeping with the times. Och, only requires Africa for his W.A.C. African hams, please note! 4HS, another Toowoomba ham, heard on 40 MX, coming through in VIB at R7, PDC, and very steady. 4JM was heard Qso 4AW on fone on 80 MX during the last week in October at R7; speech very clear. 4AW heard very consistently during the Five Point relay calling CQ test. Arthur still using the old Hartley, but think it will not be long before he will be on xtal. 4FB says that DX N.S.G. lately; Fred. complains QRM power leaks. 4RV heard R7 in VIB with T9 signal. Congrats. on your working those Africans om. 4JF using 20 MX, and heard R7 pde working PK; believe Jack is using a Hartley rig. 4WT, of Graceville, has been making a lot of alterations lately; has been trying out a system of Telefunken modulation, and has been very pleased with reports, among them being R7 from Z.L. Congratulations to the "R. Max" king, Charlie Miller, of New Farm, on securing his A.O.P.C. at the recent examination. Charlie is a very keen young man, and should do well in the amateur game. Best of luck, and hope to have the pleasure of a Qso before long. 4VJ not heard much lately, having given radio a spell for a while. Say, Vince, is there a YL in this? 4DR heard consistently during the Fisk Five Point relay calling CQ test with fb. T9 signal. 4LK and 4TY, two country members, both heard during the test, at times coming in fb. in VIB. Cheerio es 73 Cul.

R.Y.

VK5 (SOUTH AUST.)

The last general meeting of the W.I.A. was held on October 25. Great amusement was caused when several prominent VK5 hams were hypnotised. Other turns by the magician were greatly appreciated, and a good evening's entertainment was had by all.

The Transmitters' Section held its meeting on November 8, when Mr. Roy Buckerfield (5DA) lectured on "Modern Superhet. Construction and Design." Mr. Buckerfield, who has previously given many interesting and helpful talks, was accorded a hearty vote of thanks. In view of the fact that the trend in ham receiver design is showing a rapid increase in super-

hets., the lecture should prove of great value to those contemplating that type of receiver.

For the last three years the South Australian Section of the Royal Australian Air Force Wireless Reserve has worked in conjunction with the South Australian Aero Club at its annual pageants. Due to boisterous weather the first year, and to electrical interference at the base station the second year, the exercise did not prove a great success. This year conditions were ideal under the direction of VK5MB, District Commander. Active members of the reserve were arranged in a network at the scene of activities. At first it was thought best to use C.W., but after some consideration phone was decided on. The network was arranged in the following manner:—5MB and deputy 5MK were at the base station, about a quarter of a mile from the clubhouse, and worked from 5GO's home. At the clubhouse was Pylon D, 5ML, with assistants. At Pylon B, 5MD and 5FM were situated, and at Pylon C 5RD and 5WP.

The first test was given at 2.30 p.m., and in five minutes the whole system was working perfectly.

Whenever a plane in any race cut a Pylon the station situated there would report to the base station, who would then report to 5ML at the clubhouse, and the flier would be disqualified.

In a number of races some of the stations gave a running description of the flight that would make our local racing commentator green with envy. After the races word was sent out over the network that each member was to do an exercise in the air in a Wapiti. The dismantling of the stations and the return to the drome of the outlying stations was done in record time.

Two Wapiti planes were used, and the exercise was to be reconnaissance and estimating. Two members at a time were taken up, and seeing some of the faces when the exercise was over one would have thought the exercise was estimating "how high is up" and "how low is down."

However, the thrill of going up in an Air Force plane amply repaid members for any squeamishness they may have felt. Now that the stunt has proved such a huge success the Aero Club officials desire to install the

reserve as a permanent fixture at all pageants.

Many of us are wondering who carried off the honours in the "Fisk Trophy." Incidentally, the contest seems to have been enjoyed by all concerned, and was a great success in promoting friendships between Interstate hams, which, after all, is the main object in promoting a contest of this kind.

Conditions during the past month have been very erratic, especially on 14MC. Erratic conditions have their redeeming features, however, in the form of countries not often heard being worked during these periods. Some of the best DX heard in VK5 during the last few weeks were LU1CA, LU2ZZ, LU2DP, ON4AU, U1AI, PA0CE, F8PZ, ZU6M, ZS5X, YI7RK, G5AI, G2BM, G6WY, VE5BI, OK1WX, OK2RM and OH3NP.

Many PK stations were heard and worked. There has been a DX contest on there, and as the power used is in most cases less than 200 volts from B batteries, one was amazed at the strength and number of signals.

Monthly News of VK5.

5MU Malcolm Gray has been busy experimenting with the "Guyder Lock" system of xtal control; obtains fb. results on 14 MC. 5JA Phil. Brewer did a fine job in the Five Point. 5LD heard mostly on 14 MC, due to BCL QRM. Distinguished himself by working an LU on 20 MX. 5JH heard a lot on 14 MC; uses M.O.P.A.; gets out well to Europe. 5MY not heard lately; not even on sked. with expedition in Central Aust., giving wx rept hi. 5MD, best looking station in VK5, and doing a very fine job as Federal Sec. and contest manager. 5ML can work Europeans easier than Interstate in the early mornings; uses 3-stage xtal rig with eight-year-old 210 in. p.a. 5XK heard most in the early morning on 40, also on 14 MC. 5DX works consistent dx. on 40 metres, using a "Split Colpitts" oscillator with a type '10 tube. 5RP recently shifted QRA, and finds he is situated right under 33,000 volt mains. 5RT rebuilding again, this time a 3-stage M.O.P.A., using an electron coupled oscillator. 5MZ, a new ham, is getting very good results with 20 watts input to a Hartley, using a 245 oscillator. 5TX recently tried the effect of having his face in push-pull with the back of a lorry, hi; he is using a crystal rig with a 415 p.a.,

with 3 watts input from "B" batts. 5GR tired of working South America; says he would sooner work PK's. He has just installed a new rig using a pair of E406 tubes in push-pull. 5WB not heard much on 40 metres these days, but his excellent transmission on 200 more than makes up for his absence from short waves. 5YK has changed from a flat top to a vertical antenna; says his reports are 3 points better in all directions. 5ZY has a very powerful signal on 7 MC; gets his share of dx. 5WR, one of the oldest active hams in VK5, has been on 14 MC with one of the best self-excited signals heard on that band. 5UK has the perfect PDC note, and, believe it or not, he gets it from a Hartley using a 245 oscillator. 5PS, another new ham, whose QRA is W. Parsons, 114 East terrace, Adelaide, is using push-pull 245's. 5KG is another using push-pull 245 tubes. 5MF is so busy building receivers that he has no time to build one for himself. How's the red-headed yl, Al? 5PK has "big fella" in final stage, and pumps 1-8 amps into full wave ZEPP. 5LB has a bell-like note and a perfect fist; heard few nights ago on 14 MC with T9 sig. 5LP making several changes. 5JO building new shack; has a 3-stage xtal outfit with an E406 final. 5RH doesn't find City a patch on Jamestown for dx; is using M.O.P.A. with 245 P.A. 5KH is busy experimenting with condenser mike, also has 3-stage direct coupled amplifier. 5BY has been doing a lot of duplex fone on 200 with 5WS. 5BP experimenting with mikes, also constructing a portable rig. 5MB very busy with A.O.P.C. classes; Merv. has turned out 45 hams now from his school. 5GK has new 3-stage xtal rig; he has been experimenting with eliminator bias. 5GW heard working plenty dx with his usual ease, using push-pull 210's.

Hope all you fellows are giving "Amateur Radio" the support it deserves. What have you for next issue?

73. VK5FM.

VK6 (WEST AUSTRALIA)

The monthly meeting of the W.I.A. VK6 Division was held on November 16, and was presided over by Mr. Coxan (6AG).

Business was finished, after which a question-and-answer period was tried out. It brought to light many a little shady point, and next time, I think, the gang will be looking forward to a more lengthy time in which to discuss their troubles. The main topics were antennas, doublers and parasitic oscillations.

In the course of business Mr. R. W. Muir, of Wagin (6RW), was elected as a full member of the W.I.A. We wish him the best of luck, and look forward to hearing a healthy sig pounding from that direction.

It has been decided that the general meeting for December will be held, as usual, on the 21st, and the shack meeting will be held on the 7th.

VK6KB has his work cut out trying to pacify a local B.C.L. Poor Val., he has just been married too. 6JK also not heard too much lately. Isn't that neighbour's dog dead yet? 6FO is still trying to reach the clouds with his new stick. Better luck with this one, om; and when you get qsk with the Air Force skeds come back and do a bit of dx. 6MN heard putting out some fb. phone on Sundays. How abt that Sth American syd, om. 6GM busy with new electron coupled job. Expects to make a big noise shortly. 6CP, about that receiver? 6LJ says it is the cricket that keeps him off the air, but what abt the yl's. 6RL will shortly be bursting forth with a new xtal sig. 6KR having a round or two with parasitics. Says they are handy fellows to have around. 6LK still deciding about the new rig.

NORTH SUBURBAN RADIO CLUB (VK3FY)

On the evening of November 11, 'mid tense excitement and enthusiasm, the gang at 3FY conducted a most memorable all-night broadcast, commencing at 11.30 p.m. In the early hours of the morning duplex telephony was conducted with 3RI, and later on 3HF made it three-way.

At 4 a.m. Harry (3HF) complained of the cold, so we sent a car to bring him to 3FY's clubrooms. At 4.30 a.m. 3RI's gang decided to come over to 3FY per Sid. Harris' car, so a party of twenty-two sat around the mike at 3FY; and, believe me, it was a picnic. Did anyone hear it? Our

first report came from Czechoslovakia, describing the singing as Oriental—hi!

At the general meeting held on the 13th inst. Mr. C. Harris gave a very interesting talk on "Power Supplies."

Special.—On December 1, 2 and 3 3FY will operate a portable at Boronia on 40, 80 and perhaps 222 metres. Messrs. Stow (3AS), Pinkney (3OQ), Maher (3FZ), Gleeson, O'Brien, Dowling, Stobie and Wonder will be operating the transmitter. Batteries will be used for high tension. A call from the local gang will be appreciated.

Slow Morse transmissions are being conducted from 3FY every Wednesday evening from 8.15 till 9 p.m., so here is a chance for the novice to learn Morse code; and it's free.

The meetings for December will be held on the 4th and 18th inst. at the clubrooms, 354 Rathdown street, North Carlton, to which all enthusiasts are invited.

W.W.

VICTORIAN QSL BUREAU

Cards for the following stations are on hand at the Bureau, 23 Landale street, Box Hill:—

3AH, BX, CP, CW, EM, EP, FC, FJ, GU, GX, JG, JM, JR, JX, KG, KQ, LM, LP, LS, LY, MH, MI, MM, NC, NM, NR, OZ, PA, RB, RQ, RS, RT, RW, TP, UJ, WH, WO, WY, XK, XX, YR, YW, ZL, ZY, Messrs. Adams, Henricksen, Mawman, White, Oliver, and VKCN.

Stations having standing arrangements for the disposal of cards are not included in the above list. All cards may be obtained by forwarding a stamped envelope. Stations are reminded that cards unclaimed after the expiration of six months from date of receipt are returned to the senders.

FM8IH QSL!!!!

The seemingly miraculous has happened. Whether due to burning ears, as the result of world-wide imprecations cast upon him, or to the gentle persuasion of his YF (we understand he has recently acquired one of these) or to an uneasy conscience, the fact remains that FM8IH QSL'S. A few cards from him dribbled in, by the last European mail, and stations who have restrained their impatience over the last two years should not allow them-

selves to become unduly exhilarated over the occurrence until FM8IH's Qsl-ing reaches a more advanced stage.

ZL3AR (D. W. Buchanan), an old-timer who is still very active, passed through Melbourne on November 16, enroute to Adelaide, where he meets his YF, who is returning from abroad. On the trip from Sydney to Melbourne he was fortunate enough to be domiciled in the same railway compartment as our genial ex-Federal President (Mr. Stan. Gadsden, VK3SW). Stan. was quick to discern ZL3AR's identity, and in his inimitable hospitable manner succeeded in turning ZL3AR's few brief hours in Melbourne to the best advantage. Arrangements are being made for ZL3AR to meet more of the VK3 gang on his return through Melbourne. Sydney hams will have a better opportunity of making ZL3AR's acquaintance, as he expects to stay in Sydney for one week, and his whereabouts may be located from VK2TR.

VK3RJ, Qsl. Manager.

A.R.A. FIELD DAY NOVEMBER 5, 1933

Now that the A.R.A.'s second field day is over, one can sit back in comfort and relate a few of the happenings on that day.

Once again it fell to the lot of the Wyong gang to organise the main portion of the field day, and 2OC, 2TX and 2CK selected Towoon Bay at the entrance, as the most suitable place for this location. Eleven cars and a motor cycle set out about 8.30 a.m. on November 5 from V.I.S. The trip up was quite uneventful for the cars, but, as usual, the mo-bike caused trouble, and old 2DR and 2YA walked back from the Hawkesbury. It's a pity the victims were so keen on bringing home the bacon; but that was not to be. Most of the cars carried five-metre equipment, as well as the 80-metre gear. 2HL and 2LZ and supporters in 2HL's car had aboard two five-metre receivers, one five-metre transmitter, and an eighty-metre receiver for D.F. The Leichhardt gang also had a five-metre transmitter and receiver, as well as the D.F. gear.

Manly Club was represented by two

cars, one containing 2NB, who had an output metre fitted in the D.F. receiver, and this car was to eventually collect the cup. Zero Beat was there with three cars, and the usual FB gang.

After reaching Tuggerah, signposts had been erected inscribed "A.R.A. Q.R.D." at every cross-road. This was just another indication of the thoroughness with which the Wyong gang carried out their job. The first sight to greet us on arrival was the Newcastle gang—2ZW, with his QRO 5-metre outfit going, as likewise 2FN. After much rushing about by 2HL with an absorption wave meter, it was decided that the Newcastle and Sydney gang's idea of the position of five metres in the spectrum didn't coincide, and after some little argument they decided that the V.I.S. gang knew where five metres was and the Newcastle gang adjusted their gear accordingly. 2YM (Dickie Cohen), now an aunt, or is it an uncle, at B class 2KO, renewed acquaintances with all his old pals of V.I.S. After much testing of receivers, the bell rang, and, leaving wireless for the moment, the products of the Wyong district were tested straight away. After that the boys watched the dicky bird and then the main event.

The transmitter experts then left to install the 80-metre transmitter and 5-metre transmitter, and meanwhile receivers were overhauled. 2UX, our genial president, had charge of the barrier and issued envelopes containing maps of the district, and instructions, to be opened at 3.30 p.m., if the transmitter wasn't located. At 2.30 the field moved off, quite a good start, over a dozen cars leaving. The cars for the time being wandered about here, there and everywhere, taking bearings, etc., until at 4.13 2NB and the villagers found the transmitter, some six miles away from the starting point. The transmitter was surely hidden, and no wonder so many gave up the search. The Manly gang, although they were three-quarters of an hour overtime, were duly presented with the cup. An amusing incident occurred as they were approaching the hidden transmitter. Bob Power (our secretary) opened their envelope (at the hostelry of mine host at the entrance), and set out to find the transmitter at 4 p.m. They nearly caught up to the Manly car, who thought that Bob's car was also in the running. When the 2NB crowd

reached their plotted point they rushed out of the car and up the hill, thinking they were to be beaten on the post. However, in any case, they were in first, and were heartily congratulated.

When all the cars returned tea was taken, and during the tea thanks was expressed for the wonderful way in which the Wyong gang had organised, including the signposts ("A.R.A.'s," "O.M.'s," etc.), and if three finer "hams" can be met anywhere in this globe than 2OC, 2TX, and 2CK we will go a long way to see them.

Thanks to Bob Power and Stan. Grimmett (2ZW), who managed the Sydney and Newcastle ends respectively.

Eighty-seven hams and supporters were present, and that is a few more than the last time. Gear and other sundries were packed and everyone left with the idea that they had attended a perfect field day.

Just one more point. Determined to find out where 2YA and 2DR disappeared to, 2DR's shack was visited on the way home, and it was learnt that the bike refused to go uphill. Anyway, these mo-bikes are a darned nuisance when owned by VK hams.—(2LZ).

FIVE METRES IN N.S.W.

By VK2PT (A.R.A.).

Judging by the enthusiasm displayed by a number of hams in N.S.W., it would appear that this band has at last come to stay, largely due to the higher efficiency of necessary components, particularly valves, and a better understanding of the ultra high frequencies. In the years gone by these ranges of frequencies were rarely thought of by the average amateur, but we have proof that one or two did attempt some experiments. Unfortunately, the idea just failed to appeal to the majority of the amateur fraternity, doubtless due to the fact that results were anything but attractive. Since these activities, however, experimenters in various parts of the world, particularly in America, have doggedly clung to the task of improving and simplifying the gear, in order to achieve something worth while. To-day, then, we have an enthusiastic band of amateurs who are following along the lines indicated by these pioneers, and the results are very gratifying, and, to say the least, attractive. To these experimenters a vast field of improvement is yet fac-

ing them, and almost insurmountable difficulties appear, but that old amateur spirit will assert itself and lead us to something very definite. Already we have a large number of enthusiasts in Sydney and suburbs who deserve mention. They are as follows:—VK's 2NO, 2SA, 2XY, 2PT, 2RQ, 2MW, 2WD, 2FA, 2DW, 2WE, 2YX, 2LJ, 2HW, 2FO, 2PS, and 2LZ. These stations are regularly heard on "five" with good quality speech, and in most cases, clean carriers. The most notable of which are 2NO, to whom great credit is due for his excellent articles and helpful advice. 2SA and 2FA, I believe, hold the dx. record with duplex across Sydney, Bondi to Drummoyne. 2FA has carried out some interesting experiments in conjunction with 2MW, 2WD and 2SA from an aeroplane. 2XY is probably the most heard 5 mx. station here in Sydney, due to his location, which I understand is on the top of South Head. He is heard in every suburb in Sydney with great punch. I wish to point out that the achievements of those stations whom I have not mentioned here are in no way belittled as a consequence of the above performances. Location is everything at the present stage of these tests, height being the dominating factor, but it is anticipated that the time will come when greater performances will be obtained by ground communication in any location; such is the ultimate goal.

Among the various circuits employed, push-pull and unity coupling would seem to be the most popular, although results have emanated from the Colpitts in a few cases. Types of tubes used in the oscillator are chiefly 171A, but 45's, 210, 230, 201A are also used, 247's and 233 invariably are the modulators.

The Pickard is a popular antenna, but half-wave Zepps make quite good radiators. QRO to date has not proved beneficial, as inputs of 3 to 30 watts show nearly as good performance.

Probably the greatest question which confronts the five-metre enthusiasts is the receiver. The super-regenerative holds sway at present, with an occasional self-quenching detector type rx., but these types are frowned on by the hams. Too much amplification cannot be added on account of the heavy hiss which accompanies or entirely blots out the weaker signals. The superhet is probably the way out, but as yet this has not

been attempted (and we shall find space for the hook-up.—Ed. "A.R.").

More cannot be said at present about this band here in N.S.W., but let it be said that with the enthusiasm aroused as it is, before long some interesting data will be obtained.

A HIGH QUALITY AUDIO AMPLIFIER

By Bruce Mann, Quambatook.

Part I.

Every ham has doubtless had the urge, at some time or another, to build an amplifier with a fidelity beyond that provided by the average two-stage transformer coupled job—something that could be used as a first-class speech amplifier, or else to delight the BCL members of the family. The following outfit is described in the form for which it was originally designed—for high quality reproduction of records.

The circuit is an adaptation of the well-known Loftin White, and uses an S4VA tube, followed by an E408N. It will be found in no wise temperamental, but as some of the adjustments are critical, and even vary from time to time, it has been found best to use a variable resistor to vary the S4VA screen voltage and an 0-50 ma. meter in the plate of the E408N. The resistor should be varied until the plate current of the E408N is normal, i.e., 30 ma. It will be found that a 20,000 ohm potentiometer across portion of the voltage divider will do the job perfectly. Now, varying the screen voltage varies the plate current of the screen grid tube, which alters the voltage drop across the coupling resistors (normally 200 volts), and this, in turn, varies the grid bias on the E408N. As 200 volts is an impossible voltage for the bias on the E408N, its C.T. is connected to a point on the voltage divider negative by 166 volts in respect to the coupling resistors tap, thus leaving the required -34 volts on the grid of the tube.

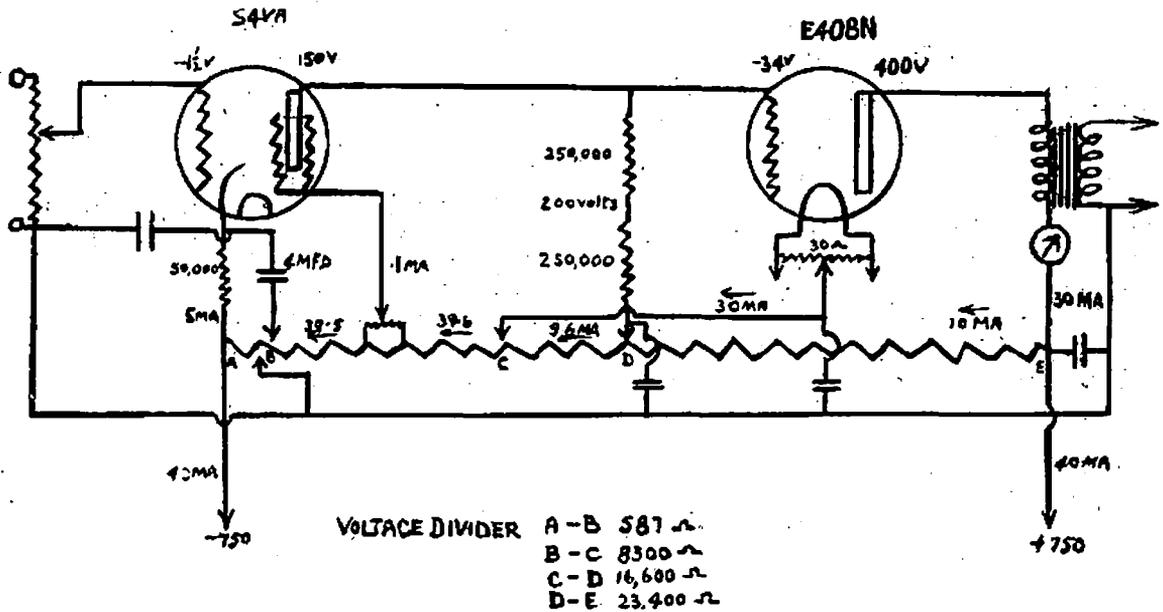
The cathode circuit of the S4VA is a stabilising arrangement which provides for hum balancing. The 50,000 ohm bias resistor gives 25 volts bias, when only $-1\frac{1}{2}$ are required, so the $23\frac{1}{2}$ volts are balanced out by tapping

down the voltage divider. This really has a compensating effect, as anything causing a variation in the screen grid plate current is partly balanced by an opposite variation in screen grid tune bias. Thus any inclination to motor-boat is nullified. Now any hum that is introduced into the circuit by the AC component across the bias resistor can be balanced out by introducing the required amount of hum, 180 degrees out of phase, with a 4 mfd condenser connected to a suitable point on the voltage divider.

Very little has been written about

the use of multiple dynamic speakers, but it will invariably be found that, even a carefully designed amplifier will sound commonplace when used with only one speaker alongside a similar job using multiple speakers. In conjunction with an article such as this, a short review on the advantages of multiple over single-speakers will not be out of place.

[The second part of this article will be published in January issue. The data to be presented is hitherto unpublished, and contains some excellent information.—Ed. "A.R."]



Frequency Multiplying Circuits

By Maxwell Howden.

The interest created by 3ML's circuit published last month was tremendous, and when I heard that he had been unfortunate enough to fracture three crystals it seemed time to make some serious investigation. So, after we had borrowed one of the thermomilliameters from the W.I.A. we went along to his shack for a night's experiment.

The first attempt to see the wonderful output obtainable at the harmonics of the crystal proved abortive. But then, who ever heard of any ham's gear that would work properly when on show? The C.O. would oscillate

well, but the harmonic output had gone, so the milliammeter was connected in the crystal circuit. The meter showed that the crystal was approaching the danger mark. After some discussion we decided that the wire-wound grid leak was the seat of the trouble. When it had been replaced by a carborundum resistor the strain on the crystal was reduced by at least 50 per cent. Then things started to hum, as the saying goes. Several watts showed up at the second and third harmonics, with about 400 volts on the plate of the tube. All this does not take very long to tell,

but it filled in a very interesting evening. As 3ML had a schedule, and I felt like a good night's sleep, we left things as they were for the time being. However, I was able to borrow one of his spare Mazda pentodes, and have since been able to carry on with various lines of the experiment here. By using series feed, instead of parallel, the possibilities of such troubles as were experienced at 3ML's were done away with. Results came thick and fast, and quite respectable output was obtained on twelve-and-a-bit metres, using a 40-metre harmonic crystal. A slight rearrangement gave about 1 watt output on 10 metres at the fourth harmonic. This seemed promising, so after some battery bias had been tried and found to reduce the output very considerably higher power was applied to the plate. At 600 volts all went well, and a resonance indication could be obtained on the fifth harmonic on 8.4 metres. Then 750 volts fractured the crystal! A return to 600 volts, and another 42-metre harmonic crystal were then tried, but with a thermo-galvo instead of the lamp across the single turn loop, and this gave a five degree movement of the needle on lower harmonics. The very free harmonic oscillation on the third harmonic of the crystal itself showed promise of producing oscillation at the fifth harmonic, such as was obtained at 3ML, and several crystals were tried. Most of these were Y-cut, and they all oscillated at harmonics that they were not known to be active on. One was finally selected that would oscillate freely on 25 metres, and with this a good deflection of the galvo needle was obtained on the fifth harmonic of the oscillator (that was actually the 25th harmonic of the 125-metre crystal) on five metres. This was just showing signs of being really interesting, and preparations were being made to see if anything could be put into a five-metre aerial when that crystal fractured too. VK3ML had already stated that he could get no harmonic from the oscillator (oscillating at the fundamental of the crystal) when it was fractured at that harmonic, and so tests were then made with these fractured crystals to verify this. Sure enough, this proved to be so in most cases, and in all for all practical purposes. However, one crystal under test gave a little output on 40 when oscillating at 120 metres, but the fracture is very small, and

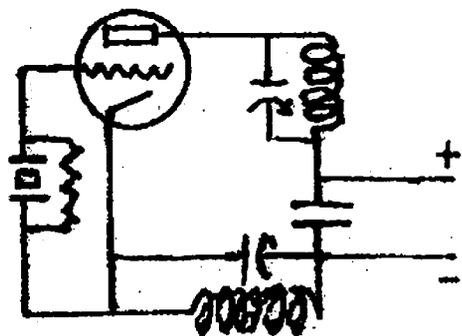
this may be a fifth harmonic, and not a third harmonic fracture. This would seem to indicate that in a normal frequency doubler it is the actual harmonic of the crystal that is amplified, and not the harmonic of the oscillator valve, as has sometimes been suggested. A commonsense viewpoint on this matter leads one to suppose that it depends entirely on the amount of regeneration in the circuit.

The next item to be considered was how to reduce the feedback until it was not so damaging to the crystals. Rehashing the circuit on paper soon showed that the only difference between this circuit and our old friend that was used several years ago to double and treble in the crystal oscillator is that the fundamental plate coil is placed in the neg. H.T. lead, instead of the positive, and that, together with the cathode, being above earth potential, gives the old split Hartley circuit. The figures (a), (b), etc., show how we get back to our old friend by simply changing series to shunt, and then back to series feed again in the positive lead. Automatic bias has also been introduced in Fig. (c). The experiments were carried on with this circuit, and there is no doubt that the greater output of the pentode tells a greater story in this frequency-multiplying circuit than even in the normal one. No high power tests have yet been carried out, but with 400 volts on the plate the output at the third harmonic of most crystals is as great as, if not greater than, with (a), and this is due to the fact that most Y-cut crystals have a very pronounced third harmonic. It has been found that as a rule when oscillation at the fundamental is started by the tuning of the large lower tank, and the smaller one tuned, the crystal starts oscillating at its third harmonic, and the condenser in the main circuit can be turned through 50 degrees without materially affecting the output. Maximum plate current in the first instance, i.e., with the fundamental tank tuned, was about 28 mills., while, when the small tank circuit was tuned to the third harmonic, the plate current went up to 35 mills. A single turn 3 in. loop across a lamp showed a dull red in the latter at five inches from the small tank that was at right angles to, and six inches from, the main tank inductance. Time has not permitted of

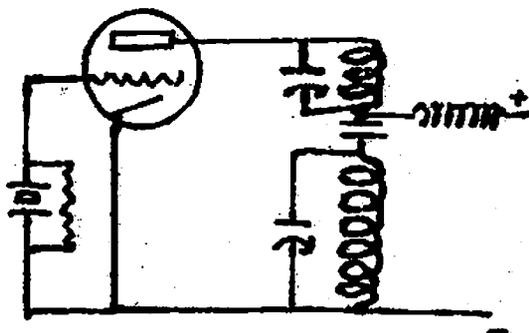
tests being carried out to produce the fifth harmonic in this manner, but it should be equally possible, and the harmonic drive from this circuit should be at least nearly as great as with circuit "a," while the strain on the crystal is much lower. It will be interesting to see the effect of a far-

ther smaller tank tuned to a higher harmonic, as in Fig. (d).

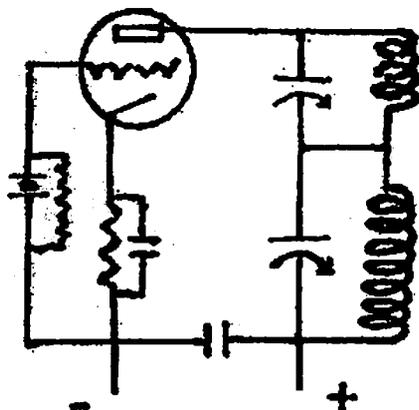
For those intending to use an arrangement like this for 10-metre work (or later five metres) I would recommend the use of circuit "c," as the C.O., driving circuit "a" as the frequency multiplying amplifier.



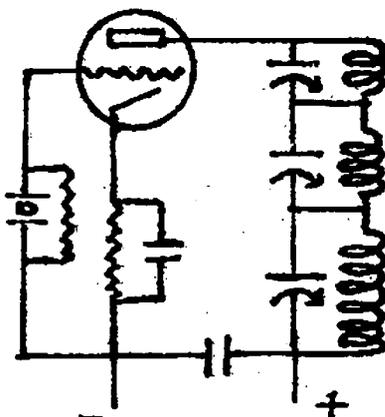
a.



b.



c.



d.

R.A.A.F. Wireless Reserve Notes

Federal Notes, by the C.O.

The third broadcast for the Ramsay trophy will be held on Sunday, December 3, from headquarters station 1A1. The times will be as follow:—On 4155 kcs at 1015 hours; on 6555 kcs at 1100 hours, and on 14 mc at 1200 hours, E.S.T.

Apart from the fact that none of the previous tests have been satisfactorily received, owing to adverse conditions, excellent practice has been made available to reservists. A rough glance over the copies received after the three tests indicates that the standard of operating of those participants is very high, and it's going to be difficult to choose the winner. However, there are tricks even in procedure, so it is hoped that someone will fall down on one of them!

It is very unfortunate that several District Commanders have failed to submit notes for this issue. Ample time has been given to them, and it is not proposed to offer any excuses for the non-appearance of those districts not represented here. It is understood that the West Australian notes have been combined with the W.I.A. notes this month, but they should be separate next issue.

It is a confirmed fact that the efficiency of the reserve depends upon the amount of practice that the members get in the handling of traffic. As in any study, in order to achieve a certain standard, it is necessary to put all theoretical knowledge into practice. It has been found that R.A.A.F. message procedure is not the hardest study to forget! Then again it takes varying amounts of

time to teach a large number of people a subject, that is admittedly complicated, especially by the methods that we have to employ. Consequently, it may come fast to some and slow to others, but in either case continual practice is essential for a thorough understanding of the fundamentals of service procedure.

In order to incite members to originate more and more traffic, so as to keep a definite flow going, it has been arranged with the editor of "Amateur Radio" to make a small but honourable award in each issue of the magazine for the district that puts up the biggest total. Then again intersection rivalry will be developed by making an award to the best section also. Last, but not least, the man who puts up the biggest total monthly will also be rewarded. The awards will take the form of (a) a small crown, (b) a plume, (c) a star, for the district, section and individual respectively. These will be listed at the top of the page carrying the Federal Notes, with the call signs shown opposite the award.

It will be seen that only originated traffic can be taken into account here, because, in accordance with the reserve organisation, each section member is permitted to contact only those in his section and his section commander. Therefore his scope as a relay-station is limited.

In order that the membership may be put on the same basis in all districts, it is intended to make the district totals on a membership total basis. That is, the total for each district will be divided by the number of members of that district. This will equalise the districts. However, the section and individual award will be straightforward, unless the section is incomplete, then the S/C will divide his total by the number in his section.

When returning the totals monthly each member should supply his section commander with a brief summary of his activities during the month. The S/C will forward these to the district commander for use when compiling his district notes, together with the sum total of his section, and the individual totals and callsigns.

The following rules are to be adhered to in connection with the above awards. Any departure may mean disqualification of the whole district.

1. The award will commence on

1/1/34, and the first will be made in the February issue.

2. Each message originated will count one point.

3. A report on activities must be made when submitting traffic totals to S/Cs and D/Cs.

4. Messages can be addressed to any member in your district, but must be transmitted through the correct channels. The nature of the traffic should be pertaining to radio and reserve.

5. The membership total ratio will be based on the number of members reporting each month, and not on the full strength of a district.

6. Reports and totals should be forwarded to your S/C at such a date that will give him time to forward to the D/C, who has been instructed to hand reports into this headquarters no later than the 23rd of each month.

7. The individual totals will be taken into account next year, when awarding the Ramsay trophy.

R. H. Cunningham, Pilot Officer,
Commanding Officer, R.A.A.F.W.R.
11/11/33.

I have been asked by the Air Board to extend seasonal greetings to all district commanders and members of the reserve, and it is their earnest desire that the reserve continue in that genuine amateur-like spirit that has earned for the reserve the name it has to-day.

SECOND DISTRICT NOTES (D.C. VK2BP-2Z1).

The reserve has been taken to heart in this district, as shown by the number of applicants received lately. There also have been many inquiries over the air, and it is to be expected that, with a membership of about 35, well-organised and trained operators, VMB will be hard to catch when it comes to seeking the proposed monthly awards. The idea sounds good, and should prove a great aid to not only district commanders, but to each man himself. The reserve is particularly strong in the country districts now, as it should be, and circulars have been sent out to potential members, arranging watches for the purpose of giving preliminary training instructions. From now on this district will train on the 75-85 metre band at 1000 hours (10 a.m.) E.S.T. Listen for a VMB call from 2Z1. It is expected that in a very short space of time callsigns and frequencies will be allocated and the reserve will be functioning



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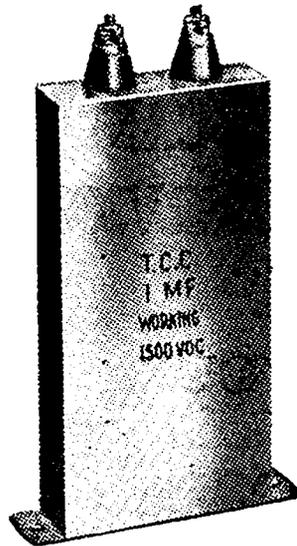
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121	1 mf.	6	3	1¼	1500	
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officially in N.S.W. With a new year in sight, we have a lot to look forward to. Having this opportunity, I should like to extend Christmas and New Year greetings to all members.

THIRD DISTRICT NOTES (D.C. VK3UK-3Z1).

It was unfortunate that the Ramsay trophy contest again proved a failure, as far as Victoria was concerned. Consistent bad luck seems to be dogging the test. This time a combination of exceptionally bad conditions and a sticking relay made "solid copy" an impossibility. The test was put out on three frequencies simultaneously, but on none of them was the signals more than QSA 3/4. The 14520 kc. signals were inaudible for the country stations, the 6555 kc. signals were R3 fading out, and the 4000 kc. signals were R 8/3. An examination of the reports indicates that better reception was obtained by all stations from the commanding officer's own transmitter. Although the tests, as competitions, have proved abortive, from an instructional and interest point of view, they have been very successful, as they have given all stations some wonderful practice in copying traffic under difficult conditions.

As will be seen from the commanding officer's notes this month, a traffic contest is to be run monthly in conjunction with "Amateur Radio." This is a wonderful idea, and it should help to increase and maintain efficiency better than any other method. In Victoria we have always aimed at keeping as much traffic moving as possible, and in our annual contest for the "crack" section, traffic totals are taken largely into account in the awarding of points. However, since we have heard of the new scheme, which commences in January, we have been formulating plans for increasing our monthly message totals, because we are determined that we will put up unassailable figures each month. Inter-district, inter-section, and inter-station rivalry will be intense, and the reserve as a whole should benefit immensely, as the spirit of competition will be rife throughout Australia.

A number of new members have been signed up this month, and our traffic nets will soon be embracing a great deal of new territory. A district map is in the course of preparation, with each section's net shaded in different colours, so that the most

direct method of routing traffic will be apparent at a glance when conditions are bad.

On November 19 the term of office of the first section commander in each section expires, and they are all to be highly commended for the wonderful increase in efficiency that is noticeable in each section's work. They have set a high standard for the men succeeding them to live up to, and it is apparent, even at this early date, that the task of selecting the best section commander for the year 1933-34 is going to be an extraordinarily difficult one.

As the year is drawing to a close, I take this opportunity of thanking all members for their enthusiasm and whole-hearted co-operation during the last twelve months. There is no organisation where section "teamwork" is of such paramount importance as in the reserve, and it is only when the solid work and enthusiasm that has been evinced is present that we can hope to maintain the high standard required of us. By regularity on schedule and by making a conscious effort to improve our procedure, not only will we put the third district at the top of the list, but also we will do our share towards making the reserve as a whole a completely efficient unit.

In conclusion, I wish all members a very merry Christmas and a happy and prosperous new year.

10 Metre Band

J1EZ,
Oct. 8, 1933.

VK2YC.

Dear OM:—

I rec'd ur letter dated Sept. 11, asking for 28MC schedule.

I have been also calling "CQ ten" on every Sunday during this summer, fm 0100 GMT. hi!! But, nd!! sri om.

I wl continue this schedule for this winter, and hope to touch with ur side in near future.

I wl call "CQ ten" every Sunday fm 0100 GMT. fr abt 10 minutes, and wl send fone fm 0200 GMT for abt 20 minutes.

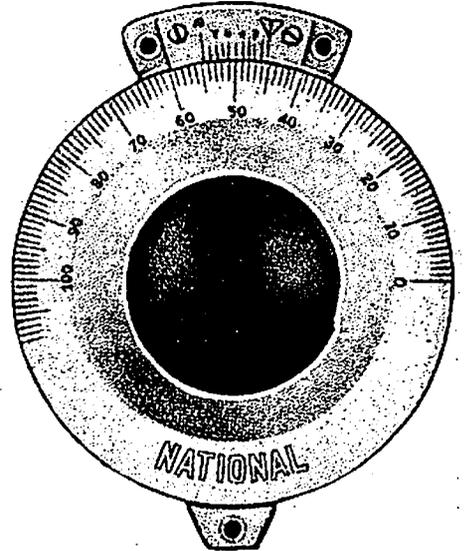
Will you please qsp this fact to ur 28 mc fan, om?

My xmitr is of cc. 20 w. input, and wl be modulated 100 per cent. when fone is tried. Hpe to cul, om, Vy 73.

K. KASAHARA

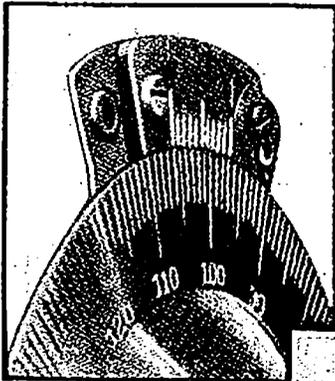
J1EZ.

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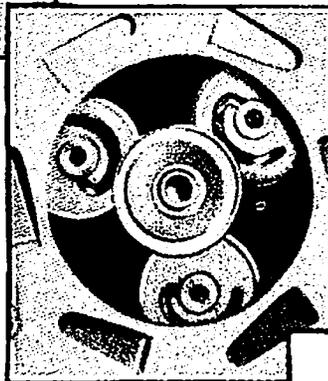
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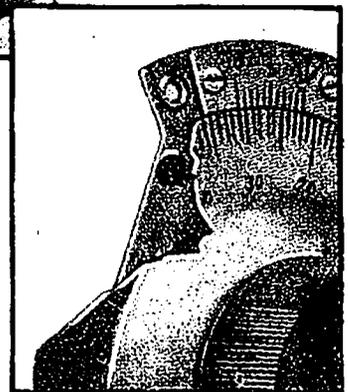
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- RADIOTRON Type 865 is a 7.5 watt screen-grid, low-power transmitting tube for use as a radio-frequency amplifier, especially for frequencies above 3000 kc. It is also very useful as a crystal-controlled oscillator. Filament volts, 7.5. Maximum plate volts, 500.
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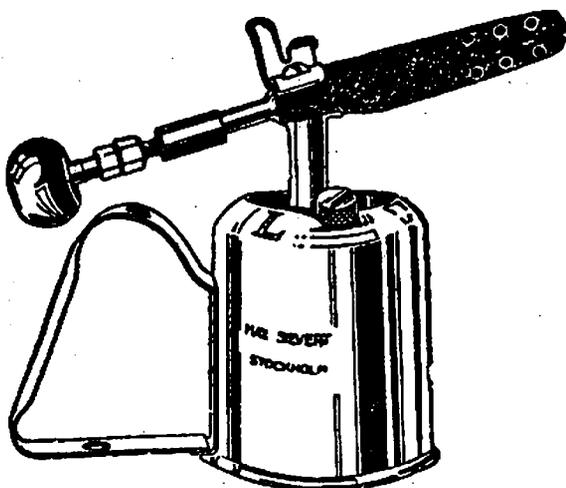
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