

QST CANADA

Devoted entirely to Canadian Amateur Radio
Entièrement consacré à la radio amateur canadienne


*Yagi
Spacing*

*Trans-Provincial
Net*

*RABC
Meeting*

\$2.50
February
février
1991



 Canada Post
Postes Canada
Troisième classe
10596

QST Canada (ISSN 0840-1670) is published monthly by CRRL Publishing, Inc., to provide radio amateurs, others interested in radio communications and electronics, and the general public with information related to the science of Amateur Radio communications.

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Subscription rates: CRRL membership with QST Canada: \$12 + \$15 = \$27 per year. CRRL membership with QST and QST Canada: \$12 + \$15 + \$31 = \$58 per year. Two- and three-year subscriptions available at multiples of the yearly rates. Add 7% GST to portion for magazine only. Copyright © 1991 by CRRL Publishing, Inc.

ABOUT THE COVER



Yuri Dzyuba, VE2XLT (ex-UB5LT), recently immigrated from the Soviet Union and hopes to make Canada his home. His letter appears on page 2 of this QST Canada. ■

It Seems to Us.../Il nous semble...

The Lithuanian Operation

On the weekend of January 12-13, the world saw two political crises develop simultaneously: the threat of war in the Persian Gulf and the Soviet military operation in Lithuania. Whether or not it was a good idea, Amateur Radio was certainly involved in communications with Lithuania during its time of trouble.

I will not comment on the wisdom of communications with one side or another in what was technically the internal matter of a foreign country. However, I do wish to point out something that struck me quite forcefully during the weekend I monitored the Lithuanian operation on 20- and 40-metre SSB.

This was pure communications under difficult conditions, over long distances at a moment's notice, and it was handled swiftly, efficiently and with great courtesy by all amateurs concerned. Unlike in previous political or civil emergencies, in which operations were interfered with or completely jammed, this operation suffered a minimum of disturbance. There were countless instances of stations wandering onto the frequencies that were being used, only to be told they were interfering with emergency traffic. But I did not hear one case of argument or intransigence. Incoming stations simply moved away or stayed to monitor.

Some did become involved. They offered assistance in keeping the frequencies clear, something especially helpful to the operators, many of whom had only marginal facility in the various languages that were being used.

Similarly, I was impressed with the manner in which the operation was carried out by the amateurs who actually handled the traffic. These amateurs were well-mannered and cool-headed. Their transmissions were brief and to the point. Numerous instances of words missed due to poor receiving conditions were expertly covered by an *ad hoc* worldwide relay system. All were courteous to others as they came and went. They were ready to briefly explain their activities. I did not hear one case of curtness or rudeness throughout many hours of monitoring.

One of the benefits of Amateur Radio that is often cited as justification for its continued existence is the development of a pool of operators and equipment that in an emergency can come on board quickly and provide efficient service. No matter what we think of the political situation in Lithuania, the amateurs involved, mainly US, Canadian and a few Europeans, showed that this justification is no idle boast. In the Lithuanian operation, the amateurs who

were involved deserve nothing but praise for their competence, and spirit of cooperation and goodwill. —William Skidmore, VE3AUI

BANNED COUNTRIES

You haven't seen a banned countries list in QST Canada (or QST either, for that matter) for many years. There's a good reason for this. The lists are usually out of date or just plain wrong.

It's not DOC's fault, or even ITU's. From time to time, ITU asks each communications administration: Do you permit amateur communications with other countries? Unfortunately, in some countries, the meaning of that question has gotten lost in a translation. We have heard of one case where a civil servant thought the question was about third-party traffic. He answered "no". In other cases, the question sits around for a year before it is answered and returned to Geneva—if it is ever returned. Then there are delays as ITU relays the information to each communications administration, and more delays before each administration finally publishes the list. No wonder that in the past, the banned countries list published by DOC was often at variance with the list published in the US by the FCC. The result was confusion.

A few years ago we advanced a position that we still think is valid. Don't get too worried about the banned countries list. If you hear a station, just call it. If the station is not authorized to communicate with you, that station will ignore you. When we discussed this position with DOC, they would not officially endorse it, but they would not condemn it either. We think that if you handle a potential banned country in this way, you'll be safe—at least in normal times.

But these are not normal times. As we sit at our word processor, we are less than thirty hours from a potential war in the Middle East. Saudi Arabia and Iraq are on the DOC's last banned countries list. There may be other countries in that part of the world that do not want their nationals communicating by Amateur Radio. Their wishes, for one reason or another, may never have made it to the latest official ITU list.

We need to remember that communications with amateurs in those countries, no matter how well meaning, could precipitate an incident that might reflect badly on Canada and Canadian Amateur Radio. During these difficult times, we need to choose our contacts with care. —Harry MacLean, VE3GRO ■

All letters are considered carefully. Letters are edited and may be condensed in order to have more information and readers' views presented. The publishers of *QST Canada* assume no responsibility for statements made by correspondents.

THANKS, CANADA

I am writing to express my appreciation to my new friends in Canada: Fred, VE2SEI, who sponsored my immigration from the USSR and continues to help me in every possible way, Joe, VE2UNX, for the generous donation of a Kenwood TS-900 transceiver, and Jean, VE2OC for helping with antenna projects. During my one-year stay in Montreal, I've managed to make over 1000 QSOs with more than 100 countries, mainly on CW. I have become a member of the Ten-Ten International Net (No. 23455) and been involved in FM activity of 2 metres. Most of all, I enjoy the

personal meetings at the Montreal Amateur Radio Club where I can see the people I could only hear from across the ocean before.

Now that I've finished a seven-month course in French, and have worked as a salesman at Hobbytronics, I've enrolled in a college-level course in electronics and communications to improve my chances for a better job afterwards. For the time being, my new friends and Amateur Radio are helping me overcome the stressful situation that one can find himself in, in a strange and distant land. 73! —Yuri Dzyuba, VE2XLT (ex-UB5LT), Montreal, PQ

OQND

Our traffic net, OQND, seems to have caught the recession blues during 1990: check-ins and traffic were down somewhat. Perhaps with the new regulations and increases in postage rates due to the GST, we will see an upsurge in 1991.

Traffic handling is a fascinating and satisfying facet of Amateur Radio. OQND is the ideal net for beginners to check into and get acquainted. It meets daily at 2100 UTC on 7.040 MHz +/- CW.

Our regular check-ins are a friendly, understanding bunch, eager and always ready to help a newcomer. So if you can squeeze in another activity, listen for a couple of sessions, and then jump in and join the fun. I look forward to meeting you. —Ron Martin, VE3ORN, Manager OQND, Willowdale, ON

DIAGRAMS

On a number of occasions I have been appalled by the poor quality of drawings and circuit diagrams in *QST Canada*. I know we can argue that what counts is the information and not the artistic quality of the drawings. However, presentation is important, and if drawings and diagrams are not up to accepted standards, even the best project will not attract much interest. —Mario Gasparovic, VE3HVY, Scarborough, ON

We share Mario's concern. *QST Canada* is produced on a Macintosh computer using QuarkXPress 3.0. We have done a few drawings in Adobe Illustrator, and a few schematic diagrams in Canvas 2.1 using a symbols library. However, doing schematics this way is a lot of work, and there are often differences between the Laserwriter proofs and the final version that comes off the L300. What we need is 1) the name of a Macintosh program especially designed for schematics, and 2) someone who has a Mac and the time and skill to do the work. What say? —VE3GRO ■

The Canadian Radio Relay League, Inc La Ligue Canadienne de la Radio Amateur, Inc



The Canadian Radio Relay League (CRRL) is a noncommercial association of radio amateurs organized for the promotion of Amateur Radio communications and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and the public welfare, for the representation of radio amateurs in legislative and other matters, and for the maintenance of fraternalism and a high standard of conduct.

CRRL is incorporated under the Canada Corporations Act. Its affairs are governed by a seven-member Board of Directors elected every two years by the CRRL general membership. CRRL is noncommercial, and no one who could gain financially by the shaping of its affairs is eligible for membership on its Board.

CRRL is the Canadian member-society of the International Amateur Radio Union (IARU). "Of, by and for the Canadian Radio Amateur", CRRL numbers within its ranks the vast majority of active amateurs in the nation and has a proud history of achievement in amateur affairs.

A bona fide interest in Amateur Radio is the only essential requirement for membership. An Amateur Radio licence is not required, although full voting membership is granted only to licensed amateurs in Canada.

Membership inquiries and general correspondence should be directed to CRRL Headquarters, Box 7009, Station E, London, ON N5Y 4J9 (519) 660-1200.

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Calendar



Attention: Deadline for items is the 20th of the second month preceding month of publication. For example, information should reach *QST Canada* by January 20 to be included in a March issue.

St Catharines, ON: 13th Annual Big Event, 1991 February 2, at the CAW Hall, 124 Bunting Rd. Sponsored by Niagara Peninsula Amateur Radio Club (NPARC). Hamfest in the morning: Admission \$3, commercial tables \$12, non-commercial tables \$5. Dinner-dance in the evening: tickets must be ordered in advance. Talk-in on VE3NRS, 147.24 MHz (+). For more information, Contact NPARC, Box 692, St Catharines, ON L2R 6Y3, Tel (416) 562-4891. ■

Optimal Spacing for Yagi Arrays

A second antenna will double your gain—but how far apart should it be spaced from the first? Here's the solution.

By John White, VE7AAL
344 Oxford Drive
Port Moody, BC V3H 1T2

A few years ago, I set up an OSCAR satellite station. This required the installation of a 2-metre and a 70-centimetre antenna. The Cushcraft AOP-1 Satellite Package which consisted of one 144-20T and one 416TB crossed element yagi was used to meet the circular polarization requirement. This arrangement worked well, but as might be expected, a case of antenna-itis developed in the quest for improved performance. It was decided that the most effective approach would be to double-up the antennas, that is, to add a second 2-metre and 70-centimetre yagi. Theoretically, this would yield a 3 dB improvement on both the satellite uplink and downlink.

The Problem

Questions arose regarding the physical arrangement of the new array. How far apart did the antennas need to be, or conversely, how close could they be placed?

Some research showed that there is no predetermined "optimal spacing" between pairs of antennas. In fact, optimal spacing turned out to be dependent on the gain of the individual antennas being combined into the array. If the antennas are spaced too close together, less than 3 dB of gain will be realized. This reduces the effectiveness of the array. If the antennas are spaced too far apart, the mechanical structure may become unnecessarily large. Therefore, optimal spacing turns out to be the minimum distance that achieves the highest gain—3 dB—with the minimum distance between the individual antennas.

Idealized Gain

Antenna gain may be visualized in terms of radiation pattern. Gain is the redirection of radiated energy in a desired direction. This may be achieved through the implementation of the antenna elements. As such, the radiation pattern for an antenna with gain, when drawn on a polar plot, would reveal that energy is concentrated in a beam, and that a beamwidth can be ascribed to the "main lobe". The width of this beam can be defined by the half-power points (-3 dB) on either side of the point of maximum radiation. Notice that the higher the gain of the antenna, the narrower the beamwidth. In this idealized

case, the lobe is symmetrical around the direction of peak intensity, that is, the vertical and horizontal radiation patterns are the same.

Real Gain

The real gain of an antenna is always compromised by implementation, and so the actual gain is always less than theoretical gain. Creation of side lobes is a major contributor, as it effectively robs the main lobe of energy and redistributes the energy in unwanted directions—usually off the back and sides of the antenna.

Real antennas rarely have the same radiation pattern in both the vertical and horizontal planes. For a yagi, the beamwidth in the plane of the elements will be broader than the beamwidth at right angles to the elements. For a yagi with elements parallel to the horizon, that is, horizontally polarized, the horizontal beamwidth will be wider than the vertical beamwidth. This has nothing to do with the effect of ground on the vertical radiation pattern. In this discussion, the antennas are still in relatively free space.

When an array is created, the beam of the plane of the elements will become narrowed by up to a factor of two, provided that the correct spacing is used. The beam in the orthogonal plane (the plane that is 90 degrees to the elements) remains unaffected. This should be considered, as it may determine whether, in your case, the antennas should be stacked vertically or placed side by side.

Aperture

One needs to become acquainted with the concept of antenna aperture. Aperture is used to describe an imaginary area in space associated with the antenna—the space which intercepts incoming radio energy. This electrical aperture is a measure of absorption. Obviously, the larger the area, the higher the gain of the antenna.

Electrical aperture is not equal to the physical area of the antenna. Electrical aperture is always larger than the physical aperture. A parabolic dish, for instance, has a large physical area compared to a wire dipole which has virtually no physical aperture, but which has an electrical aperture of about one-quarter by one-half

wavelength. Note that aperture can be increased by adding more elements to yagis, increasing the length of a wire antenna, increasing the diameter of a dish, and so on. There are classes of antennas, parabolic dish antennas, for example, that are named aperture antennas because they have a physically prominent area. Note also that aperture is not a measurement of beamwidth. In fact, the aperture increases as beamwidth decreases.

Spacing Criteria

At this point in our discussion, it should become apparent that having two widely separated and identical beam antennas pointing in the same direction will result in two apertures intercepting incoming energy. This results in a doubling of received power, providing that the signals are electrically combined in phase. (A similar doubling occurs when transmitting. However, we'll continue this discussion in "receive mode".) Suppose that the two antennas are moved closer together so that their apertures begin to overlap. This will result in a decrease of combined area and hence, reduced power levels. If taken to the limit so that the two antennas become very close spaced, the effective aperture becomes that of only one antenna, and no purpose is served by having two. The best spacing, then, is one where the apertures are "just touching". This minimizes the distance between the individual antennas in the array, minimizes mechanical problems that can occur when the distance is more that it needs to be, and maximizes total aperture and gain.

Example

How are beamwidth, aperture and spacing determined? Fortunately, it is not too difficult with the aid of the graphs in Figures 1 and 2. The gain of the individual antennas which will be used in the array must be known. The antennas used in my OSCAR installation have gains specified by the manufacturer. For example, the 416TB has a published gain of 12.5 dBd, that is, 12.5 dB gain over a dipole.

Refer to Figure 1, "Gain vs Beamwidth". An antenna with 12.5 dBd gain will have a 35 degree (that is ± 17.5 degrees) half-power beamwidth. This

FIGURE 1: GAIN VS BEAMWIDTH

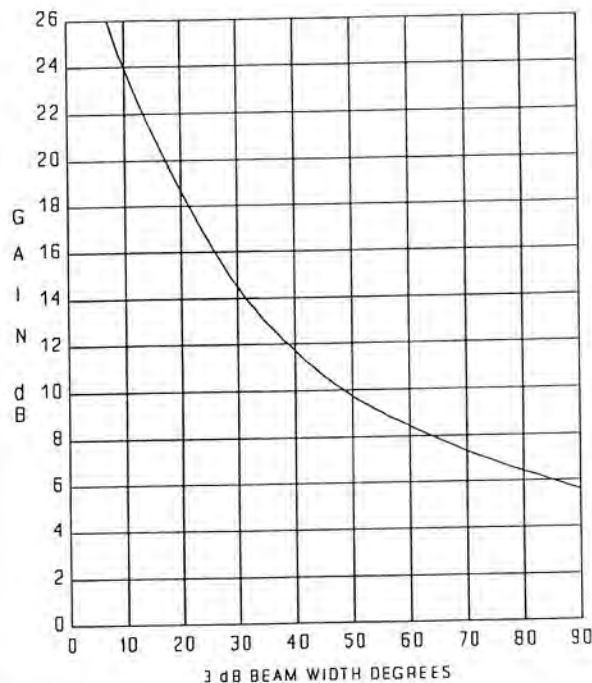
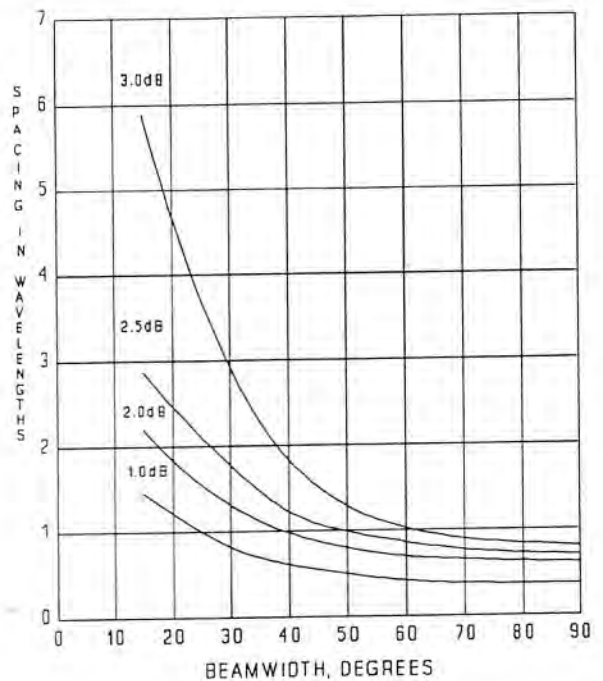


FIGURE 2: BEAMWIDTH VS SPACING



Figures 1 and 2—Use gain to determine beamwidth, and beamwidth to determine optimal spacing. (Graphs by the author)

agrees with the published data that states that the beamwidth of the 416TB is 35 degrees. If both the vertical and horizontal beamwidths are given, calculate the equivalent circular beamwidth by taking the square root of the product of the two beamwidths, and use this for the graphical work. The 416TB yagi happens to be a special case and does not require any mathematics. It is a crossed yagi or "twist" antenna that radiates a circularly polarized wave. The beam developed by this antenna is symmetrical in both the vertical and horizontal planes, because it has elements which are orthogonal to each other.

Refer now to Figure 2, "Beamwidth vs Spacing". Given that the beamwidth is 35

degrees, the optimal spacing between the antennas, the spacing needed to realize the maximum possible gain of 3 dB, is 2.3 wavelengths. Based on these parameters, this array may be expected to have a gain of $12.5 \text{ dBd} + 3 \text{ dB} = 15.5 \text{ dBd}$. Notice that Figure 2 is really a statement about aperture. It is convenient, however, not to have to know the size and shape of the aperture.

Conclusion

By spacing my antennas 2.3 wavelengths apart ($2.3 \times 70 \text{ cm} = 161 \text{ cm}$ or 63.4 inches), I achieved the smallest dimensions that would result in 3 dB gain. Of course, in practice, we never quite realized 3 dB. Combining, matching and cable

losses probably result in an actual gain closer to 2.5 dB. However, 2.3 wavelengths is still the optimal spacing.

The same principals apply when adding additional yagis. However, the law of diminishing returns will set in. Two antennas doubles the gain over one, but four antennas are needed to double the gain over two. To gain yet another 3 dB of gain, eight antennas would be needed, and so on.

Acknowledgments

Special thanks to Bill McGladdert, VE7CFE, for consultations and digging through his old files to find the graphical information. ■

From DOC's RIC-3...

Banned Countries

The following countries have notified the International Telecommunications Union (ITU) that they forbid radio communications with amateur stations under their jurisdiction: Angola, Burma, Ethiopia, Ghana, Iraq, Saudi Arabia, Suriname, Thailand (permitted on request), and Zaire.

Third-Party Traffic

Canada has concluded third-party traffic agreements with the following countries: Antigua and Barbado, Australia, Bolivia, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Israel, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Saint Vincent and the Grenadines (phone patches not allowed), Trinidad and Tobago, United Kingdom of Great Britain and Northern Ireland (special-event stations only), United States, Uruguay, and Venezuela.

The Trans-Provincial Net

The friendly net... 11,436 check-ins in October!

By Allen Boyd, VE3AJB
Box 206
Little Current, ON P0P 1K0

I guess one of my first duties as Public Relations Manager for the Trans-Provincial Net (TPN) is to make the amateur community aware that the net is active and available for everyone to use. The purpose of this article is to bring you up to date on TPN and tell you about the services that TPN offers. The Trans-Provincial Net now operates seven days a week on the 40-metre band. Net frequency is 7.055 MHz LSB. Hours of operation are 0900-1700 EST/EDT, Monday to Friday, and 0900-1600 EST/EDT, Saturday and Sunday. We welcome all check-ins, phone or CW, with or without traffic.

The main theme of the net is friendliness. We want to be known as "the friendly net". When checking in, we want you to say hello, and if time permits, to tell us whatever's on your mind. We want to get away from the quick-QRU type of check-in. Normally there will be time for a ragchew with the controller.

History of the Net

Originally, the Trans-Provincial Net was called ONTARS 40. It was a spinoff of the ONTARS Net that has operated for many years on 80 metres. Bill Hardie, VE3EFX, was responsible for starting ONTARS 40. ONTARS on 80 was very popular, but it was not able to provide Ontario-wide coverage during the day. After 10 in the morning, ONTARS on 3.755 MHz faded out for the majority of amateurs in the province. Bill's intention was to provide an ONTARS service on 40 metres where conditions were better during the day, so amateurs to the north, east and west, outside of the 100-mile radius of Toronto, could use the net.

The new net was not easy to get going. Many amateurs feared ONTARS on 80 metres would disappear. This was not the intention at all. ONTARS 40 was set up as an additional service to run in parallel with ONTARS on 80. After much planning and assistance from the Radio Society of Ontario, the frequency of 7.055 MHz was chosen, and on May 30, 1982, ONTARS 40 was on the air.

Bill, VE3EFX, was the first net manager. Originally, the net began at 1000 EST/EDT and continued throughout the day until it ran out of controllers! Some of the first controllers were VE3s ATM, BIS, CUR, EEK, GRM, HIR, KQR, MAE and MOK. Over time, operation of the net was

extended. The net was easily accessed by mobile stations who found they were heard readily when they checked in. Amateurs in other provinces also found it easy to access the net.

By the time Ron Tannenbaum, VE3LZI, took over as net manager, many stations from outside Ontario were using the net. A decision was made to change the name to Trans-Provincial. Earl, VE3YOU, took over from Ron, but Earl only had a mobile station. It was hard to manage a net from a car! In 1987, the Trans-Provincial Net went by the way for a while. During the winter of 1987-88, conditions were very poor on 40 metres, and there was no net as such.

The Net Today

During the summer of 1988 Dennis Wilkinson, VE3EUI, Walter Else, VE3OED, and Leo Trusz, VE3MOK, decided to revive the Trans-Provincial Net. Dennis offered to serve as net manager and Walter offered to open the net each morning. This turned into a special feature—more on this later. Leo offered to take a regular controller spot at 1100 each day. The first hours of operation were 1000-1400 EST/EDT, seven days a week. With the assistance of VE3s AC, EEK, EFX, EUI, HIR, HZB, KIZ, KQC, MOK, OED and others, there was no problem keeping all the controller spots filled. In September, 1988, Dennis, VE3EUI, became net manager, and from that time on, the Trans-Provincial Net has grown by leaps and bounds. All through this time, Dennis' main feeling was that the Trans-Provincial should not only be a public service net, but a friendly net. And if you have used the net or even just listened in, you know that's just what it is.

Special Features

The TPN Swap Shop: While the net was developing under Dennis, VE3EUI, he and Leo, VE3MOK, approached me to see if I was interested in running a swap shop. I was already running one of these on a local 2-metre repeater, but the idea appealed to me. The first Trans-Provincial Swap Shop took to the air on December 4, 1988. Nick, VE3DID, helped me through a shaky start with some good advice and the computer program he used on the 80-metre Ontario Swap Shop. The Swap Shop continued at 1000-1200 EDT/EST every

Trans-Provincial Net 1990-91 Executive

Dennis Wilkinson, VE3EUI, *Net Manager*
Paul Turton, VE3TUR, *Assistant Net Manager*
Merrick Jarrett, VE3BCZ, *Day Manager*
Ken Roberson, VE3ERS, *Secretary-Treasurer*
Allan Boyd, VE3AJB, *Public Relations Meetings Chairman*
Allan Boyd, VE3AJB, and Paul Turton, VE3TUR, *Swap Shop Managers*

Saturday morning. It was slow at first, but within a month, over 100 stations were checking in. The following year, Paul, VE3TUR, took over. Now, Paul and I work together. Paul reads the items and I control the check-ins. Hours have expanded in response to popular demand: 0930-1200 EST/EDT every Saturday morning.

Net Users' Meeting: The Trans-Provincial net conducts a net users' meeting on 7.055 MHz LSB, 1400 EST/EDT on the first Sunday of every month. Purpose of this meeting is to give stations an opportunity to comment on the overall operation of the net, positive or negative. The meeting has become a time to tell those who manage the net how to improve the net for the people that use it.

Ontario Phone Net Liaison: In event of a daytime emergency, the Trans-Provincial net has an agreement with the Ontario Phone Net (OPN, an National Traffic System net) that the TPN frequency will be turned over to a representative of OPN for handling emergency traffic for the Amateur Radio Emergency Service (ARES). Also, Dennis, VE3EUI, and Merrick Jarrett, VE3BCZ, are TPN reps to OPN. They relay formal traffic picked up on TPN. TPN does handle traffic for the National Traffic System.

Special-Event Days: The Trans-Provincial net hosts several special-event days throughout the year. Every February 14, Valentine's Day, is Ladies' Day. The whole day is set aside for lady net controllers. We find it's a great time to wish the ladies our best and let them know we're glad to have

them on the air waves.

May 30 is TPN's birthday. We try to have some of the original net controllers on hand, particularly Bill Hardie, VE3EFX. We try to get a record number of check-ins on this day.

On Field Day weekend, TPN is available to allow Field Day stations to get together and find out what the various clubs are doing. In the fall, TPN participates in the annual Scouts' Jamboree-on-the-Air. Reg Bartlett, VE3GKB, helps on this weekend, encouraging stations to check into TPN and show the youngsters how we use radio.

Every year, just before Christmas, Santa joins TPN. As many of you know, Gord Mitchell, VE3GIN, has a direct line to Santa. Gord puts a smile on the faces of many youngsters as he gets Santa to talk on the air.

Special Service Program: The executive of the Trans-Provincial Net tries to remember amateurs in times of difficulty. It might be illness, a stay in the hospital, a Silent Key in the family, or more mundane matters: a stolen rig or a bad case of TVI. In every case, a card is sent. For this to continue, the net asks users for a small donation: a dollar or two, cards, stamps or whatever seems appropriate. TPN treasurer, Ken Roberson, VE3ERS, R. R. 1, Victoria ON L0K 2A0 looks after donations.

Good Morning Warmup: Walt Else, VE3OED, always one of the key people in TPN, has started something unique: a warmup before the official start of the net. With the help of Lloyd, VE1RF, and others, Walt has a roundtable format going every morning around 0800 EST/EDT, and occasionally earlier. It has become very popular. We guarantee that if you jump in and say "hi" to Walt and the gang, you won't want to leave.

Final Comments

Having been involved with TPN since the fall of 1988, I must say it has been a great pleasure to use this net. I have met some fine people. The net controllers are always friendly and make you feel welcome when you check in. As a controller, I urge you to join us on this net. If you really want to get involved, we can always use more controllers. Serving as controller is a great way to meet amateurs right across Ontario and beyond.

A special welcome is extended to all stations new on phone as a result of "grandfathering". In the month of October, TPN had 11,436 check-ins—a record. With these numbers, it looks as if TPN will be around for a long time to come. Whether you're looking to meet friends, get a signal, weather or road report, to pass traffic or just to have fun, TPN is the place to be. Tune in on 7.055-MHz LSB and join us on TPN, the Trans-Provincial Net—the friendly net. ■

Corn Husk Bee/Epluchette de blé d'Inde



Some like it raw! Il y en a qui le préfèrent en épi. Ce sont, de gauche à droite, Bernard, VE2AYK, Richard, VE2GRP, André, VE2FNE, et, en arrière-plan, notre président, Loui-George Côté, VE2GRN (Photo Club Saguenay/Lac St-Jean)

On August 25, 1990, a huge "corn husking bee" was held in the province of Quebec. It was organized by the entire Quebec Amateur Radio fraternity under the direction of Bertrand Dufour, VE2ADL of Quebec City. Members of all provincial clubs, along with their immediate family and friends, were invited to attend.

The portable HF station was set up around 11 a.m. At 1 p.m., members of the welcoming clubs greeted their guests. By 2 p.m., the bee was in full swing. It ended around 5 p.m., when everyone left for their respective QTHs. A total of 2315 persons took part, including 164 amateurs from nine different clubs. The organizing committee included Bertrand, VE2ADL (Club Radioamateur Québec); Michel, VE2DMP (Club Radioamateur Portneuf); Denis, VE2BUS (Club Radioamateur Sherham); Gerald, VE2FZP (Club Radioamateur Rimouski); Gaetan, VE2FWA (Club Radioamateur Rivière du Loup); Steve, VE2FOP (Club Radioamateur Beauce); Rodrigue, VE2NN (Club Radioamateur Sept-Isles); Michel, VE2DDT (Club Radioamateur Saguenay/Lac St-Jean); and Denis, VE2GDF (Club Radioamateur Sud-ouest Montréal).

As much as we would like to name all those who lent a hand or otherwise contributed to the success of this activity, space does not allow. We take this opportunity to thank one and all for their collaboration and their generous support of this common gathering.

Le 25 août 1990 se tenait une épluchette de blé d'Inde à la grandeur du Québec pour la grande famille des radioamateurs, y compris leurs parents et amis. Neuf clubs ont participé. Le programme était

sensiblement le même partout: vers 11h00, installation de la station HF et des antennes; vers 13h00 accueil; vers 14h00, dégustation de blé d'Inde; 17h00, retour vers les QTH respectifs.

En plus de cette activité sociale qui fut très agréable, nous avons opéré en HF sur la bande des 40 m, 7070 kHz, avec tous les sites d'épluchette, les 15 premières minutes de l'heure de 13 à 16 heures. Les conditions de propagation étaient très ordinaires, mais ça ne nous a pas empêchés de communiquer entre nous et de faire du DX.

Une grande total de 2315 personnes dont 164 radioamateurs venant de neuf clubs différents s'étaient donné rendez-vous à sept endroits pour participer à une épluchette de blé d'Inde, fraterniser, rigoler, faire beaucoup de QSOs en visu et en HF. Le succès d'une telle journée prouve que cela répond à un besoin de rencontre sociale et familiale des radioamateurs, de leurs parents et de leurs amis.

L'organisation et concepteur de cette journée collective fut Bertrand Dufour, VE2ADL. Les organisateurs en région furent 1) Bertrand, VE2ADL (Club Radioamateur Québec); 2) Michel, VE2DMP (Club Radioamateur Portneuf); 3) Denis, VE2BUS (Club Radioamateur Sherham); 4) Gerald, VE2FZP (Club Radioamateur Rimouski); 5) Gaetan, VE2FWA (Club Radioamateur Rivière du Loup); 6) Steve, VE2FOP (Club Radioamateur Beauce); 7) Rodrigue, VE2NN (Club Radioamateur Sept-Isles); 8) Michel, VE2DDT (Club Radioamateur Saguenay/Lac St-Jean); et 9) Denis, VE2GDF (Club Radioamateur Sud-ouest Montréal). —Claude Brunet, VE2ZZ, Trois Rivières, PQ ■

US FCC Creates No-Code Licence

For the first time ever, it will be possible to obtain an Amateur Radio licence in the United States without passing a Morse code test. The Federal Communications Commission (FCC) has eliminated the need for new Technician-class Amateur Radio licence applicants to demonstrate proficiency in Morse code in order to have all amateur privileges above 30 MHz. Implementation date may be as early as February, 1991. Technicians who obtain their licences prior to that date will be grandfathered, meaning their existing HF privileges will continue.

The codeless Technician written examination will have 55 questions. New technicians wishing to gain access to the HF privileges below 30 MHz now enjoyed by Novices and technicians will be required to pass a 5 wpm Morse code test before three Volunteer Examiners accredited by Volunteer Examiner Coordinators, and will be given a certificate of Successful Completion of Examination (CSCE) to serve as evidence of their qualifications. There will be no call sign designator to indicate Technicians who have or have not passed a code test.

The FCC took this action in response to numerous petitions and public comments. By offering a codeless class of licence with privileges exclusively above 30 MHz, an entry-level licence will be available to those who find Morse code a barrier to becoming a radio amateur. The FCC decided to retain the current Novice-class licence as an alternate entry-level licence for those persons able to pass the 5 wpm Morse code test, and do not wish to try the more comprehensive written examination required for the Technician-class licence. No changes in examinations or privileges for the Novice-class licence were announced.

At a press briefing held just after the Commission's decision, FCC Private Radio Bureau Chief Ralph Haller said, "The Amateur Service is not growing as it should relative to what it has to offer." He added that the Amateur Service is where the nation's technical expertise comes from, and that the changes should attract people who are interested in computers and digital communications, and should help the US become more competitive. —ARRL Amateur Radio News Release

STILL SOUTH OF THE BORDER

□ How does the new codeless Technician licence compare to the new Canadian Amateur Radio licence with the basic qualification? They're very much the same. One major difference kicks in after

the 5 wpm Morse code test. Canadians amateurs receive all-mode privileges on 160 and 80 metres. US Technicians receive CW privileges on limited parts of the 80-, 40-, 15- and 10-metre bands, and phone privileges on the 10-metre band. Officially, there will be no special name for Technicians who have passed their 5 wpm code test and have the HF privileges. Unofficially, they'll be called Technician Plus. At press time, it was unclear if ARRL was happy with the FCC's decision. FCC did not implement its controversial Communicator-class licence and it is retaining the Novice licence as an alternate point-of-entry for the US Amateur Service. These moves will please ARRL. But ARRL's own proposal for a no-code entry-level licence would have limited holders of that licence to frequencies above 220 MHz.

□ The US Court of Appeals for the District of Columbia has denied the ARRL petition for review of the FCC order reallocation 220-222 MHz to the US Land Mobile Service. The court concluded that, by law, it had to defer to the views of the FCC. It could not say that the FCC had not arrived at a reasoned decision about the best way to advance public convenience, interest or necessity.

ACROSS THE COUNTRY

□ A clipping from the *Union of BC Municipalities News* shows that local governments are quickly becoming aware of DOC's CPC-2-0-03, *Municipal Consultation on Non-Broadcasting Antennas and Antenna Supporting Structures*. DOC recently wrote to CRRL, explaining that amateurs are not required to follow the declaration procedures outlined in the CPC (see last month's *QST Canada*). This fact may be lost on some municipalities because the CPC makes specific reference to Amateur Radio. CRRL has asked DOC to modify the CPC to eliminate future problems. A DOC reply suggests that the CPC will be revised.

□ Ray Perrin, VE3FN, and Ralph Cameron, VE3BBM, from CRRL and CARF respectively, represented radio amateurs the 1990 Annual Meeting of the Radio Advisory Board of Canada (RABC), held in Ottawa on December 6. Main topics of discussion: the impact of the new Radio Act on the various radio services, DOC spectrum policy for 30-896 MHz, and electromagnetic compatibility standards related to power line interference, digital equipment interference, and RF susceptibility of consumer electronics devices. Ernie Welling, VE3HD, of the Electrical and Electronic Manufactur-

ers Association, was elected RABC chairman. A full report by Ralph Cameron appears in this *QST Canada*.

□ If English-French cooperation in Canada is on the skids, you'd never know it by activities of Montreal-area Amateur Radio clubs. Their representatives met for the first time ever on December 15. At that meeting, amateurs from English clubs spoke French while amateurs from French clubs spoke English. Plans are well under way to organize an activity in which members of all Montreal-area Amateur Radio clubs—English and French—will be able to take part.

□ A reminder: to publicize the 1991 Canada Winter Games being held in Charlottetown, Prince Edward Island, Canadian amateurs may use the following special prefixes throughout February: CG1-CG8 in VE1-VE8, VG1, VG2 and VG9 in VY1, VY2 and VY9 (special DOC prefix), and VO5-6 in VO1-2.

□ Congratulations to Oscar Hierley, VO1DI, who was recently accepted into the Order of Canada for his role in bringing communications technology to Newfoundland.

NOTES FROM ALL OVER

□ W1AW has returned to 160 metres with code practice and bulletins on 1.818-MHz CW and 1.890-MHz SSB. A reminder that W1AW code practice and CW bulletins are found on new frequencies in the 15- and 10-metre bands: 21.0675 and 28.0675 MHz.

□ CRRL International Affairs Vice President George Spencer, VE3AGS, represented CRRL members at the ARRL Board meeting held in Hartford, Connecticut, on January 18-19.

□ Clark Campbell, VE3KSQ will be representing CRRL members at a meeting of IARU Region 2, Sections A, B and C (Canada, the US, Mexico, Bermuda and the Caribbean) to be held in Miami on February 1. Clark was part of the Canadian delegation that participated in the last IARU Region 2 General Assembly, held in Orlando, Florida, in 1989.

□ The CRRL Board will hold its 1991 Annual Meeting in Toronto, on June 1-2.

□ Amateur Radio will soon have legal status in Nepal—complete with regulations, examinations, and government-issued certificates. According to the Nepal Amateur Radio League, there has really been no legal Amateur Radio activity in Nepal except that of Father Morin, 9N1MM, who operates by virtue of a special royal ordinance. ■

New TS-850S HF TRANSCEIVER



The TS-850S is a new competition class HF transceiver designed for SSB, CW, AM, FM, and FSK modes of operation on the 160 through 10 meter Amateur bands, including the WARC bands. The 100 kHz to 30 MHz general coverage receiver has a dynamic range of 108 dB.

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Capable of full duplex operation, the IC-2400A/E lets you transmit on one band while receiving on the other for telephone-style QSOs.

SUB BAND MUTE AND SUB BAND BEEP FUNCTIONS

The SUB band audio level can be reduced automatically when signals are received on both the MAIN and SUB bands simultaneously. This function allows you to listen to the MAIN band audio clearly. To distinguish between the MAIN and SUB band audio, the SUB band beep function emits a beep tone when the SUB band squelch closes.

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The state-of-the-art function display provides simultaneous readout of the MAIN and SUB band operating frequencies. And each band can be independently regulated using separate volume and squelch controls.

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Use this function to deactivate the SUB band when you prefer single band operation using the MAIN band.

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A 30-second alarm is generated when a subaudible tone identical to the pre-programmed tone is received. This function can be set separately in the MAIN and SUB bands to limit reception to stations you want to hear.

* This function requires an optional UT-40 TONE SQUELCH UNIT.

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The CRRL Field Organization Forum

SECTION MANAGER ELECTION NOTICE

To all CRRL members in the Alberta Section: You are hereby solicited for nominating petitions pursuant to an election for Section Manager. Because of space limitations, a full election notice will not be reproduced here. Nominating petitions will be received at the CRRL Headquarters office in London, Ontario, until 1600 EST, 1991 March 08. For complete details, see the January 1991 issue of *QST Canada* or contact CRRL Headquarters. —Jack Strangleman, VE3GV, Field Services Manager

REPORTS FOR NOVEMBER 1990

Alberta: SM/STM/DEC: Bill Gillespie, VE6ABC; ASM: VE6AMM; SEC/TC: VE6AFO; OO: VE6TY. Several Edmonton amateurs assisted in providing communications for another Alberta Public Safety Services Emergency Site Managers' Course. Two different disaster scenarios were presented with loss of telephones, etc. Six amateurs passed over 100 pieces of traffic and all worked out very well. The next exercise is planned for January. Band conditions have improved greatly, both for 80-metre and DX activity. Seasons Greetings to all.

British Columbia: SM/SEC: Ernie Savage, VE7FB. British Columbia Public Service Net (BCPS, 3729 kHz) Manager Ford, VE7DDF reports check-ins: high—289, low—189, and total—6779. November was a much better month for check-ins. With the new regulations that came into effect on October 1, the net can expect a real increase. British Columbia Emergency Net (BCEN): Manager Ferdi, VE7EJU, reports 866 check-ins. Ferdi reports that the net is looking forward to a heavy flow of Christmas traffic. Angela, VE7ANG, is in Ontario learning how the Canadian Coast Guard works. She has been using Amateur Radio to send messages home. Son James recently earned his ticket and is now VE7HSJ—the Savages are now a three-amateur household. John, VE7AYI, is home recovering from quadruple heart bypass surgery. For years, John served on the committee for amateur callsign licence plates.

Manitoba: SM: Bill Crooks, VE4JR; ASM: VE4IX; STM: VE4JA, SEC: VE4VR; NMs: VE4LB, VE4IX, VE4TE. Lots of notes from all over! From Pinawa, Dale, VE4AED, with CASARA participates in Air Search and Rescue and has provided air-to-ground and ground-to-ground communications. Good work, Dale! Dryden (Ontario) ARA held a simulated emergency exercise in October. All benefited from this exercise. Ask Ken, VE3JHW, and Roy, VE3BJD, about this. Also, Lyn, VE3JBL, has started classes for new amateurs. Dauphin ARC (DARC) advises that Marve, VE4KE, and Al, VE4GM, are setting up repeaters at Spear Hill and Lundar to improve linking. DARC will also be installing an S-Com controller with a voice module at their local repeater, VE4DPN. Jack, VE4JA, is very busy on the CFARS nets, providing two-way patches between Dauphin and Israel. Good work, Jack! Winnipeg ARC has elected its 1991 executive: Lorne, VE4LA—Pres; John,

Reports invited: CRRL Section Managers (SMs) and their Section-level assistants coordinate traffic handling, emergency communications and bulletin service across Canada. Your SM (name and address appears on page 2 of this *QST Canada*) welcomes reports of individual and club activities for publication in this column. Activities do not have to be related to the CRRL Field Organization or to CRRL.

VE4ADS—V-Pres; Bill, VE4JR—Sec; Judy, VE4JBN—Treas; and Bob, VE4ADE, and Fillidor, VE4DBK—executive members. A vote of thanks to Dave, VE4DBK, and others who are retiring for a job well done. Following elections, Manitoba Repeater Society held its annual meeting. Many important items were discussed. There have been a number of fleamarkets. From what I hear, all were successful. With the new requirements for the Amateur licence, I am sure that everyone—individuals and clubs—are conducting or planning training classes. If you are asked to help, please do what you can; we will all benefit.

Maritimes-Newfoundland: Acting SM: Carl Anderson, VE1UU; STM: Mel Lever, VE1VX; BM: Brent Taylor, VE1JH. November, always brings changes in radio club officers. I will write up any and all I receive. Thanks to CRRL Assistant Director Roly Peddle for these from Newfoundland. Society of Newfoundland Radio Amateurs (SONRA): Ev Price, VO1DK—Pres; Don Wyatt, VO1KX—V-Pres; Gayle Barton, VO1RT—Sec; Jack Norman, VO1JN—Treas; Bob Lewis, VO1BL, Bill Coffey, VO1KM; Doug Sellars, VO1SD, and Max Penney, VO1WP—directors. The new Stephenville-St George ARC (SBSGARCI): Bruce Fiander, VO1KW—Pres; Dick Tracey, VO1ER—V-Pres; Gerry Vey—Sec-Treas; Gary Pike—Activities; Leo Power, VO1EW, and Art Hamlyn—directors. In Nova Scotia, Halifax ARC elected Jack Kiuru, VE1ZK—Pres; Bill Elliott, VE1MR—1st V-Pres; Doug Grace, VE1DFG—2nd V-Pres; Pearson Friars, VE1SWL—Sec; Mel Lever, VE1YX—Treas; Bob DeLong, VE1AOI—Activities; Jeff Harvey, VE1BL—Membership; and Walter Rawle, VE1AWS—Bulletin Editor. I met several Soviet radio amateurs in Moscow in November, but did not get to visit the USSR Central Radio Club as planned (its location isn't very "central" any more, hi). Thanks to Galina Kazarnovskaya, UA3DSP. I did visit the USSR Adventure Club station, RK3KP, where I met Leonid Labutin, UA3CR. Leonid and Tom Atkins, VE3CDM, organized the Amateur Radio communications for the Canada-USSR Polar Bridge ("Skitrek") Expedition in 1988. Packet radio is very popular in Moscow with a small but active group who are well connected with western Europe and North America. Address for packet messages to Moscow amateurs is the PBBS @ RK3KP.

Ontario: SM: Larry Thivierge, VE3GT; BM: VE3GSA; SEC: VE3GV; STM: VE3CYR; TC: VE3EGO. I know that I have mentioned this before, but please be sure that when you remove formal NTS traffic from a packet BBS for local delivery, for another traffic net, or for relay by another mode, that you "kill" the message by using the KT command followed by the BBS message number. Some stations are not following this procedure. This results in multiple deliveries, as many as three times, much to the annoyance of recipients. Packet radio is probably the fastest-growing VHF mode in the northwest portion of our Section. Packet stations like VE3s JJA, JJX, LMG, JJY,

IDJ, IEG, CRD, FPN, JHH and JJV are operating in Kenora, Dryden, Fort Francis, Sioux Lookout and Ignace. Most activity is on 145.01 MHz. Some new amateurs in the Section include VE3s SGO, SJJ, SMX, SWE, WRO, and XMS. New executive of Sudbury ARC is VE3HZQ—Pres; VE3IFP—V-Pres; VE3CHA—Sec; VE3SDK—Treas. Repeater equipment at VE3YQT, Thunder Bay, consists of a new Motorola MSR-2000 with an RC-850 controller. YU3EO is one of the latest recipients of Ottawa ARC's National Capital Award which is issued for contacting ten amateurs within the National Capital Region. Chatham-Kent ARC is busy working on the rebirth of the 145.19-MHz repeater for Kent County. The former VE3SOR machine is now VE3COZ and has a UHF clone on 444.325 MHz. The new site is the CKSY-FM tower east of Chatham. Regrettably, I announce that long-time Ottawa amateur VE3WW has become a Silent Key. Don't forget that NPARC's Big Event Number 13 happens on February 2.

Quebec: SM: Harold Moreau, VE2BP; STM: VE2EDO; SEC: VE2LYC; BM: VE2ALE. Our CRRL Quebec Region is without a director, if you know someone who would do a good job, please contact CRRL. Nous sommes sans directeur. Si vous êtes intéressé, faire demande à CRRL. Félicitations à VE2AWR pour avoir obtenu le DXCC (107 pays mixe). Gilbert, VE2BOG, fait du beau travail avec son PBS VE2TEN. Le club VE2CAM (St-Hyacinthe) a une vingtaine de candidats inscrits au cours, sous la direction de Gilles, VE2AWE.

Saskatchewan: Bruce Rattray, VE5RC. I am very pleased to announce that effective 1991 January 1, our Assistant Section Manager (ASM) Joan Lloyd, VE5JML, will become Section Manager (SM) for Saskatchewan. Joan brings a vitality and fresh outlook which I feel will be of benefit to the amateurs of our province. I have stepped down due to health concerns, but will be able to assist Joan whenever needed. November 17 was a busy day for amateurs in both Saskatoon and Regina as those cities held their annual Santa Claus parades. In Saskatoon, Syl, VE5YK, organized amateurs to provide communications. Those taking part included Stu, VE5YXD; Lorne, VE5WY; Rob, VE5OP; Dwayne, VE5HZ; Wally, VE5IX; Keith, VE5VJ; Syl, VE5YK; Syl's XYL, Ivadelle; Ken, VE5KGG; George, VE5FZU; Monty, VE5MN; Chara, VE5AF; Bill, VE5DN; Gord, VE5SV; Bill, VE5WC; and Janet. In Regina, amateurs taking part included Bill, VE5EE; George, VE5UU; Bart, VE5CPU; Erwin, VE5ELJ; Joan, VE5JML; Rick, VE5RJR; Jim, VE5CS; Floyd, VE5FAR; Pat, VE5AEO; Walter, VE5WWW, and Johnny, VE5AAS. The Saskatchewan Amateur Radio League is functioning once again. I ask you to support our provincial organization. Officers are Syl, VE5YK—Pres; VE5HB—V-Pres; VE5DC—Sec, VE5OP—Treas; and VE5ND—Editor, QSO. Directors representing the various provincial areas are VE5s KZ, DC, AQ, XC, BAL, BAR, KC, BCF, ND and AGL. 73 to all.

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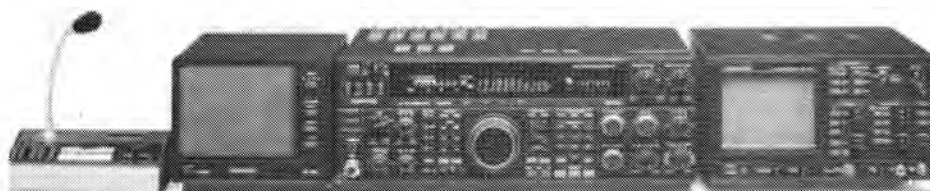
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 - **BT-8:** Six cell AA Alkaline battery case
 - **HMC-2:** Headset with VOX and PTT
 - **PB-13:** 7.2 V, 700 mAh NiCd pack
 - **PB-14:** 12 V, 300 mAh NiCd pack
 - **PG-3F:** DC cable with filter and cigarette lighter plug
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Rules: 1991 Bermuda Contest

It's time again that contest where the top winners receive an all expenses paid trip to Bermuda to pick up their trophy! Here are the 1991 rules for overseas stations including stations in Canada.

1. *The Bermuda Contest* is open to all licensed amateurs in Canada, the US, the UK, Germany and Bermuda.

2. *Contest Period:* 0001 UTC 1991 March 16 to 2400 UTC 1991 March 17—a total of 48 hours. Actual operating time is not to exceed 36 hours. Off periods must be clearly logged. Each off period must be not less than three consecutive hours.

3. *Eligibility:* All stations must be single operator only, and must be located at the station owner's own private residence or property. Top winners for the 1986, 1987, 1988, 1989 and 1990 contests will be eligible for area awards only.

4. *Bands:* 3.5-, 7-, 14-, 21- and 28-MHz amateur bands only. No crossband or crossmode contacts permitted. Phone and CW may be used on any band. Note that Bermuda Novice licensees (identified by VP9 followed by a three-letter suffix beginning with "N") may be found on 28.00–28.50-MHz, 21.00–21.20-MHz, 7.00–7.15-MHz and 3.50–3.75-MHz CW, code speed: five wpm.

5. *Exchanges:* All contestants will exchange RS reports on phone and RST reports on CW, and give the following:

- Canadian stations: province or territory
- US stations: state
- UK stations: county
- German stations: DOK number
- Bermuda stations: parish

Note that Canadian and US stations may exchange reports, etc. with German, UK and Bermuda stations only. German and UK stations may exchange reports, etc. with Canadian, US and Bermuda stations only. Bermuda parishes are Sandys (SAN), Southampton (SOU), Warwick (WAR), Devonshire (DEV), Pembroke (PEM), Paget (PAG), Smiths (SMI), Hamilton (HAM), and St George's (STG).

6. *Scoring:* Each completed contact on each band will count five points. A phone contact and a CW contact with the same station on the same band count for separate scores only if the contacts are made more than one hour apart.

For stations outside of Bermuda, the multipliers are the Bermuda stations worked on each band. Provided the contacts are more than one hour apart, Bermuda stations may be counted as a multiplier for both phone and CW on the same band (i.e., the same Bermuda station



If your daughter got her Amateur Radio licence, you'd send in a photo too! Lynne Flamand, VE3JBL, in Dryden, Ontario, has been on the air since last March. Proud father, Bill Hardie, VE3EFX, advises that Lynn is very active of HF nets. She uses an IC-725 and a five-band trap inverted-V. (VE3EFX photo)

may be worked on CW and phone for a multiplier of two). Each Bermuda Novice contact counts for a multiplier of two. The final score is the total number of QSOs on all bands multiplied by the sum of the Bermuda multipliers.

7. *Awards:* The top scorer in Canada, the US, the UK and Germany will receive a trophy. However, only the top scorers in US/Canada and UK/Germany (i.e., two amateurs) will be provided with round trip air transport and accommodations to enable them to receive their trophies at the Radio Society of Bermuda Annual Banquet, to be held in Bermuda in 1991 October. The two other winners will be responsible for their own air transportation and accommodations if they wish to collect their trophies at the annual banquet. Otherwise, the trophies will be mailed to them. Top scorers in each Canadian province and territory, US state, UK county and German DOK area will receive a printed certificate, provided a minimum of 100 contacts including five different Bermuda stations were made.

8. *Logs:* Every log, duplicate sheet, multiplier sheet and summary sheet must be clearly labelled with the contestant's callsign, date including year, and where appropriate, band and mode. All times and dates must be stated in UTC, and all frequencies must be stated in MHz. Separate

log sheets must be provided for each band and mode.

All contestants must compute their own scores and check for duplicate contacts. Duplicate sheets must be submitted for bands with over 200 contacts. A penalty of three contacts will be deducted for every duplicate contact for which credit is claimed. An excess of duplicate contacts will result in disqualification. A multiplier sheet of VP9 contacts must be provided.

All contestants must provide a signed statement that they have observed the rules of the contest and the terms of their licence. In addition, each contestant must provide his or her full name, station QTH, full mailing address and a contact telephone number. If any of these conditions are not met, the contestant will be disqualified.

9. *Decisions of the Contest Committee are final.* Logs must be received by the Contest Committee, Radio Society of Bermuda, Box HM 275, Hamilton HMAX, Bermuda, not later than 11 a.m., Saturday, 1991 June 1. Overseas entries should be sent by air mail. Registered mail may be used. Please enclose four IRCs if an air mail acknowledgement and a score list are required. Acknowledgments for logs received after 1991 May 25 will be by score list only.

ARRL DXAC REPORT

Happy New Year to all. We have not been to regular with our reports, and for this, I apologize. However, as with most of us, the job comes first, and other things have to fall in line somewhere to the left.

The year 1990 ended with a number of things happening very quickly. There were numerous phone calls to ARRL Headquarters asking for clarification on the German as well as the Yemen situation. ARRL Headquarters felt that the DX Advisory Committee (DXAC) was not getting on with things fast enough, so they requested that a phone vote be taken. They result was that, effective 1990 May 28, 4W1 and 7O were deleted, and a new Republic of Yemen 7O came into effect. Effective 1991 October 3, the democratic Republic of Germany (East Germany) was deleted. There was no change to the Federal Republic of Germany (West Germany) listing. I did not agree with this decision on Germany. For me, it was the reunification of Germany, not West Germany annexing East Germany. Under the rules, this would have required the deletion of both East and West Germany and a new country being listed, or reinstating the original Germany deleted in 1971 when East and West Germany were recognized as separate countries.

The Penguin Island application is still under discussion. DXAC has not been able to get the maps it requested to distribute among committee members. There is still much discussion as to whether the rule under which the application was filed is the correct one. Rule 3a has always been reserved for adjacent land areas, and not for islands or combinations thereof.

The backlog of DXCC applications at ARRL Headquarters is improving daily, and everything is being done to streamline operations and computerize the DXCC database. As of December 15, the backlog was just over 4100 applications, down from 4248 the previous week. They have been slowly reducing the backlog at a rate of about 150 per week. Endorsements received last June 21 and new applications received last September 14 were being processed on December 15.

We have joined the crowd on packet. If you have mail for VE3HO, try the local bulletin board, VE3HO-1 @ VE3SNP. No guarantees, though, as we don't have a dedicated computer, TNC and rig yet.

The final count on correspondence to VE3HO was over 400, an increase of about 140% over last year. It has been taking three to four nights a month to read through your material and make notes so we can be up to date. If you wish to comment on DXCC matters directly, you can write to ARRL Headquarters. Be sure to mark your envelope: Attention—Lisa Arel, DXAC Liaison, 73. —Garth Hamilton, VE3HO, CRRL Representative, ARRL DXAC

CANADIAN LADIES AMATEUR RADIO ASSOCIATION

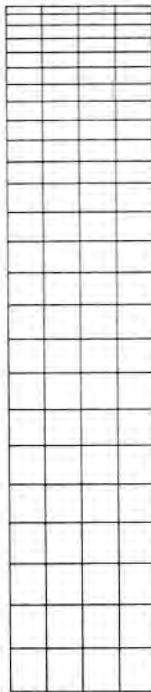


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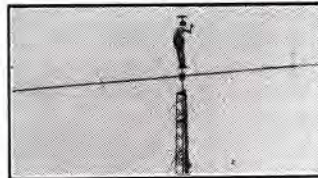
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RABC Annual Meeting

Both Ralph Cameron, VE3BBM, representing CARF, and myself representing CRRL, attended the 1990 Annual Meeting of the Radio Advisory Board of Canada (RABC) held in Ottawa on December 6. We are fortunate to be able to print Ralph's summary in QST Canada. As you'll read, there's lots going on. —VE3FN

The forty-sixth Annual Meeting of RABC was held at the Chateau Laurier, Ottawa, on December 6. The purpose of these meetings is to alert spectrum users of technical, operational, and regulatory changes to be commenced or continued in the following year. Presentations were made by several DOC officials:

Personal Communication: Dr. Breithaupt, Director General, Communication Technologies Research, DOC

Vision 2000: This program is a personal cellular project and has wide application in office buildings. As with most new programs, it involves digital transmission techniques.

Handheld 20/30 GHz: This program involves use of an experimental satellite called Olympus. Downlink is 28 GHz and characteristics of propagation at these frequencies are being studied in great detail. Operation is via a Satcom terminal for the wave studies.

Indoor digital channel characteristics are being studied and some interesting conclusions have already been drawn. Multipath distortion causes *inter-symbol* errors while shadowing the received signal causes *intra-symbol* errors. This is one area of digital communications where errors can have disastrous effect, since everything is microprocessor controlled.

New Broadcast Modes: Several techniques are being researched including datacasting, a method of inserting data in the vertical blanking interval of a TV picture. Normally the vertical interval is blanked during the retrace, so the effect would be completely invisible to the viewer. In datacasting, the digital data that is recovered is placed at some convenient position on the video display. Teletext used this idea several years ago.

Multimedia is a new concept combining several visual and audio effects.

Interactive services are those in which personal interaction may occur between two parties, say, on a dialup basis. Standards need to be developed and research is being done to see what is feasible. Such techniques would become more practical with the introduction of fiber optic cable

in the home.

Advanced Audio: Recent experiments in Ottawa, Montreal, Toronto and Vancouver with DAB (Digital Audio Broadcasting) has been very successful. Some suggestions were made that if the broadcast industry moved to this mode, the whole broadcast band could become vacant. DAB is attractive because of the quality of the delivered product. At the present time 15 channels have been transmitted over a 3-MHz piece of spectrum.

Advanced Television: Several different coding and compression techniques are being tried to reduce the bandwidth of high-resolution television (HDTV). At the moment a 12-MHz channel is needed to provide a raster of 1150 by 650 lines. There is a need to make HDTV systems compatible with television systems and sets in current use—not an easy task. Several modulation and transmission schemes are being studied.

Advanced Devices: Investigation and development of new microwave devices is being done in cooperation with industry. Both micromonolithic integrated circuits (MMIC) and Gallium Arsenide (GaS) devices are being used for microwave downconverters. This with an eye to utilizing the 20-30 GHz band.

Other projects involve the use of optoelectronics to harness the properties of light for high-speed or wideband video and digital transmissions. Another project involves solid state amplifiers cooled by the Pelletier effect. This allows higher power in less space and could improve efficiency and extend the temperature range of operation.

SHARP Project: This consists of a lightweight drone aircraft which can hover at high altitudes and relay TV signals. There has been some interest from Japanese companies. The drone is powered by high-power microwave energy, beamed to the drone, rectified and converted to DC. SHARP was proven feasible during the tenure of the Hon. Flora MacDonald, but it was not well accepted by Canadian industry at the time.

High Definition Television (HDTV) and Digital Audio Broadcasting (DAB): George Zurkowski, Broadcasting Regulation Branch, DOC

Apparently, technology is not the limiting factor in providing HDTV and DAB. Both technologies are desirable and feasible. What is needed are standards to protect current users of the spectrum while providing upward feature-mobility.

In the industry, acceptance of DAB has been so high that many companies are

anxious to offer this service. A few short years ago, DAB was rejected in the US. However, as a result of the Canadian trials there is renewed interest. Who says Canada is not an innovator?

The technical limits expanding this technology are currently felt to be the radio and television receiver standards. Work is being done on technical performance standards for AM and FM TV, set-top converters and VCRs, and on interference limits, RF immunity and more. Findings will appear in a series of DOC Radio System Specifications (RSS). Finally, mechanisms are being prepared to speed regulatory change. Technology is moving so fast that regulations can't keep up.

Mobile Services: Dr. Robert McCaughern, Deputy Director General, Engineering, DOC

New Bands: The crunch is on to conserve spectrum by increasing efficiency. New air-to-ground allocations at 849–851 and 894–896 MHz will be introduced in April. New fixed-mobile allocations at 932–935 and 941–944 MHz will be introduced in May. New RSS for digital cellular systems and revision to the radio system plan (RSS101) will be published as early as January, 1991 for industry input.

Low-Power Devices: Rules are being developed for license-exempt low-power control devices covered under RSS810. Other specifications covering low-power equipment are available in RSS211. Most of these publications can be obtained from district DOC offices.

Spread Spectrum: Spread spectrum is of interest to those who must share spectrum with other services, on a primary or secondary basis. Spread spectrum systems should be totally transparent to users of discrete frequencies. Two basic techniques are used: frequency hopping (FH) and direct sequence (DS). In FH systems, the frequencies are constantly changing, usually in random fashion, so that transmissions remain only a few milliseconds on any one frequency. In DS systems, a digitally encoded bitstream is superimposed on an RF carrier at very high speed. The effect of modulating the bitstream at this high rate makes the signal spread over a large bandwidth. The advantage is again that the instantaneous power at any discrete frequency is very, very low. It causes little interference. Changing the coding sequence guarantees privacy, compatibility and improved efficiency.

At present, Telesat Canada uses spread spectrum for their coast-to-coast low-speed data network.

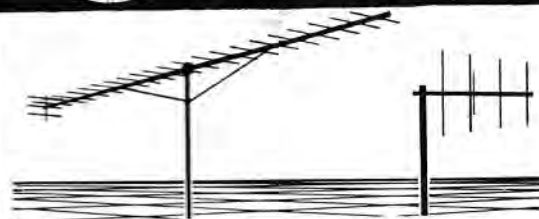
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225WB	220-225 MHz	15 Element	10' BOOMER



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C.O.D.

Flood Contingency Planning

Last November, the Ontario Ministry of Natural Resources held its fourth annual Flood Contingency Planning and Response Seminar in Toronto. In attendance: around 100 municipal officials, conservation officers, and representatives of police, fire and the armed forces. Some sixteen speakers covered a wide variety of topics related to flood emergencies.

I was invited by the Ministry to present a paper on "The Role of the Amateur Radio Emergency Service (ARES) in Civil Emergencies". Needless to say, I jumped at the opportunity to bring the ARES story to this group of emergency planners. From the numerous questions asked, it was apparent that there is strong interest in what we can contribute.

Before addressing the subject of emergency communications, I presented a brief picture of what Amateur Radio is all about. Then I continued as follows:

It was back in 1917 that Amateur Radio was first used for emergency communications. The experience gained in handling communications in literally thousands of disasters since led to the formation of ARES in 1935. ARES is a continent-wide organization of over 25,000 licensed Amateur Radio operators who have volunteered their skills and equipment to provide communications in emergencies.

When I was in my teens, I remember quite vividly listening to the thousands of messages passed by amateurs during the disastrous Johnstown, Ohio, floods. In more recent times amateurs have provided communications during the Mississauga train disaster, the Mexico City earthquake, the Barrie and Edmonton tornados, Hurricane Hugo and the Loma Prieta (San Francisco) earthquake.

In Ontario, there are over 30 ARES groups from Cornwall in the east to Fort Francis in the west. Each group is headed by an Emergency Coordinator (EC), usually assisted by one or more Assistant ECs. I am the EC for the Kingston area extending from Napanee to Gananoque, and from Lake Ontario north to beyond Highway 7. Our group in Kingston comprises some thirty licensed amateurs who have registered and who participate actively in our weekly nets and our periodic training exercises.

Whom do we serve? We are available to any group responsible for providing emergency response. Incidentally, our services are provided without charge, as would be expected from a group of amateurs. At the present time, our role is defined in the emergency plans of the City of Kingston, the Township of Kingston and the Kingston Red Cross.

Why are we needed when telephones are so widely available and when police and fire departments have their own highly effective radio communications? In a disaster, the telephone system may be damaged, but even if it isn't, experience shows that it cannot be counted on. In Mississauga, for instance, everyone tried to get on the phone, with the

result that the system was completely overloaded and unavailable for emergency communications. The introduction of line load control by Bell Canada will alleviate the problem, but it won't eliminate it.

A second reason is to provide communications beyond the local area. We can provide communications on a continent-wide

Field Organization Reports November 1990

CRRL Section Emergency Coordinator Reports

Reports were received from the following SECs (DECs and ECs reporting to SECs are listed in brackets) denoting a total ARES membership of 1030.

Reporting	ARES Members
VE3GV (VE3s AFP, GNV, LFW, LPM, MB, OVW, SV, TNL)	605
VE4JR	56
VE6AFO	265
VE7FB	110

CRRL Section Traffic Manager Reports

Call	Orig	Rcvd	Sent	Divd	Total
VE1BTV	0	12	13	0	25
VE1ALU	2	8	9	2	21
VE1YS	0	7	8	1	16
VE1CRS	0	5	0	4	9
VE1VAR	0	2	2	1	5
VE2GOP	0	55	55	0	110
VE2BP	2	17	12	19	50
VE2WH	0	14	14	11	14
VE2JN	1	6	2	5	14
VE2ALE	0	2	1	0	3
VE3ORN	1	59	57	7	124
VE3GNW	0	50	67	0	117
VE3BCZ	13	39	54	6	112
VE3GSQ	0	67	43	1	111
VE3DVE	0	45	51	3	99
VE3BDM	0	64	15	2	81
VE3CYR	0	60	21	0	81
VE3GT	0	17	30	1	48
VE3AJN	0	19	22	0	41
VE3NVJ	0	17	18	4	39
VE3KCC	3	13	6	8	30
VE3KXB	0	10	18	0	28
VE3DOP	0	12	15	0	27
VE3LPM	0	8	11	2	21
VE3SB	0	10	10	0	20
VE3CVK	0	4	6	1	11
VE3MNI	0	4	6	1	11
VE3BAJ	0	1	7	2	10
VE4JA	3	119	83	49	254
VE4FP	0	65	75	2	140
VE4JR	2	20	10	6	38
VE4STU	5	10	16	7	38
VE4LB	0	20	10	7	37
VE6XG	7	27	16	5	55
VE6CE	0	17	18	1	36
VE6GUS	-	-	-	-	36
VE6AKY	-	-	-	-	4
VE6ABC	-	-	-	-	2
VE7BNI	25	121	182	38	367
VE7EJU	0	70	57	0	127
VE7FAZ	0	48	44	0	90
VE7ANG	1	29	31	0	61
VE7EGM	5	15	21	6	47
VE7FRZ	8	24	12	0	44
VE7CCJ	14	20	5	1	40
VE7OM	0	17	19	0	36
VE7FB	0	11	18	4	33
VE7BCL	1	13	8	5	27
VE7XA	0	10	13	2	25

Call	Orig	Rcvd	Sent	Divd	Total
VE7BVZ	4	10	9	0	23
VE7BZI	1	10	1	10	22
VE7BCF	2	7	7	0	16
VE7GKA	0	12	1	0	13
VE7AVA	0	2	3	0	5
VE7WI	0	2	1	0	3

National Traffic System

Net (Mgr)	Sess	QNI	QTC
APN (VE1YS)	29	124	66
KTN (VE3AJN)	13	110	25
OLN (VE3POJ)	30	599	57
OPN (VE3BDM)	30	692	139
OQN-D (VE3ORN)	27	85	54
OQN-E (VE3CYR)	29	176	121
OQN-L (VE3GSQ)	21	46	12
MTN (VE4IX)	29	269	44
MEPN (VE4LB)	30	1382	29
APSN (VE6AKY)	30	1608	12
ATN (VE6CPP)	30	199	61
BCEN (VE7EJU)	30	866	271

Brass Pounders' League

This listing is available to amateurs who report to their SM a traffic total of 500 or a sum of originations and delivery points of 100 or more for any calendar month. All messages must be handled on amateur frequencies, using standard ARRL-CRRL form, within 48 hours of receipt.

BPL: None this month

Public Service Honour Roll

This listing is available to amateurs whose public service performance during the month indicated qualifies for 60 or more points in the following nine categories (as reported to their SM). Please note maximum points for each category: (1) Checking into CW nets, 1 point each, max 30; (2) Checking into phone/RTTY nets, 1 point each, max 30; (3) NCS CW nets, 3 points each, max 12; (4) NCS phone/RTTY nets, 3 points each, max 12; (5) Performing assigned NTS liaison, 3 points each, max 12; (6) Delivering a formal message to a third party, 1 point each, no max; (7) Handling an emergency message, 5 points each, no max; (8) Serving as an EC or NM for an entire month, 5 points max; (9) Participating in a public-service event, 5 points each, no max. Amateurs who qualify for Public Service Honour Roll 12 consecutive months, or 18 months out of a 24-month period, will be awarded a special certificate from CRRL Headquarters.

PSHR: VE4JA (155), VE4LB (113), VE3GNW (101), VE3BDM (95), VE4STU (84), VE3CYR (66)

Service and Specialized Nets

Independent Net Managers: Your monthly reports are welcomed. Send to CRRL, Box 7009, Station E, London, ON N5Y 4J9.

Net (Mgr)	Sess	QNI	QTC
ARES Canada (VE3GV)	4	138	1
ARES Ontario (VE3GV)	1	6	0
CRRL ONTARS (VE3FQV)	30	13480	0
Grey-Bruce (VE3BDM)	30	89	6
Grey-Bruce SS (VE3BDM)	30	93	52
Laurentian (VE3FGT)	31	954	0
Trans-Provincial (VE3EUI)	30	10768	11
Aurora 1 (VE4AHG)	30	1538	14
Aurora 2 (VE4FP)	30	2438	2
ARES Alberta (VE6AMM)	30	196	4

and indeed, on a worldwide basis, when needed. The Canadian government has recognized this capability in establishing Amateur Radio stations in Ottawa, Edmonton and elsewhere. In the event of a wide-area disaster, these stations will be manned by public service employees who are licensed amateurs and will handle emergency traffic with any disaster area in Canada.

Still a third justification for ARES is to provide backup communications for the police and fire services where needed, and to provide communications for emergency response services that don't have their own, such as Red Cross. By formal agreement, signed years ago, ARES is committed to providing all emergency communications for this indispensable disaster organization. In addition, ARES has provided an essential service in helping police, fire and ambulance services to communicate with each other, since these often operate on different frequencies.

How do we operate? Specific communications organization and mode of operation will depend on the nature of the disaster. In general, however, when we are asked to help out, I appoint a net control station and assign two-man emergency stations to operate out of each site needing our help. Communications are provided by battery-operated hand-held transceivers, or by mobile transceivers operated from automobiles. We have two repeater stations in Kingston, and we can access several other repeater stations within

a radius of 70-100 miles. These repeaters, built and maintained by amateurs, provide a significant increase in the coverage that can be obtained with low-power equipment. In the greater Toronto area, there are dozens of repeater stations available for emergencies, and throughout Ontario, there are several hundred others. This type of communications is carried out for the most part on the 2-metre band which extends from 144 to 148 MHz.

As I mentioned earlier, we can also provide long-distance communications. This is done from well-equipped base stations of one or more of our members, using a high-frequency band that is appropriate for the distance to be covered. We own one gasoline-driven generator, and we have access to several others that can be used if there is an electrical power interruption.

If a disaster occurs in the Kingston area, or is threatened, the organization desiring assistance will call me or one of my assistants. As part of our emergency communications plan, we have a telephone tree. If the telephone system is inoperative, our members are trained to check for instructions on the main Kingston repeater which has emergency power backup.

As an example, 22 of our members were involved in the 1987 exercise for the Township of Kingston. This was "Exercise Autumn Leaf" which involved all of the emergency response units in our community. The scenario was a simulated collision

between a loaded school bus and a highway tanker containing a toxic chemical. We provided two communications nets, one for the Red Cross and one for the Eastern Director and his five assistants. In the course of this evening exercise, we handled over 100 messages, 25 of which were formal radiograms. One message was relayed to Red Cross headquarters in Toronto.

This exercise gave us, and indeed all of the other participating agencies, some valuable experience. We have participated in several other emergency exercises sponsored by the Red Cross and Kingston Emergency Health Services. Each year, we also hold one or two exercises on our own, to maintain and sharpen our formal message handling skills.

As another example, I refer to the Calgary flood alert last May. This is of particular interest to this seminar where the focus is on floods. A handout describes the assistance ARES gave to Calgary Disaster Services in this emergency (The handout was a copy of Ken Oelke, VE6AFO's report on the Calgary Flood Watch which appeared in last October's column.)

So far, we have set up two 2-metre stations at two agencies in our area, one at the Kingston Township Emergency Control Centre, and one at Red Cross House in downtown Kingston. Each station comprises a 2-metre transceiver and a top-quality commercial antenna. Our operations are covered by an emergency communications plan which is updated, where necessary, every two years.

How can a municipality contact its local ARES group? As I mentioned earlier, there are some thirty ARES groups organized across the province. You should be able to contact your nearest EC through any Amateur Radio operator in your area. The Department of Communications can give you their names on request. If you have difficulty, please drop me a line and I'll be glad to have the appropriate person get in touch with you.

Before I conclude, I'd like to make one point very clear. In our area, and in most parts of Ontario, the police, fire, ambulance and public works departments are well equipped to handle their own emergency communications within the local area. We expect they will need little or no assistance from ARES. The hospitals, St John Ambulance and Red Cross, however, do not have their own equipment, so here it is that we expect to make the strongest contribution.

That's the story of ARES. In Kingston and in many other areas of the country, we have put a lot of effort into preparing ourselves to help out in an emergency. We are proud of our capabilities. We don't claim to have all the answers—we are still learning. Unlike many other communities across the continent, we in Kingston have never had a major disaster, but we're ever mindful of the old saying, "It can happen here." —Bob Boyd, VE3SV

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