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for the

radio amateur

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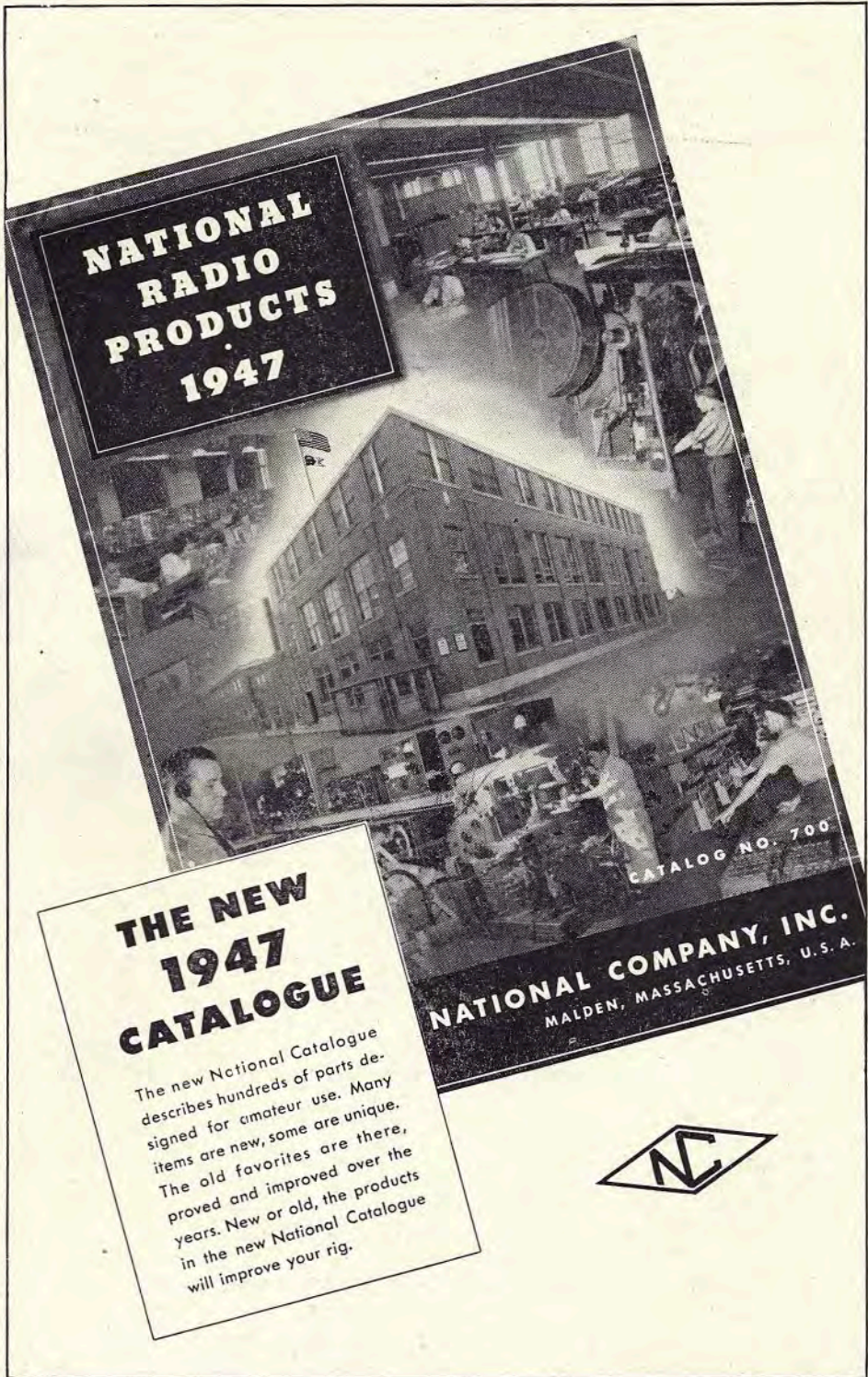
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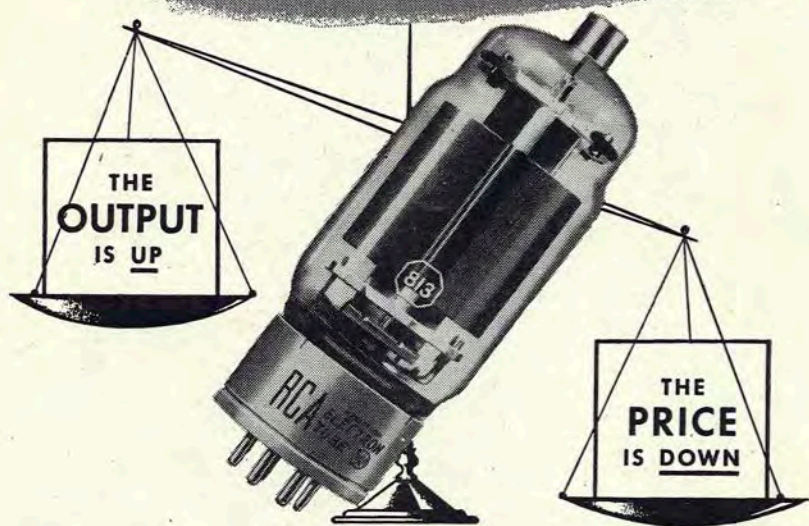
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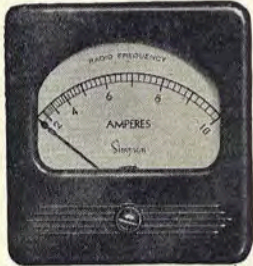


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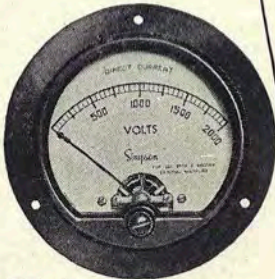
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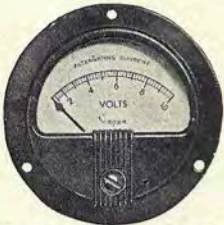
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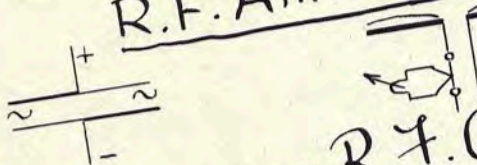
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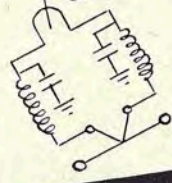
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[C R Y S T A L]

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HILITES

This month's cover is of
Ve3BKL's layout at Merritton,
He's active on 10 and 20.

Bob Wilton's article on page 7
about the use of R.F. instru-
ments will help you tune up the
new sky-wire as well the rig
that feeds it.

Listed on page 15 are all the
calls of the HQ. GANG and
where to find them. WORK
YOUR HQ. GANG!

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. . . In Memory of a Ham . . .

TEN years ago this month, on February 17, 1936, amateurs the world over learned of the death of Hiram Percy Maxim, W1AW. Their sorrow was not feigned, for no other individual had ever made such a contribution to Amateur Radio. As President and Founder of the American Radio Relay League, he was instrumental in developing a new art into a hobby beloved of tens of thousands in every corner of the globe. To him also goes much of the credit for the formation of the International Amateur Radio Union, testimony to the fact that his interests transcended the boundaries of his own country. Despite the fact that his achievements won him renown in many diverse fields, we shall always remember him as the Personification of Amateur Radio. No more appropriate tribute could be devised than the poem below, written by VE3GG and reproduced from QST of April, 1936. While his passing left a gap in many a heart, the high standards he set for us continue to be our inspiration, and the quarter century of progress under his leadership is our treasured and never-to-be-forgotten legacy.

—ON FEBRUARY 17TH—

*Across the jeweled curving dome of night
He flashed these words to me, "Maxim . . .
is dead."
And then his key was silent.
So was mine.*

*There was nothing more to say,
Nothing we could do . . . but listen—
Listen to that sombre lightning play
Around the spinning globe, as ham told ham
"Our President is dead."*

*Slowly I drew the veil, muting the set
'Til all signals died, and silent
Burned the pilot light, beacon of grief,
A candle for the dead.*

*Great men have died before,
Kings, and Princes.
The news ne'er moved me deep, and yet
This abyss where my heart has gone
Plumbs all.*

Maxim! Yours was the vital spark
Which kindled for us all
Ten thousand friendships
Endeared with loves alike, exchanging keys
To one another's hearts, and homes.*

*The loom you made has spun a mighty weave
Netting the whole wide world with threads
invisible,
Patterned the miracle each age so long has
prayed for,
Nation and creed forgotten . . . as man
called his brother.*

*Henceforth this date all amateurs have marked
As yours. In silent tribute 'tween the frozen
poles
The night will muted be,
So that the stars will wonder.*

—Michael J. Caveney, VE3GG.

The Use of R.F. Instruments In Antenna Matching

By ROBERT WILTON*

MUCH very useful information has been written about the matching of transmission lines and antenna, dealing with the many devices to be used in proper matching processes. It has seemed at times to us, however, that there does exist a lack of material on the technique of matching, and in many cases we are sure that systems which should, and could, produce much better results are not doing so—mostly because the user is without the knowledge—or perhaps the equipment, to actually know what is going on. He may choose any one of the many systems available, yet no matter what the choice, the final measure of satisfaction will depend on whether the whole thing is properly matched throughout. Upon this rests just how many of his hard won watts are being radiated—which, after all, is the prime purpose of any antenna. Not being able to establish these points for sure, has led very often to disappointing results.

Maybe we're wrong, but we feel that proper matching techniques have been fairly loosely dealt with by quite a number of hams, and the fact that they have been thus treated by some in the past, has necessitated an increase in power, with attendant costs, when the same thing could have been accomplished by proper matching and power measurement procedure.

It is quite feasible to know that you are properly matching your final to the antenna, likewise how much actual power you are radiating;—and to accomplish this, certainly not an elaborate investment in instruments is required. Actually, as any ham knows, certain types of systems can be lined up very well by just the use of a small light or neon bulb. This latter method has certain drastic limitations, and to do the job properly an R.F. Ammeter of the appropriate range must be used. In addition, he will require a variable dummy load resistance which must be non-inductive and capable of dissipating the power output of the rig without setting fire to his shack!

Since it goes without saying that the final plate milliammeter is always included in matching, we have not counted it among the extras. It is, however, going to form a very important part in the measurements to be carried out.

Standard R.F. Thermocouple Ammeters of various types are available for general purposes, and are completely satisfactory for the measurement of current in any transmission line up to frequencies in the vicinity of 100 megacycles. After this, the insertion of the

ammeter, or couple, causes so many problems of mis-match due to reflections, that their readings are not normally to be relied upon.

Another factor ruling out the thermocouple at this and higher frequencies, is due to the phenomena of skin effect. This causes the apparent resistance of the heater wires of the couple to rise with increase of frequency; and since the current to be measured flows through this resistance, the error of the meter indication will be proportional to the change of effective resistance, multiplied by the current squared. By the use of tubular and ribbon type heaters, this error has been kept to a minimum at frequencies up to 100 megacycles in special types, and up to 35 to 40 megacycles in normal types.

Percentage of error varies also with the current range for which the couple is designed—error being the greater at any frequency for the heavier current types.

Where frequencies are beyond the useful limits of the thermocouple meter, matching measurements are carried out almost entirely by means of standing wave measurements. Since it may be desirable to obtain power matches by this method at the lower frequencies as well, the inclusion of a sensitive D.C. Milliammeter and some type of rectifier unit on the list of worthwhile matching essentials, is justified.

We are assuming however that—for a time at least, the ham will be using frequencies to which the normal R.F. thermo-ammeter offers substantially no reactance or skin effects, when inserted in series with the line, and is so low in resistance that negligible power loss is encountered.

This latter point is important, since any antenna and transmission line when properly designed is substantially a low voltage, high current device—thus resistance of any kind is a vital factor.

Resonant Lines

When a transmission line is operated in such

BOB WILTON

● Member of IRE; emerged from recent war with an M.B.E.; formerly on staff of the R.C.A.F. Radar School at Clinton, Ontario. Is Jim Bach's right bower at Bach-Simpson Limited and being bitten by the Amateur Bug in spare time.

a way as to form part of an overall resonant loop composed of the lines, antenna and ground—they are thus part of a tuned circuit; are therefore critical to length, and recourse to tuning must be made in order to enable proper matching of the transmitter to the radiator.

This system is in use largely as a result of the desire to employ the same antenna on several bands, and as such is quite attractive to many amateurs. When the lines are operated in the resonant condition—whether fractional or multiple wave length long, high values of standing waves of current and voltage are characteristic, and readings of an R.F. indicator can not be used in quantitative measurement directly, until the dummy load and the plate milliammeter have been first employed.

To enlarge somewhat:—as a result of the tuning process, the antenna system—composed of both lines and radiator—is tuned to resonance with the frequency to be radiated. This operation allows the reactance of the system to drop to zero at the operating frequency, and the only impedance will then be that of pure resistance, being composed of the radiation resistance for that particular type of antenna, and any straight resistive losses in the transmission line itself.

When the system is properly tuned then, its impedance will be least and current will be greatest. It should be noted that this is the only reason for tuning, since the actual process of resonating the antenna to the operating frequency will not increase the radiated energy per unit of current flowing.

As in any resonant circuit, current and voltage will not be distributed evenly about the circuit, and for that reason any indicating device will read different values of current or voltage—depending where, in actual physical position in the circuit, it is inserted. However, regardless of this, a maximum reading—no matter what its value, will indicate a maximum match for any particular frequency and system employing resonant lines.

Exponents of the light bulb technique have something here, since admittedly the readings can at this point, only convey an impression of match—not the actual power radiated. Even here though, the use of an instrument is justified, since there is apt to be a considerable variation in interpreting just how bright is bright. Since the power output is a function of the current squared, a small increase in current represents a very worthwhile power gain. These small current changes can only be indicated accurately by means of an R.F. instrument.

Perhaps a fairly extreme example of this would be that of a half wave, center fed dipole. Assuming the Radiation Resistance as 70 ohms, with a current of 1 ampere flowing, the power—by $P = I^2R$, is 70 watts. By increasing 1 to

1.2 amperes, the power radiated is now a clean 100 watts.

Power Measurement In Resonant Systems

As mentioned earlier, simply inserting an ammeter in the feeder and taking a reading, is not necessarily going to provide the correct answer, even if the impedance of the antenna is known—which is pretty doubtful, under such conditions of operation. The current indicated may be much different than that which is flowing through the radiation resistance of the antenna proper—due, of course, to the possibility of the instrument being inserted in a current minimum or maximum node. As a result, power calculations based on such readings are useless. However, by taking into account the plate circuit milliammeter, and with the use of the dummy load, a very close indication of the actual power radiated by the antenna can be arrived at.

The system is first tuned to resonance by means of the ammeter, showing maximum current flow—this preferably with very loose coupling, so that the output stage will not be detuned by the reactive components in the off-tune antenna and feeders. When resonated, the coupling can be increased until rated final plate current is flowing—for, in this condition, at the operating frequency, the load thrown across the output is that of pure resistance and hence no detuning will occur.

The final plate current is now noted carefully, the antenna disconnected, tuning networks removed or shorted out, and the whole replaced by the dummy load. As previously noted, this must be variable, through limits at least—non-inductive—and able to dissipate the full wattage without any undue temperature rise.

If this load is purely resistive it can be placed across the output in substitute of the antenna system, and no detuning of the final will occur. By adjusting its value carefully, plate current can be made to agree with that previously noted, with antenna and feeders attached. This, of course, indicates that the same amount of power is now being dissipated in the dummy load, as was fed into the radiator previously. At this stage, the reading of the thermammeter can be used in quantitative measurements, since the indicated current will now be that actually flowing through the load proper.

Note this value of current; turn off the rig; disconnect the dummy load, and measure its resistance—NOTE: Do it while at operating temperature for accuracy's sake.

The power will then be simply $=I^2R$, and will provide a very close figure to the actual power in watts which the antenna system you have is radiating from your rig. Note that we have said antenna system—this includes the feeders also, and if any unbalance to ground is evident, some radiation will take place from the feeders

as well. This power is included in the calculated figure, together with that radiated from the antenna, and of course does not present quite as true a picture as we might desire.

If unbalance conditions are suspected, it is worth while to correct this before the above procedure is carried out. Here again, the ammeter will serve you well—by simply transferring from one feeder to the other until balanced currents are indicated.

Non-Resonant Lines

In the previously discussed resonant line systems, the feeders were included in the resonant circuit at the operating frequency—and as such formed part of those constants contributing to the resonant condition. In non-resonant lines, however, the design is such that the line itself—in the ideal case, does not contribute in any way to the resonant properties of the antenna.

In other words, the antenna is resonated to operating frequency by its own physical length and cross section, nearness to ground, etc., and the feeders simply serve to transfer the exciting current from the transmitter to the radiator. As such they will not be critical as to length, and theoretically could be halved or doubled in that dimension without affecting the resonance characteristics of the system, and hence the current drawn from the final. As is well known, in order for a transmission line to operate in this way, it is necessary that it be terminated with a resistance equal to its characteristic impedance.

In this way, the energy inserted at the transmitter end, travelling down the line, is all dissipated by the straight losses in the line and by the load proper. None of this energy is therefore available as a reflection which would travel back down the line toward the transmitter, meeting subsequent waves, thus forming a stationary or standing wave. It is evident then, that the non-resonant line, when properly adjusted, should have no standing waves of current or voltage—in other words current or voltage should be the same value at any point along the lines' entire length.

This current or voltage is the result of a consecutive series of travelling waves passing a given point on the line, and actually then, the current or voltage is fluctuating from zero to maximum values at the operating frequency, but being rectified by the indicating apparatus reads some steady value. Since the wave is travelling and is not stationary, there will be no point where current or voltage node will occur, and therefore a reading taken at any point along the line will indicate correct values of current or voltage fed to the load or radiator. This, of course, in sharp contrast to the resonant line condition where readings vary down the length of the line.

Because any mismatching of the load causes reflections and hence a standing wave of some value on the line, S.W.R. measurements can be used as an indication of match—or lack of it.

Recapitulating then, it is established that only when the line is properly terminated will no current or voltage nodes occur, and that only under matched conditions therefore, will the values of current or voltage be constant along the line. Under these conditions an R.F. Ammeter inserted in the transmission line at the transmitter end, can be used to determine the actual power dissipated by the line and radiator. Contrast this again with the resonant line conditions.

In actual practise, since the transmission line depends for its proper termination, on the radiation resistance of the antenna it is feeding, it is obvious that the system is suitable for operation only at the frequency at which the antenna is resonant. By broad-banding technique, the antenna can be made to exhibit a fairly constant impedance across a given band of frequencies, so that normally, operation on any point in any one of the ham bands is quite feasible.

It also appears that whereas matching of the resonant line system can be carried out quite simply from the transmitting end, the non-resonant line must be matched from the antenna end, and is therefore not so convenient an operation. Further, while an ammeter in the line at the transmitter end serves as a constant power monitor when the line is properly adjusted, it is of little use until then, since standing waves will throw the readings out in the same way as for resonant lines.

Strictly speaking, attempting to adjust the match for power output at the antenna end by noting maximum readings on a meter inserted at the transmitter end will not give correct results—unless the line is very close to a match in the first place. This is brought about by the standing wave, or waves, of current being displaced along the line by the adjustments—thus causing the point of the meter insertion to occur at a variable position relative to a current node.

Matching Procedure

The following suggestions apply to all three of the various types of transmission lines, coaxial or twisted pair (shielded)—twisted open wire, and transposed types:

Having first ascertained that the antenna is physically correct in dimensions to resonate at the operating frequency, couple the line loosely to the transmitter, place the ammeter in series with the dummy load across the line at the antenna end—antenna as yet disconnected. Adjust the resistance to values above, below, and to the specified or calculated value for the line; and by I^2R determine the exact value of resist-

ance giving the greatest power level. The exact impedance of the line is thus arrived at, and while the procedure is not absolutely necessary, will give more accurate results than merely adjusting the load until maximum plate current is indicated for any specific value of coupling.

The coupling can now be increased until rated plate current flows, and it is fairly safe to say that the line is now matched to the dummy load and that a minimum standing wave level is obtained. A quick substantiation of this can be indicated by transferring the ammeter from load end to transmitter end. The readings should be very close to the same, providing the line is not excessively long or has high losses. Having now established, by means of the dummy load, the exact impedance of the transmission line, and having measured the current flowing under those conditions, the antenna is connected in place of the dummy, and leaving the ammeter in series, the matching system adjusted until the same value of current obtained before is indicated. It is evident that both proper matching and actual power measurement is accomplished in the one operation by this arrangement.

The meter can then be disconnected and transferred to the transmitter end, where it will now serve as a power monitor—since proper matching has already established the effective radiation resistance of the system. It should be noted that when the ammeter is inserted at the transmitter end, the reading will be somewhat higher, but, as in resonant line condition, this power reading will include transmission losses due to resistance, dielectric leakage and radiation due to unbalance (if of the unshielded variety) in the line itself. If this difference in reading is appreciable when expressed in watts, steps should be taken to reduce these losses caused by any or all of the aforementioned conditions.

A check against a possible loss in matching somewhere along the line can be derived by noting both plate current and line current. Should plate current increase or decrease due to normal transmitter variables, the changes should be accompanied by corresponding variance in the R.F. current. If the trouble is due to matching changes, R.F. current may increase, while plate current remains the same or may even decrease in value.

Standing Wave Ratio Measurements

Thus far in the discussion of non-resonant lines, we have indicated methods of matching without standing wave ratio measurements, although it has been mentioned that their presence did indicate a mis-match in load; and that their complete elimination would indicate a properly matched line. If present, they indicate that a part of the power at any rate, is not being radiated as it should be, and by ad-

justing the matching "cut and try" technique until the S.W.R. is at a minimum as measured with rectifier and micro-ammeter, a fairly good match can be obtained.

Removal of the standing wave, or waves, on the line also allows the power capacity of the line, as limited by the voltage breakdown of the insulation, to be higher; and second the input impedance, and hence the power input and output is less sensitive to small changes in frequency—or length of line.

Since some hams may desire to match by S.W.R. measurement—or at least use it as a cross-check, it should be pointed out that ratios as high as three have no major detrimental effects—but above that figure give rise to all problems mentioned in serious proportion. For example—if the efficiency of a given system is 80% with no standing waves, it is reduced to 72% with a standing wave ratio of three; and is therefore fairly acceptable.

It should be pointed out that S.W.R. measurements are only effective for frequencies presently used by amateurs, where the line is at least one and one-half wavelengths long, and where it is not the coaxial or shielded twisted pair type. If these latter are used, an R.F. ammeter is an absolute essential for proper matching.

In closing—a few points relative to R.F. instruments and couples. It is often inconvenient to put the instrument directly in the line—especially if the operator wishes to read the antenna current when the radiator is actually on the tower proper. The same may apply where it is not desirable to route the transmission line via the front panel where the meter, for appearance's sake, may have been installed.

External couples are used in this case, and are inserted directly in the line—the D.C. output from the thermo-junction being transferred quite easily to the meter wherever it may be, by simple shielded leads. By-pass condensers and low D.C. resistance chokes should be installed at the couple to keep R.F. out of the leads—or to prevent induced R.F. from entering the couple via the leads. Manufacturers produce these external couples, already designed to allow for such things as lead and choke resistance, so that the user has very little to do other than order the correct item.

A final point, applying to all panel instruments—R.F. included. Unless specified otherwise, they will be supplied calibrated for non-magnetic panels. If you desire to mount them on steel panels, specify just that—otherwise your instrument will read from 3% to 7% low—and with power at I^2R —you might well be doing considerably better than you think!

So long and good luck!

On The Air Force Amateur Radio System

By KEITH RUSSELL, VE3AL*



IN the Spring of 1946 A.F.A.R.S. was officially inaugurated. It has progressed slowly and steadily since then, and the time has now come to report progress and to clear up some misconceptions which have arisen in a few parts of Canada as to its aims and intentions.

Broadly, the Air Force Amateur Radio System is a scheme to give the amateurs of Canada a working knowledge of the Air Force and its signals branch, to create a personal liaison between Air Force Permanent and Auxiliary personnel and members of the A.F.A.R.S., to give amateurs an opportunity of becoming familiar with the latest radio apparatus as used in the Service, and to establish the amateur as a useful volunteer assistant to the Defence Forces of Canada, and in that way to gain for him a powerful friend who will help in seeing that those anxious to grab amateur frequencies for other purposes are opposed. As for the Air Force, it hopes by this goodwill effort to acquire for its Auxiliary or permanent forces capable amateur operators for enlistment, and to build up a reserve of skilled operators with a knowledge of the Air Force and its apparatus and procedure who will in the event of an emergency tend to join the Air Force as an old friend.

These two co-related objectives are obviously very beneficial to both parties, and it is hoped that as time goes on and the R.C.A.F. Auxiliary Squadrons become active flying outfits, the tie-in will become intensified, and even more popular among active traffic-conscious hams than at present.

From the outset of the scheme, some objections have been raised to it by certain amateurs who obviously did not understand the idea and the objects behind it. The biggest objection was that "the A.F.A.R.S. should use Air Force wavelengths for their drills and not operate in the amateur bands". Let me say that the A.F.A.R.S. operates in the "ham"

bands because it is an amateur organization, not a branch of the R.C.A.F. From the outset it has been emphatically stated by all concerned that there is no liability for service incurred by any amateur by reason of his joining the A.F.A.R.S. This decision was arrived at, because those who inaugurated the scheme were convinced that amateurs in Canada would not want to be tied up to any scheme which would make them assume any liability for service, or give them the status of reservists. If, then, this decision was right, obviously any amateur organization of this character should work on amateur frequencies, and indeed, the Department of Transport would not issue to amateurs any frequencies other than those allowed them by international agreement.

A further objection to the operations of the A.F.A.R.S. was made by some amateurs that the net drills and traffic handling would intensify the interference problems which are so acute on the 80-meter amateur band. Experience has proved that the contrary is the case, as, indeed, should have been apparent from the start. Less interference to the general band is obviously caused if a number of amateurs occupy only one frequency, under control of a traffic controller, than if these same amateurs cover a number of frequencies throughout the band, thus causing occupancy of many channels instead of a single one.

A third objection raised was that amateur clubs in R.C.A.F. stations should not be allowed, or licensed. Since when have Canadian hams objected to licenses being issued to other amateurs on the sole ground that these amateurs are members of Canada's armed forces, or located on Air Force stations? Surely an amateur is an amateur, whether by occupation he is a barber, a lawyer or an airman, and hence is equally entitled to an amateur license to operate an amateur station. Club licenses have been issued by the Department of Transport ever since there were such things, and I

* c/o XTAL

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VE2RO, Captain L'Italien.

Well done, VE2!

MUCH has been written about the rescue of the six unfortunate members of the aircraft which crashed in the Lower St. Lawrence on a small ice-cake on December 22, last. Columns upon columns have been written in newspapers throughout this country and the United States upon the heroic rescue of three of these men by Capt. Jourdain and his companion, Len Montreuil. But little has been said about the brave VE2RO, Capt. L'Italien, a veteran mariner and a hero of the last war, and his gallant XYL. Capt. L'Italien, an ardent amateur, resides at Petits Mechins, some 72 miles in the Lower St. Lawrence from Mont Joli. Knowing of the crash, he kept a constant watch on the stormy St. Lawrence for the lost men, and on the morning of December 24th, after the rescue of three of the seven men, he spied three men floating on an ice-floe, eight miles from shore. He immediately put his xmitter on the air and tried to get Mont Joli, where there is an air base. Failing in this, he showed his XYL how to handle the xmitter with instructions to try for Mont Joli Air Base or any amateur, and left with a companion in a row-boat to reach these three men. The time was 1250 GMT. The sky was overcast, the seas were heavy and covered with large cakes of ice floating rapidly down stream. Reception was bad, with heavy QRM. On the air at that time was VE2XP, Montmagny, 35 miles from Quebec City and some 225 miles away from Petits Mechins, who had just finished a QSO with VE2AO, Montreal. 2XP, roaming the band,

heard VE2RO, who gave him an outline of the situation and asked if she could use the Mont Joli Air Base frequency, 3225 Kc. 2XP called 2AO and he advised 2XP to tell 2RO. Mrs. 2RO asked that he call the Dorval Airport authorities at once. Not waiting for a reply, 2AO immediately called the Dorval Airport, being fortunate in speaking to VE2DK, a dispatcher there, and an amateur. Dorval immediately advised Mont Joli by teletype. And thus began the long fight for the lives of these unfortunate men and a long vigil by a whole network of amateurs who sacrificed hours of well-earned rest and preparations for the following Christmas Day. By nightfall a complete and efficient network of amateurs from Montreal to Petits Mechins, 450 miles away, was organized and the channels from 3800 to 3820 Kc. were kept clear for emergency work. Due credit, unfortunately, was not given these devoted amateurs in the newspapers. Some of these amateurs were as long as 30 hours on the alert. From 2RO and his XYL to Montreal these amateurs sacrificed their night's rest, their meals brought down to them in their shacks, in an endeavour to do their part. Due credit must be given to these amateurs, starting at Rimouski with VE2AW, 2NL and 2TC at Riviere du Loup, 2ME at St. Anne Pocatiere; 2XP, who first heard Mrs. 2RO's frantic call; 2HB, 2HL and 2AB in Quebec; 2DV at Arvida, who kept the Bagotville airport advised; 2OE and 2YM at Chicoutimi, 2KF Lyster, 2PF at Portneuf, 2OA at Cap de la Madeleine, 2DD at Grand Mere; 2AO at Montreal, who was the first in that district on, and who first advised the Dorval airport; 2DZ at Ste. Rose; 2AG, Montreal; 2LP, St. Lambert, as well as 2AI, Montreal. This comprised almost 100% of the French network in the province of Quebec.

● Here is the detailed story of the part Ham Radio played in the rescue of six members of aircraft crash in the Lower St. Lawrence as graphically told by VE2AO, Mr. A. Gosselin.

To return to 2RO. Upon his return to shore after five hours' unsuccessful attempt to rescue

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HEADQUARTERS HAPPENINGS

POLICY. Before the war, there were a great many station licenses held by individuals of Japanese descent, particularly in British Columbia. For some time after the end of hostilities, the Department of Transport was unable to renew these licenses in view of the fact that the Government had not finally determined its policy towards Japanese-Canadians. This matter has now been settled, and we are pleased to learn that the Department is again accepting applications for amateur station licenses, both new and renewal, from persons of Japanese race. They should be forwarded direct to the Radio Division, Department of Transport, Ottawa, setting forth all pertinent details in the usual manner.

VE3CAR. Your Headquarters station is now on the air on a regular schedule with official broadcasts from CAROA and ARRL Headquarters. Provision is also made for QSO's with Canadian amateurs. At the time of writing, VE3CAR is on the air two nights a week, but it is quite possible that this schedule will be augmented by the time this issue of XTAL is in your hands. If not, we can promise that this service will be expanded as the demand warrants and as our time and facilities permit. At the moment, our transmitter covers only 80 and 20 meters (phone and CW) so that one night will be allotted to each of these bands. Times of operation on Tuesdays and Thursdays are as follows:

8:00 p.m. EST	Official Bulletins on CW
8:30 - 10:00 p.m.	General QSO Period on CW
10:00 - 10:15 p.m.	Official Bulletins on Phone
10:15 - 11:00 p.m.	General QSO Period on Phone

The frequencies which will be used are as follows:

Phone—3821 and 14175 kc.
CW —3545 and 14126 kc.

In the general QSO periods we will be alert for your calls, either to handle traffic or just to chew the rag. So listen for VE3CAR—Tuesdays on 80 and 75, Thursdays on 20. We want your reports and your suggestions as to additional nights and frequencies. We are particularly interested in putting a signal into the Maritimes and the West, and this tentative schedule will let us know how effectively our 80-meter Zepp antenna is radiating at a distance. Operators at 3CAR are Doug Hall, VE3TB (Chief Op.), Jock MacArthur, VE3DJ.

HQ GANG. At some date in the future it is planned to have the Hq. Gang on the air over VE3CAR one night or so a month. In the meantime, if you want to contact one of your Officers on the air, here's where you can find them: 3ZE and 3APS wander around between 3500 and 3600 on CW. 3ACL is unpredictable, but if you catch up with him it might be on 10 phone, 20 CW or phone, 40 CW, 80 CW or 75 phone. 3VD is an avid 40 meter fan, and this is where you can sometimes hear 3QK, although he sticks mostly to CW between 3500 and 3600. 3BBN, 3AZI and 3AOS are rarely heard away from their beloved 10 meter phone band, and 3BCW hasn't hit the air yet. When 3BD is on, it will be from Noranda, Que.

NEW REGULATIONS. The Department of Transport has issued a request to CAROA, the Canadian Section of the ARRL, and all other amateur groups in Canada, to co-operate in forwarding to the Department a joint submission concerning proposed changes in our regulations. They prefer that any recommendations be sent to them in this form rather than have them come in singly from individuals and clubs alike. At the date of writing we have contacted all clubs for their suggestions, but the deadline specified (January 31st) made it impossible to seek the views of our individual members through the columns of XTAL or otherwise. This date was set so that any amendments to the regs could be considered in time to include them (if approved) into our 1947-48 licenses. Any action taken by CAROA in this matter will be reported in a subsequent issue of XTAL.

VE-W CONTEST. Since last month, we discovered that the projected dates for the VE/W Contest conflict with those of the British Empire Radio Union Contests, to be held the second and third week-ends in April (further details will appear in next issue). As a result, the VE/W contest has been moved forward to April 4, 5, 6. Full dope in March as promised.

I Married a Ham

A Condensation from "Life and Customs of Strange Tribes"
or "Passions in a Zoo"

By XYL, VE7HA*

I MET my husband back in, as I know now, the "good old silent days" of 1943. That was back when I was a happy and innocent young thing, knowing nothing of the queer tribe of Hamus Radiosis, more commonly known as just Hams, among whom I was to be violently thrown by fate, destined apparently to spend the rest of my life with this strange, almost human, species.

I was soon to learn that in order to live amicably among these people (I use the term people reluctantly for want of something more appropriate, as due to their strange habits and customs I have yet to decide how close they really come to being human) I would have to learn their language and . . . but I am getting ahead of my story.



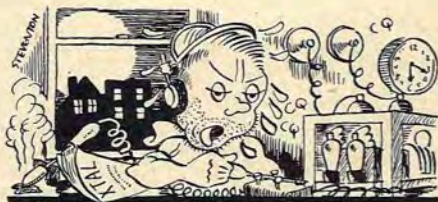
As I was saying, I met my husband in 1943, and during the days of our courtship life was generally quite rosy, with nothing whatever to arouse suspicion in me of the strange and ghastly customs into which I was to be later inducted.

Only on one occasion do I recall any hint of the strange rituals I was to later learn about. One evening in mid-summer we were out enjoying ourselves, as courting couples do. It was a beautiful evening and on the way home the moon shone full and brilliant. I knew from reading Love Story magazines that this was the kind of night that the hero always proposed, and so I wasn't surprised when my escort suggested sitting and looking at the moon. After a few minutes of this, with my head resting on his shoulder, and my new perfume, with which I had drenched myself, scenting the air for blocks around, I was preparing myself for the important question which I knew was coming when I heard him sigh and breathlessly whisper, almost to himself, "Gosh,

wouldn't it be wonderful . . ." "Yes?" I murmured, expectantly. "Shucks!" he went on, "I forgot you don't know the thrill of tuning for DX on a night like this." Well, if I had known then what I know now . . . but then it all sounded so fascinating the way he explained things,—all you had to do was to sit down at a radio gadget that was just like an ordinary radio, only different, and you talked to anybody anywhere on the globe. There was nothing to it at all, anybody could do it.

I didn't know then that during the full of the moon was one of the times when the species Hamus Radiosis was most likely to have one of the attacks with which they are afflicted, such as staying up till the moon sets, working frantically with bits of wire and anything that seems to appeal to their simple minds, fitting things together into a miscellaneous heap of junk and wires that any sane person knew all along could never be anything more than just that; and yet this spell has the poor souls so firmly in its strange grasp that they go on working feverishly, frothing at the mouth and even yelling "Hello CQ, CQ DX . . . why the so-and-so can't I get out!" Things gets more and more unintelligible as the night drags on. Of course there is no reason why he can't get out; I'm not trying to stop him going out. In fact, time after time I try to help by telling him to take the whole pile of junk and get out. It would be such a relief.

But no; he goes on and on, burning out lamp bulbs, blowing fuses and annoying the neighbours to distraction, until the spell wears off, and then I shudder and lie awake nights waiting for the next attack.



Sometimes, if I am fortunate, I can tell when an attack is coming on. For instance, just prior to the last one he comes home from the club meeting and immediately commences babbling

*c/o XTAL

that "AJN just worked a ZS and got 10 db above R9 with his new beam." That was my cue to pay a visit to mother for a few days. Another time I wasn't so fortunate; the time he comes home and chortles he has a chance to buy a real honey of a receiver. Of course, I was all tickled thinking that I would have something new to listen to my soap operas on, and I fell for it hook, line and sinker. The next day he packs in something that looks like a cross between an army tank and the control panel of a Super-Fortress, with so many buttons and knobs that by the time I manage to get the thing off the ham bands to the vicinity of one of my favourite stations the program is over anyway.

And so life goes on, and I realize what it means to be married to a ham. But now, worse than all, after spending so much time with this strange tribe, the awful fact is dawning on me that I, too, am becoming afflicted with their ghastly spells. While not severe as yet, I find myself going around at times translating signs and slogans into the meaningless gibberish of the species, "ditt dah ditt ditt," and so I know that it is just a matter of time until this dreadful curse of the tribe has me in its spell,—just a matter of time until I, too, will be called upon to go forward and be examined and a certificate written out attesting to my being a full-fledged member. Oh! Woe is me.

FLASH!

Highest claimed scores to date by VEs in ARRL's 1946 Sweepstakes Competition.

Stn.	CW		Score
	Worked	Sections	
VE3KE	599	63	75,159
VE3AVN	463	63	72,607
VE3JJ	548	64	69,696
VE3BCO	434	63	68,197
VE4XO	504	67	67,067
VE6AO	51,075	VE6GD	50,995
VE6LE—38,021			
FONE			
VE3HC	207	64	26,304
VE3AIB	175	58	25,085
VE3AQB	204	57	23,256
VE6FK	192	58	21,808
VE3AIU	158	59	18,585
VE2DD	200	48	18,432
VE2OG	149	54	16,198
VE1CM	81	36	7,245

These scores are by no means a report on the final standings. They were extracted from early returns by ARRL HQ and furnished to XTAL for publication. Watch XTAL and QST for complete story in a future issue.

... IF YOU HEAR ...

Ve3ZE

—80 CW—

Call him, he's TOM POWELL, President of CAROA.

Ve3APS

—80 CW—

Call him, he's BOB MACDONALD, the Vice-President.

Ve3ACL

—75 FONE—

Call him IVOR NIXON, he's the Secretary.

Ve3VD

—40 CW—

This is ERICH BARTMANN, the Treasurer.

Ve3AOS

—10 FONE—

Genial LEN HORSFALL, right hand man of the Secretary.

Ve3QK

—80 CW—

Managing Editor, JON PERDUE, the old rag-chewer.

Ve3AZI

—10 FONE—

Ad Manager, ALF. GILLIER—Give him a Shout!

Ve3BBN

—10 FONE—

Business Boss, PETE POSNIKOFF, ex-4ATR.

Ve3BCW

—ON SOON—

Special Representative, MANLEY HAINES, ex-5MQ.

Ve3BD

—ON SOON—

Special Ambassador to the North Country, TOMMY CARPENTER.

More dope on these lads may be found in HQ Happenings this month—They're on the lookout for your calls at all times. Work your HQ gang!

To MERCHANTS

The following war surplus items
are available

Ask Your Dealer

RADIO EQUIPMENT

Equipment Suitable for the Radio Amateur

14 Tube U.H.F. type RH 32. Superheterodyne RECEIVER with the following characteristics:

- (1) Manufacturer—Rogers Majestic Research Enterprises Ltd.
- (2) Frequency Range—158-210 mc.
- (3) Power Input—110 Volts 50-60 cycle.
- (4) Tubes used: 2-6SH7 R.F., 1-9006 First Detector, 1-6J5 H.F. Oscillator, 3-6AC7 i.f. Amp., 2-6AB7 i.f. Amp., 1-6H6 Second Detector, 1-6SH7-Video Amplifier, 1-6SN7-Cathode Follower Output, 1-6E5-Tuning Indicator, 1-5U4G-Rectifier.

This Receiver uses permeability tuning throughout and the tuned stages are not ganged. Frequency Range can be converted to one of the high frequency amateur bands and cathode follower output circuit may be changed to a straight class A circuit with little difficulty. THIS EQUIPMENT IS NEW.

Note: These sets are available at our branches throughout Canada.

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RADIO HAMS

This ad. will interest you

**See Your Dealer
NOW!**

EQUIPMENT

Bendix T.A. 12G Radio Transmitters

A medium powered multi-channelled transmitter with four independent Master Oscillators.

Electrical Characteristics

- (1) Manufacturer—Bendix (U.S.A.) Northern Electric (Canada).
- (2) Type of Emission—R/T, CW, MCW.
- (3) Frequency Range—4 Ranges: 300 to 600 Kc's, 3000 to 4800 Kc's, 4000 to 6400 Kc's, 5750 to 9000 Kc's.
- (4) Power Output—Delivers 40 watts into an Antenna consisting of 10 ohms resistance in series with a 250 mmf. capacitance.
- (5) Power Supply—Normally operated from a dynamotor with the following rating:
Input Voltage—24 to 28 volts DC at 14.8 amps.
Output Voltage—540 volts DC at .450 amps.
- (6) Frequency Control—Self-excited Master Oscillator or Crystal Controlled.
- (7) Tubes used—4-12SK7, 4-807.
- (8) Dimensions— $15\frac{1}{8}'' \times 11\frac{3}{8}'' \times 12''$.
- (9) Weight—Approximately 36 lbs.
- (10) Basic Units composing this set are: 1 TA12G Transmitter, 1 MP28BA Power Supply, 1 MT53C Antenna Loading Unit. These latter 2 units are also available.

Note: These transmitters are available at our Toronto Branch only. Operation of any type of transmitting equipment is only permissible after granting of licenses by the Department of Transport.)

These are distributed
public through
sale and retail

Further
details.

CORPORATION

**CANADIAN WAC AWARDS FOR THE
FIRST NINE YEARS**

Date of issue	Operator	Call
Apr. 13, 1926	A. H. Asmussen	NC4GT
July 25, 1929	Frank Miller	VE1BR
Nov. 26, 1929	Earl H. Turner	VE2CA
July 23, 1930	Lyle E. Geary	VE5AW
Dec. 20, 1930	H. J. Ford	VE3BK
May 27, 1931	Clifton Brown	VE3BM
Sept. 1, 1931	John L. Green	VE4BQ
Apr. 10, 1933	C. S. Taylor	VE1BV
Mar. 1, 1934	Joseph L. Mullins	VE1DR
Mar. 15, 1934	W. P. Andrew	VE3WA
July 10, 1934	H. Chadwich	VE2CH
Aug. 15, 1934	Jas. A. F. Birchard	VE3GH
Aug. 30, 1934	Wm. A. Duffield	VE4DU
Sept. 15, 1934	John A. Varey	VE3ZB
Feb. 15, 1935	Chas. J. Dawes	VE2BB
Feb. 20, 1935	Prof. Louis D. Gadoury	VE2HG
Feb. 20, 1935	W. G. Southam	VE2AX
Mar. 20, 1935	Stan. I. Comach	VE2EE
Mar. 20, 1935	B. W. Taylor	VE5BI
May 1, 1935	Alex Reid	VE2BE
June 1, 1935	H. Gordon Wightman	VE5HC
June 1, 1935	Clarence E. Roach	VE1EA
June 1, 1935	A. M. Crowell	VE1DQ
July 15, 1935	George C. Goode	VE5EO
Oct. 25, 1935	C. W. Skarstedt	VE2DR

IT is quite likely that every Canadian member of the WAC Club has at one time or another pondered over the question of who was first in Canada to receive a WAC ticket. Another question has probably been . . . Who were the first WAC's in my district and just where does my own certificate enter into the picture?

The answers to such intriguing questions have recently been obtained by the writer for his own personal files. It was felt that an official record should be made of all WAC holders in Canada, particularly the pioneers who in the late 20's and early 30's had to burn a good deal more midnite oil than is required today in working all six continents. While this list has been secured primarily for the writer's personal records, an analysis of it has been prepared for readers of *Xtal* with the hope that it will serve as an official record for the future, covering the background history of this very absorbing phase of amateur radio. The list which follows shows Canadian WAC awards for the first 9 years. Alberta, it will be noted, was the first province to win an award, followed by the Maritimes, Quebec, Yukon, Ontario, Manitoba, British Columbia in that order. Saskatchewan did not get in until 1936.

Who's Who in WAC

By JACK GREEN, VE4BQ

From the above it will be noted that the first amateur in Canada to obtain his WAC was Art Asmussen, NC4GT, of Calgary, way back in 1926. This was without doubt the most outstanding WAC achievement in Canada, not only because it was first, but that Art held the crown exclusively for over three years. Hearty congrats to Art from the entire VE fraternity. No WAC's were issued in the years 1927, 1928 or 1932. From 1936 forward, however, the awards became quite numerous, and it would require too much magazine space to list them all in detail. A breakdown has been prepared showing WAC's in each district 1 to 8 in order of issue date. Here are all WAC holders in Canada up to the end of 1946:

1	2	3	4	5	6	7	8
1BR	2CA	3BK	4BQ	4JV	4GT	5BI	5AW
1BV	2CH	3BM	4DU	4IG	4GD	5HC	
1DR	2BB	3WA	4RO	4SY	4LX	5EO	
1EA	2HG	3GH	4FT		4GE	5FG	
1DQ	2AX	3ZB	4KF		4PH	5FC	
1DO	2EE	3QH	4SS		4KZ	5JC	
1ET	2BE	3WB	4RO (28 mc)		4EA	5OT	
1AE	2DR	3AU	4SO		4WJ	5FU	
1EP	2EW	3HT	4AED		4ADD	5MZ	
1CR	2GA	3JZ	4AGA		4EO	5KL	
1HK	2DQ	3KF	4ACP		4ALO	5KC	
1EX	2BK	3ADM	4SX			5HR	
		3DA	4SR			5VO	
		3QI				5RE	
		3HP				5ZM	
		3OI				5AAD	
		3ADV				5QP	
		3KP				5FZ	
		3VN				5SW	
		3ES				5AER	
		3QP				5GA	
		3AKG					
		3KE					
		3LZ					
		3BBH					
		3BKL					
		3TW					
		3LB					
		3ATU					

Note that the western provinces are shown under their new district numbers. For example, Lyle Geary 5AW is shown under the 8th district. He is now a VE8, but when he worked his WAC was a VE5. The same arrangement applies to Manitoba, Saskatchewan and Alberta, whose district numbers have been reallocated.

It will be observed that the only 28 mc WAC certificate to be issued in Canada went to George Behrends VE4RO of Winnipeg. Date of issue was Nov. 10, 1938.



DEAR OM

XTAL assumes no responsibility for statements made herein by its correspondents.

POWER

10740 - 107 Street,
Edmonton, Alberta.

Editor, XTAL:

I have just been listening in on a QSO between a well-known VE6 and a VE7 with whom he keeps a nightly sked on 75 meter phone . . . It seems that our VE6 friend has been having trouble with QRM on his nightly skeds with this VE7, and he blames the present trend towards higher power, on the part of some of the gang, and the indiscriminate use of VFO's by about 90% of the boys. To quote an excerpt from his QSO: "Well, the race is on—everyone is going high power, so I'm not going to be left behind. I'm going VFO and I'm going to run 500 watts—when I want to work a lower-power station I'll move down on him with the VFO then clear the channel with my 500 watts for QSO!"

What a spirit! What consideration for the other chap! What a bigoted attitude toward Ham Radio expressed by a chap whose attitude has been one of tolerance and co-operation at all times! . . . Are his views on going to 500 watts and blasting his way to a QSO any solution to the problem? Not by a jug-full!

Our bands must be in an awful mess when our boys get as bitter as our VE6 friend. With broad signals, splatter, VFO's sliding up and down the band, and long-winded blatherskites telling each other all of their intimate thoughts, I can hardly blame him for getting "fed-up" on the whole set-up!

I don't begrudge the high power boy his power at all, but I do think a drastic cleaning up of our signals and our bands, as well as operating practices both on phone and CW is urgently needed . . . Frankly, I would welcome the imposing of a power limit of 100 watts plate input to the final of all rigs, both here and across the border. It would at least have the effect of spurring the individual on to develop more efficient circuits in his transmitter, and to experiment with his antenna system at greater length to increase its efficiency . . . Certainly an attitude as expressed by our VE6 friend will not solve our difficulties. On the other hand, it will tend to hasten the day when our bands will be little more than useless . . .

● Don't dismiss the above too lightly. Think forward to the day not many years from now when there will be two or three times as many hams as there are now—what will conditions be like then? With one major band lost to us and the possibility of more losses to come, something drastic in the way of technical progress or operating procedures may be the only answer. At 14 mc. and above, isn't it true that advances in directional antenna design made in the last decade pretty well obviate the need for power greater than 100 watts? Think it over.

TNX, VE3!

12 Vernon Drive,
Buffalo 21, N.Y.,
December 10, 1946.

To All Canadian Amateurs,
c/o Radio VE3AMB,
Scarboro Bluffs, Ontario.
Dear Friends:

May we take this opportunity to thank you for the excellent attendance at our RAWNY Hamfest held at Hotel Markeen, Buffalo, on Saturday, November 9, 1946. Again, we thank you, and if at any time we can reciprocate, in any way, do not hesitate to call on us.

Please excuse this late acknowledgement but pressing matters ruled otherwise.

Sincerely,

RAY F. GRISWOLD, W2SD,
President, RAWNY.

DANG BLAST!

Island Falls, Sask.

Dear Mister XTAL:

Well dang blast you anyways fer bustin that pore guys tube and I kno why you done it too on account of you aint got enuf room in that dang mag of yrs fer a place fer us pore VE4 and 5 guys to get a section in edgeways so you dont want us to have a place so you keep on sendin us busted tubes so we cant work no dx so we dont have nothin to report and I betcha when he puts that other tube in that wasnt busted itll blow up in his face on account of its got a 25 cycle filament well dang blast you VE3's anyways.

Mebbe you should oughtto nick us a dollar and a quarter for it and then you could buy enuf paper to put us in it and if you dont have nothin to put in it let me kno and Ill send you a article abt the bandwitchin rig I bilt or anyways Im figgerin how to build in one of them three prong airforce crystal holders then youll have somethin to print abt us VE4 and 5 guys.

If I ever get into a contest and you send me any tubes I betcha Im gonna get three mounties on their horses to help me open it too and if its busted Im gonna blast you sumpin awful too but dont stop sendin me your mag on account of I sort of like it anyways and if us VE4 and 5 guys dont work no dx and dont put up no three barrell sig squitters we shouldnt oughto squawk if their aint nothin abt us in it so keep her comin and I betcha if he opens that tube up and looks close he'll see Kilroy was here in VE3 writin on the grid wires and thats a heck of a pore joke.

Dang blast you VE3's anyways.

NEIL M. RUTHERFORD, VE5RG.

MORE "KNOW HOW"

Toronto 12, Ont.

Editor, XTAL:

I have a moan . . . Like other hams I like to work the odd dx station. The ten meter band has long been my favourite (since 1936), and since this is a daylight band I find my only chance on the week-ends. So do a great many others in the Toronto area. It follows that if we all are to get the maximum amount of use out of the band we should be considerate enough to use as little of the band per station as possible. Most of the boys realize this I'm sure—and have nice clean-cut signals.

However, there are also a few who have no regard whatsoever for their fellow man. Their transmitters are obviously incorrectly adjusted as well as poorly designed. At my QTH in North Toronto there are two main offenders both of whom are at least one mile distant, yet splattering (?) kc. either side of their carrier frequency.

Regulations require each 'phone station to have—and use—some means of checking for over-modulation. Surely it is generally understood that unbalanced modulation—or distortion in the modulator—might not show up as over-modulation, yet be the cause of terrific side bands.

Maybe there are some who don't know a few of the plain truths of 'phone transmitters. If so, I wish they would at least stick to low power till they learn how to handle the high power which is at present being misused.

RUSS HEAGLE, VE3TY.

ORCHIDS!

Bull Creek Lodge Westbridge, B.C.

Editor, XTAL:

I would like this letter published, to thank the many amateurs both W and VE's that stood by, and assisted in helping me get an emergency message through on December 28, 1946. Also the kind assistance of the 5 o'clock coast net, in particular VE7US Chilliwack, who relayed

QSY to page 26

DX'ers of THE MONTH

Call	Dec. Total	Post-War Total
VE4RO	41	112
VE3ACS	30	50
VE7AJN	26	54
VE3BFK	25	38
VE3LZ	22	55
VE5GF	22	36
VE3QB	22	26
VE2GA	18	38
VE3AGX	18	25
VE3ADM	14	16
VE3ARS	13	58
VE6FZ	10	14
VE3BBY	10	11

Our first column starts out with 13(!) entries. VE4RO is out in front, with VE3ACS doing a swell job in second place with his fifty watts. All districts are represented except VE1—guess they're so close to Europe they don't count it as DX. How about some dope from VE1RF on his 80 meter activities? . . . Hope to have a countries list in next issue. . . Suggestions for improvement of this feature will be welcomed. Would you rather see the whole call instead of merely the prefix? Let's hear from you; in the meantime, best DX!

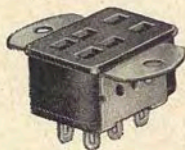
DECEMBER

Call	Countries Worked In Month	Month's Total	Total Countries Worked Post-war	Remarks
VE4RO	G, GW, GM, KL, HH, ZS, CX, VP1, VP5, VP8, VP9, KP4, KP6, KH, KG, UA, LU, ZK1, YI, XU, SM, J2, ZE1, ZD4, YN, CO, LA, PZ, OZ, VK, PY, ON, F, VO, CE, D, FT4, ZB1, OX, XE, UN.	41	112	Average operating time in December 1.9 hrs. per day. WAC in December. 500w. output.
VE3ACS	G, GI, GM, GW, UA, ZB1, LA, F, ON, I, OZ, D, YR, SM, PA, VP5, VO, VP2, KP4, VQ2, EK (Tangier), EL, ZS, CN, ZD4, VK, ZL, PZ, XU, EP.	30	50	All on 20 CW—50w. input.
VE7AJN	ZS, VO, CO, J9 (Okinawa), ZL, VK, G, HH, VR2, F, HK, CE, J2 (Japan), VP9, GW, PZ, GM, LU, KL, OQ, CN, ON, VP4, CX, XZ, J9 (Marshalls).	26	54	All on ten phone.
VE3BFK	OZ, LX, VQ3, F, GW, G, D, PA, PY, ZS, VK, ZE1, ZL, ZB, CN, PZ, CR7, OA, CX, LU, I, KL, J3, ON, G6IA (Isle of Man).	25	38	All on ten phone. 150w. input.
VE3LZ	C7 (China), ZS, UA, ZE1, PY, J3, LU, G, GM, OZ, F, PA, FA, I, ON, SM, OA, LA, OK, HB, GI, D.	22	55	All on 10 and 20 CW. Also worked G2FZ/A.
VE5GF	UA, UN, OK, UQ5 (Latvia), SM, CM, G, GM, EI, GI, GW, ON, LA, KL, OZ, OH, I, F, G5KW/YI, HB, XABU (Rhodes), YR.	22	36	All on 20 CW and phone.

VE3QB	G, GW, F, I, GM, PA, VP6, ZS, OA, FA, CO, VQ3, HC, D, HK, TI, ZB2, VP5, VP4, VO, YV, PZ.	22	26	All on 10 phone except HC, HK, TI, YV, VP5 on 20 phone. Single 807 and 136' long wire.
VE2GA	G, GW, GI, HB, HH, ZL, MX, KH, KL, TI, F, ZS, CO, VK, OK, PA, I, ZB2.	18	38	
VE3AGX	G, F, OK, ZL, ON, LA, GM, TI, KP, HB, PA, ZB1, ZS, ZE1, PY, VK, VO, CO.	18	25	First 11 on 40, rest on 20.
VE3ADM	CX, G, G5KW/YI (Trans-Jordan), J, KH, KL, LA, SM, XU, ZD4, ZS, UA, OZ, FF3.	14	16	350 watts. Also worked PK1VHN (aircraft).
VE3ARS	G, F, CN8, PY, ZS, VK, OZ, PA, OQ, UA, NY4, CR7, CX.	13	58	Single 814 and SW3. All on 20.
VE6FZ	OZ, G, KL, KH, CM, UA, I, OK, OH, F.	10	14	All on 20 CW.
VE3BBY	G, ON, PA, F, GW, OZ, I, SM, VP9, ZB2.	10	11	All on 10 CW.

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C A R O A NATIONAL REPORT

VE 1

Ronald J. Hesler, VE1KS, Sackville, N.B.—MC is a new voice heard on the old 75 fone band. KR is also seen back on 75 fone after a long absence. QF and SY are working 10 meters for all they are worth, are planning a fixed beam in order that they can work their home province more consistently. PA is welcomed back to the air waves again after a long siege of sickness. RF on 80 c.w. is working enough dx to make any ham grow doubly green with envy; he recently managed to work a YI6 on this band which is really sumpin!—perhaps that 80' high antennae has something to do with it. KQ is planning a couple of 813's grid modulated. KE is making a national reputation for himself with those fine doughnuts he manufactures—the aroma brings them in for miles around. KQ heard a Latvia (YL) station on 80 c.w. in early January. DU has his radio shack one and a half miles away from his house—he apparently is not taking any chances on being bothered with QFN. QS and TN are kept busy these days in conducting lectures on elementary electrical and radio theory to the newcomers in the Lakeburn Radio Club. QT on RCAF net on 80 shows steady increase of traffic and provides sure outlet to the West—also working Europeans on 80 c.w. consistently. RE is busy working on a Meissner receiver and in rebuilding his transmitter. QS, QTH Winnipeg for next six weeks on special assignment for TCA, has steady and daily stream of ten meter dx QSL's. PA is once again active on 20 and 80 and figures a pre-selector is the next "must". BF looks worried when recall orders on local receivers is rumored. IU manages to keep active on 80 c.w. AQ home for Xmas gets on 40 and burns the 5 a.m. oil snagging Europe. LO and II stick close to six meters with QI. 3AHA received the o.k. to operate portable one—no rig as yet, but soon. GA daily checks all bills of lading for one HT-9 Hallcrafters Transmitter—Jan. 15th? VF has left Moncton and has applied for VO6 call at Goose Bay—good dx, Graham. The Moncton Amateur Radio Club is active once again with Gorley Brown. EV, as President—good luck, boys, and it is nice to see the club on the "go" again. CX still worries about his line voltage. FG active once more after quite a serious illness and look fellows what he comes back with—V.F.O. DZ is planning separate finals for 10 and 75 and recently lost those 808's he has been coaxing along all these years. GW has an 813 now in his final, but still swears by the triodes. IS arrived back in Sackville from VE3 land to spend the winter in the Maritimes. LH's junior operator recently acquired a Hallcrafters Sky Champion—now the RME vs Hallcrafters feud has become a family matter. TP now boasts a new Millen V.F.O. KJ received a Meccano set for Xmas and you fellows should see the wonderful things Wimpy has mastered with it—truly amazing. ES received his new S-40 receiver. 73, Ron. Traffic: KS-6.

VE 2

C. W. Skarstedt, VE2DR, Montreal—SU suggests a "VE2 Get Acquainted Party". The idea is splendid, provided a) remotely located ops can be notified, and b) a sufficiently large number of the lads show enough interest to turn on the switch.—x-JK and CO (at Ottawa) visited Mtl over the holidays.—XR sends nice rpt. He's on 7134 looking for old VE3 pals. His old call was 3LR. He hooked SD (near Hull), x-3LF.—DL finally returned from western trip. Now looking for receiver. (How about all this surplus stuff floating around).—VL rebuilding.—GE has grand ideas about beams for his new Lake Shore mansion.—DR will be located less than 500 feet away; HUH.—UJ at St. Laurent has nice sig on 20.—Surprising EX's recording outfit didn't conk out recording those rusty tonsils after New Year's.—LV dah-dit-daaahing to Betty at SA. What goes on awayway.—AX skeds x-CX, now 7TD.—Strangely enough 80 fone men who point their eyebrows towards Heaven when any of the CW boys stray into their sacred domain seem to forget that a reverse condition exists on 10 where the CW men are being unmercifully and deliberately (?) outskewed. Think it over.—QS, our musical brasspounder, plays second fiddle to none when it comes to DX nabbing.—TO is remotely located; Anticosti Island. Take his tfe if

you hear him around 3610.—Did we hear DA back at last; in case you don't know, she's a charming YL.—Our other ditto YL, HI is on regularly around 3535.—LC changed his call to QLC during the holidays.—It's hinted that there is far too much cross-town work when the DX is coming in, especially on 10.—KS knocking the DX for a loop on 10, and PD continues irritating his competitors by snatching the tough ones.—II now works skeds every 3 min., probably using an aircooled bug. Also on fone.—RD, WH, PK, IE, BR, etc. active on 10 fone.—Who was it HV told laying off sending Chinese and who examined HV's left foot after their first QSO??—Would appreciate news from Quebec City.—OG was caught in the Cartierville flood; tuff luck, O.M.—CX grabbed his first DX contact on 20. (What no cigars?).—Speaking of cigars, UR will be handing them around. Big bouncing boy.—KM beat him by 3 months but it was a gal.—BB helps with tfe.—UL sticks to 80.—LY looking for local 6 m. addicts. That reminds us that W1CUN at Newport, Vt., is anxious to listen for VE2's on the hi hi freeks. Drop him a line.—MU is bored (who isn't?).—JJ snared the last State for WAS; nice going.—FT is not very active but not for lack of anti-freeze.—HS pushing out nice fone sig on 80 and 10.—DO and JO like 20 CW.—DX file indicates LQ and DF have eased off but GA at Wrightville is going strong.—HF's beam still up but BN (Canada's oldest ham??) had misfortune losing his in gale; and he climbed the icy roof to get back on; next time give us a call Pop.—Finally, DR at recent executive meeting claimed having worked a Flaplander for a new country. Better ask the other participants, hi. Traffic: DR 133.

VE 3

R. C. Hunt, VE3WX, London, Ont.—KE ran up some 76,000 points in SS Contest. BCO gets cold water treatment from XYL. QB visits Ottawa and handles traffic (no report) on Ontario phone net. AJR gets new R1155 receiver—Reports "A" Plight AFARS going strong. BC using Meissner signal shifter. AVA in market for new receiver. HP skeds BCS, BME, GN, has new xtal calibrator so look to Art for frequency checks. Leads province in Traffic. UM interested in AFARS. TM finally gets rig rebuilt and tries to use it for QRR when Leamington wires down due to sleet. Has some difficulties. Ask Bob about them. JJ Westside Radio Club ran up score in SS contest. AIB and UT converting R1155 receivers. ASX visits Montreal. APN has pulley trouble. ATR keeps SF and WX busy with traffic. SF works into Michigan net and skeds WX. APS joins traffic network and skeds WX. ACL tries hard at CW to see if he still has the old touch. P.S., he has. JU still struggling with 80 meter sky wire. HI has new beam mounted on step ladder. Traffic: ASX-5, AVA 22, AZA 14, BCC 4, BC 85, WA 2, CP 42, AEP 8, AIV 6, AKR 10, QW 1, FP 6, LV 3, APM 14, GV 12, APS 7, SF 118, ATR 87, WX 142, AL 13, EF 3, GN 39, GW 12, HP 216, QK 3, AJR 37, AEM 13, ALK 5.

VE 5

Bill Gordon, VE5MW, Oxbow, Sask.—Here is one for books. It all started when 5GA called CQ and was answered by 4IF. Out of this innocent little rag chew, one of the biggest and best round tables (all Canadian, by the way), ever heard occurred. The round table went from about 11:00 p.m., Dec. 14, to 4:00 a.m., Dec. 15, with the following stations taking part in order of their appearance: 5GA, 4IF, 5LM, 3DGT, 3VU, 3AGS, 4AU, 6LA, 7IM, 7AAZ, 3BK1, 3AHP, 2AI, 7GN, 1KP, 8AO, 8AK, 7PO, 7IN, 7OT, and 5CM. With all districts represented we feel sure that the gang who took part in this 75 meter parley can feel proud of themselves. Can anyone break this record? We wonder. 5KJ is first DRS appointment. 5GX is on 80 CW running 400 watts to a pair of T55's. 5CM has got his ten meter rig going now. 5AP has dared to venture onto the air once or twice since getting married. 5BC and 5GU at Mazenod are both on 75 fone. 5HI is on ten. 5RD is waiting on a new War Assets receiver. New voice heard on 75 over the Xmas holidays was 5RB's sister, Ethel from Qu'Appelle. Out of the myriad of squeaks, squawks, grunts and groans on 40 emerges 5GW at Colonsay, 5MC at Rosetown, 5IM

at Regina, 5HJ at Shellbrook, and 5MW at Oxbow. Come on gang, what about applying for appointments in Saskatchewan gang? And please, please, please send us in some news. 73 AR.

VE 6

W. R. Savage, VE6EO, Lethbridge, Alta.—WZ installs a 1500 watt 115 volt Automatic Koler Plant. PZ is building a battery operated superhet receiver. DY is on CW. QP gets on the air now and then. ZI has his xyl make candy while he qso's. OA is running 100 watts on 75 fone now. OD is very active on fone with a V.F.O. DR always runs away for coffee when in a qso. RH is going to build a V.F.O. BC is really putting out a fone sig on 20 meters. MP is doing fb on 75 and 10 meter fone. HZ puts his rotary beam in the attic. ex-4IN visits Strathmore for Xmas. MO is working on 31 meters and doing fb. NU is now working in Lethbridge. QE is doing nice work on 75 fone. EL sells his 10 meter transmitter. ML is on 80 meter CW. DO is another new ham in Glenwood. SR work a CW fine biz Stan. LC grinds his xtal with tooth paste. SL has pawned off all his xtals and is V.F.O. SV is very busy building up a transmitter since Santa Claus brought some parts. OT has a 450 Ampour 32 volt bank of batteries for power. AL is heard on 75 fone with a new transmitter (HT9). MJ sprains his ankle so is qrt from work. ex-4AJJ is building a 6-tube superhet and saw tooth oscilloscopes. Well what do you know, fellows, we heard from chief Eskimo 6LQ, thanks a lot Bill, do it again soon. He reports the N.A.R.C. have accepted the army's offer of a clubhouse. AT3 transmitter and trimmings, nice going. WS has new motor to turn his 4 element 10 meter beam. EY haunts 10 just as the band is passing out for the night. HM has 3TG's in final running about 100 watts. PP has a new HT-9 transmitter, fb Pere. KK is transferred from Edmonton to Winnipeg. EF manages to get down on 20 meters. EA has been pounding brass to bring up his CW speed. GA has trouble getting airport on 10 meters. JP built a V.F.O. but has trouble with drifting. BW is using rig with pre-tuned tank circuits in the exciter, says it simplifies this rig greatly. IR plugs away at CW up on 80 meters. AT has fb CW signal on 80 and gets out ok on low power. NR is on 20 meter fone, but is on CW good part of time. PE has started to build his rig at last. LQ is disgusted with all V.F.O.'s running up and down his band. (Aren't we all?). EV works a pair of KH6 stations. IP is cleaning spiders out of his receiver. OF goes east for a couple of months. OG well where is he? No hear! No see! No worky! Well thanks for all the dope fellows, keep it coming along. 73 for now.

VE 7

D. E. McLennan, VE7JY, Vancouver, B.C.—ADL is working some dx on 75 meter phone with his 25 watts despite the fact that he does not get on the air very often, except for the 5 o'clock net. Percy has another mouth to feed now, too, the stork having visited their happy home with a bouncing baby girl. DV has just procured a new S-40 and after giving it a very severe test, finds that it performs as good, if not better, than the average set costing twice as much. Ray manages to get on the air once in a while between keeping CKPG operating, and building the odd rig for the boys in the P.G. district. FG is heard on all bands, operating mostly CW but once in a while he is o fone. Seems to be getting out F.B. ADH warms up the rig now and again. Being president of the newly-formed club in PG., operating an electrical business, and being secretary of the Youth Council takes quite a lot of his time. AEV and AAU are heard on the air quite regularly. Several new chaps have moved into the Prince George district, but we haven't heard them on the air as yet. DV found a new way of sobering up—but fast! Called out to service a juke box one night DV, who had been indulging, more often than wisely, got a finger caught in the "works". Only the blowing of the motor fuse prevented a broken digit. Says it has a wonderful sobering effect though! Hi!

VE 8

Jack Spall, VE8AS, Whitehorse, Y.T.—SAK getting out with 60 watts and 2 element beam semi-vertical on 20 meters fone added G SM on VO ZS to fone DX and TF ZB ZS on 20 CW. But still looking for South America for phone WAC. . . . 8BH another newcomer to Whitehorse using 3 807's in parallel 100 watts input on 40 and 20 and HQ129x rcvr. . . . 8BL also new call in Whitehorse area hopes to be on 40 CW soon. . . . 8AN put up new skywire but still busy fixing up shack but gets on 40 during the evenings. . . . 8AG has a very proud look these days since HQ129x and PAC2 arrived. Alex uses

2 separate transmitters both using PP 807. Uses one rig on ten and the other on 80, 40 and 20, looking for Montreal and Hamilton contacts, operates on 23460 during week-ends. . . . 8AJ has bi-weekly skeds with his father VE6HQ Calgary. Bill using 60 watts and worked G ZS OX on 20 fone. . . . 8AY rebuilding to push pull 813. . . . 8AS waiting for HQ129x to arrive. Best DX was XZ2DN in Burma on ten fone. Also worked KH6, KA, J9, J2, KG and SM on 20 fone. . . . 8MV heard during his 82nd QSO with W6EGR. . . . 8NM pokes in consistent sig on 20. . . . 8ML is at RCCS station at Ft. Simpson. . . . 8AO passing TFC to Alaska via KL7 net. . . . 8BC at Bear Creek ON3840 looking for VE6. . . . 8AW getting ready to put push-pull 805 on CW. . . . The Teslin gang are very quiet these days. NIL heard from 8AL and 8AL. . . . Traffic: AK 2, AJ 9, AG 9, AS 12.

SCALLIONS!

IN SOUTHERN ONTARIO, Nature's New Year celebration was a sleet and wind storm of unusual severity. Power failures were common, and perhaps what was more serious, many communities were without telephone service for weeks. It was a made-to-order situation for ham radio, and in Leamington VE3TM determined to establish a circuit for non-commercial messages to and from Windsor, 30 miles distant. A CW man (and a good one), he was unable to contact any CW stations in Windsor, and therefore enlisted the help of a phone station in London who put a Windsor phone station on the alert. The latter, it turned out, was unable to copy CW and passed the job to a colleague, but he too was allergic to code. 3TM was finally getting through to a third phone station (at a very slow speed) when Phone No. 1 opened up with a rag-chew on Phone No. 3's frequency and effectively washed up the whole business. At this TM, quite understandably, threw up his hands and pulled the switch in disgust, and what might have been another achievement for amateur radio ended in a flop. Which raises the old question—should phone operators be compelled to familiarize themselves with CW? VE3TM says yes, and goes so far as to say that all phone stations should be given a code exam every six months, with suspension of license as the penalty for failure to pass. Whether this is the solution we aren't prepared to say, but despite the prejudiced statements of its opponents, CW is a vital part of Amateur Radio, and will be for a long time to come. While compulsory apprenticeship with CW might not impart any technical knowledge which isn't also available from experience with phone, it does serve to acquaint newcomers with a technique that could serve them in very good stead in time of local or national emergency. Our record of public service is one of chief claims to official recognition, and there is no doubt that we should always be prepared to act when needed. At other times we can put our hobby to any other uses we choose, but remember how we earned that right. That's food for thought recommended to all phone operators who can't recognize at least their own call on CW.—I.N.

VHF IN CANADA

Conducted by GORDON COLEMAN, VE3ANY

● Gord Coleman, VE3ANY, is one of Canada's busiest VHF gentry. His knowledge of radio in the upper reaches of the frequency spectrum should be of great interest to exponents of the coming VHF fun. He is one of Massey-Harris' prominent metallurgists when not building new 16 element beams.

WE were perturbed no end by reports from our U.S. fellow-hams that VE signals heard on the V.H.F. bands during temperature inversion and E layer skin have been for the most part wholly unintelligible. This has been hard to swallow, since we know of plenty of good VE-W contacts made during skip openings with 100% readability. Recent correspondence with some of the W's showed us that out of the many contacts they made, there were plenty more they had heard, but only well enough to get the "VE" part of our call letters.

Until recently we had been using the "swish box" super-regenerative receiver, but the old improvement bug sort of took hold and we built a superhet converter, complete with R.F. stage and all the trimmings (all except broad-band I.F.'s, that is). We spent a deal of cash and a good deal more time on it and came up with a fairly good job, lined her all up, plunked on the old 6-meter antenna and sat back ready to rope in those weak stations that we had been giving S2 on the swish box. Boy, what a surprise we got! Out of 25 or so carriers heard, only about 6 could be read R5. The rest, while they had good strong S7 to S9 carriers, just disappeared into a "mush" as soon as they started to modulate.

Now, fellows, we like the superhet and swear we are not going to go back to the old "swish-box" except in an emergency. There are plenty more fellows on 6 and 2 who are using superhets, and plenty more who are in the process of building one. There's no doubt about it, they do bring the sigs right up out of the mud. Maybe you have been wondering why your 10 watts wasn't getting out 30 miles or so, when you could hear the chap on the other end with the same power. The answer must be pretty obvious to those of you who are using modulated oscillators! Maybe he was trying to read you on a superhet, his pride and joy. It is a

well-known fact that it is not necessary to run high power to have good distance contacts on the "very highs", but, take it from us, a stable signal, free from "wobulation", is a practical necessity nowadays. Not only is it so from a dx standpoint, but also in order to work that chap three miles away who may have a superhet receiver.

The Canadian government does not insist on stable signals on V.H.F. bands, but the U.S. government does, and legislation to that effect has outlawed modulated oscillators on 50-54 megacycles.

In order to put out a good steady signal, free from frequency shifting, certain measures may be adopted. Firstly, the power supply must be stable and have good regulation. Recently VR105 and VR150 regulator tubes have appeared at War Assets prices that few could not afford. The best cure for "wobulation" however is to use a multi-stage rig, even if it is only an M.O.P.A. We can't all afford to run xtal-control, nor can we all spare the power necessary for a real multi-stage rig. If the power supply on hand is small, and the beginner cannot put on more than, say, 10 watts, much better results will be had by reducing power and splitting it up between an oscillator plus a power amplifier.

For 6-meter work, typical combinations are as follows:—9002 osc. E1148 amp.—E1148 osc. P.P. E1148's amp.—6V6 osc. 6A6 amplifier—6F6 osc. 6L6 amplifier. The combinations are endless and a good dig into the junk box is sure to reveal a tube to suit the individual tastes. For 2 meters, if you must modulate an oscillator, one easy method of obtaining reasonable freedom from carrier shift is to use a linear tank circuit or the so called "long lines" oscillator. Due to the space occupied by the ¼-wave lines, this type of oscillator is not very practical for 6 meters, although the results obtained will be very gratifying.

So, fellows, let's start a campaign right now to stabilize our V.H.F. signals so that when the dx starts rolling through, as it may any night, we will be in a better position to work it with good reports. Besides, many beginners starting on V.H.F. with unstable sigs may get disheartened by the lack of QSO's when the fault lies not in signal strength but in stability. Who knows, also, when the Canadian government may follow the lead of the U.S. lawmakers in the matter of legislation along these lines. Let's beat the gun!



Rag-chews with XTAL readers

QSO Nr. 8 OF A SERIES

PIGTAILS

Pigtails are not really new; they have been standard equipment on pigs and optional on little girls for generations. These are the coiled type securely fastened at one end only. The same type, but made of metal and with both ends rigidly attached, has been used for years on variable condensers, switches, wire wound rheostats, etc. The purpose in electrical apparatus is to carry current to the moving part through a positive connection rather than through a lubricated bearing or sliding contact. The importance of the pigtail connection is apparent where currents of any magnitude are involved because any heating or arcing will soon ruin a bearing surface and cause it to freeze.

Until recently, however, the pigtail or spiral spring type connector had not been used in carbon type volume controls because the currents are negligible and no one had recognized the sliding, metal-to-metal contact between the "center terminal" of a control and the rotor arm as a major source of noise.

A study of field reports covering all types and makes of volume controls shows that from 50 to 75 per cent of the total complaints are due to noise developing at this one point. Some manufacturers lubricate these contact surfaces, others don't; some silver plate, others gold plate them, still others try Monel metal or stainless steel without any plating.

If the lubricant is left out, there is mechanical wear which soon develops noise. If used, it is prone to gum up and harden, unless there is just the right quality and amount. Besides this, any particle of dust or grit is caught on greasy contact surfaces and eventually works in between them.

We have tried all the various metals which might be suitable here—brasses and bronzes, nickel silver, stainless steel, Monel, Beryllium, copper, etc. Provided freedom from corrosion, we find one about as good (or as poor) as another. A carbon-against-metal contact is fair, but the contact resistance changes too much. Isn't the answer obvious? Get rid of that sliding contact!

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RESCUE—from page 12

the three men he had sighted, he quickly organized another rescue party, had fires built along the shore, and in the cold, bleak, stormy night set out with a larger boat on skis and a snowplow to follow the drifting ice flow with its cargo of human lives, building fires along the shore line to guide the coming airplanes. Down some 20 miles along the snowbound Gaspé Peninsula in the early dawn of Christmas Day, the three men were sighted, and with the planes in aid they were finally rescued after some hazardous and perilous work of 2RO's crew. And now 2RO, with the rescued men and his crew, had to return to Petits Mechins, and still had another 20 miles to go to reach home and his fireside and gallant XYL, and see that the rescued men were safely in hospital another 15 miles away.

To those of us safely sitting in our cosy shacks, in warmth and in comfort, our senses on the alert, our minds fully occupied, none of us, I am sure, could help think of the brave captain out there in the cold and bleak country of the Gulf of St. Lawrence, in a spirit of sacrifice, sparing nothing to save those poor unfortunate men on such a day as Christmas, 1946. All of us amateurs join together in offering 2RO and his gallant XYL our sincere congratulations in his fine work—all amateurs, VE and W.

And thus came to pass such a momentous Christmas Day. All of those who participated were glad to have done his bit. To the VE1's, and VE3's who kept the band clear during those momentous hours go the thanks of the VE2's for their cooperation, not forgetting VE3QB, who did such fine work in his effort to keep the channels clear.

DEAR OM—from page 19

to VE7ZF and VE7LC when skip was on.

And I wish to state that the emergency was all cleared up, and the party concerned has recovered and is at home now.

This was real ham spirit and co-operation.

A. W. ACKERMAN, VE7LC.

OF, BY, AND FOR

102 Westmorland Street,
East Saint John, N.B.
January 14th, 1946.

Editor, XTAL:

Enclosed find my renewal for XTAL . . . I thought you were starting out well in your new set-up and liked the technical subjects very much, and then you suddenly slumped again and now I am afraid it is going to be a repetition of the old XTAL 1939 vintage, which I dropped when its technical articles became practically nil . . . But that is the way apparently of all Canadian mags and papers. Is it any wonder the American mags, trade journals, etc., can get the business from Canadian publishers. Apparently the Canadians do not want to give us the quality we want, and then they squawk about the non-support we give them . . . The December issue was lousy . . . This will be my last subscription unless there are some changes made.

W. G. ANDREWS, VE1LI.

• Member Andrews has missed a point that we have been trying to make for some time, namely, that CAROA is not a commercial publisher and is not in the business for profit. It is an Association of Canadian hams, and XTAL

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Jan. 24: Frequency-Measuring Test

Jan. 25-26: CD QSO Party

Feb. 4: Frequency-Measuring Test

Feb. 13: CP Qualifying Run

Feb. 14-17: DX Competition (c.w.)

Feb. 21-24: DX Competition ('phone)

Mar. 5: Frequency-Measuring Test

Mar. 7: Frequency-Measuring Test

Mar. 14-17: DX Competition (c.w.)

Mar. 17: CP Qualifying Run

Mar. 21-24: DX Competition ('phone)

Apr. 4, 5, 6: W/VE Contest

Apr. 18: CP Qualifying Run

Apr. 26-27: CD QSO Party

Jan. 16-Dec. 15: '47 VHF Marathon

Jan. 1-Dec. 31: Most-States VHF
Contest

will only be what they make it. CAROA started from absolute scratch, and until the hoped-for day when we have funds to burn, members should not look to Headquarters for a Canadian equivalent of QST. We can, however, make progress if VELLI and everybody else will pitch in and contribute the material we need, and while it means a lot of work, after all it's your Association and your responsibility. Frankly, we're somewhat disappointed too—we think at times that Canadian hams never build or create anything, but just copy from our neighbours to the south. That can't be entirely true, so how about it, OMs, don't leave it to the other fellow—let's have some action.

APPRECIATION

m/v "Empire Fancy"

At Sea, 25th December, 1946.

Bound England from Vancouver, B.C.

Dear Sir:

I would appreciate if you would convey my sincere thanks and best wishes through the medium of your publication "XTAL" to: VE7EL, 7MQ, 7TQ, 7TE, 7YO, 7NM, and all the other VE7's which I had the pleasure of speaking to on ten meter phone during my short stay at Vancouver, B.C.

If acceptable, I would be only too pleased to become a member of the CAROA, and perhaps be of some assistance in supplying regular "ham" news from Scotland. I herewith enclose completed application form plus one dollar Canadian, on the off chance that a Scottish amateur is eligible for membership. Trusting to hear from you.

Yours sincerely,

E. W. STEWART,

Sen. Radio Officer (GM3HX).

Address all correspondence:

E. W. Stewart, Radio GM3HX,

4 Craiglockhart Place,

Edinburgh 11, Scotland.

AFARS—from page 11

can see no justification for making any distinction between an amateur club in Toronto or Edmonton, as against one in R.C.A.F. Stations at Clinton or Winnipeg. The sole criterion is whether the Department of Transport issues the license, and as to whether the station is subsequently operated within the terms of that license.

The system is now in regular daily operation throughout Canada. Regular drill nights are carried out as in original brochure and also a nightly Trans-Canada traffic net is now on the air from coast to coast on 3625 kc. This Trans-Canada Trunk will accept ordinary amateur traffic and get it through. Phone nets are also under way. But we still need and want many more members, and in particular in the prairies and in those sections of Ontario's northern areas where amateurs are few and far between. The country needs the amateur,—but the amateur also needs all the friendliness and help he can get. We cannot continue to exist on past performances, and a continuing display of patriotism and service to one's country is a sure way to convincing the government and the country that amateurs are an asset which should be preserved and encouraged.

For those who are interested in becoming members of this interesting and beneficial body, below is set out the present section controllers of the various parts of Canada with their addresses. They will be delighted to hear from you and to give you all help and encouragement to join.

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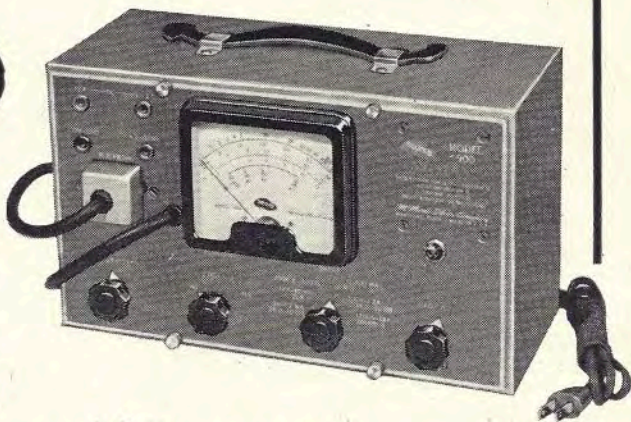
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