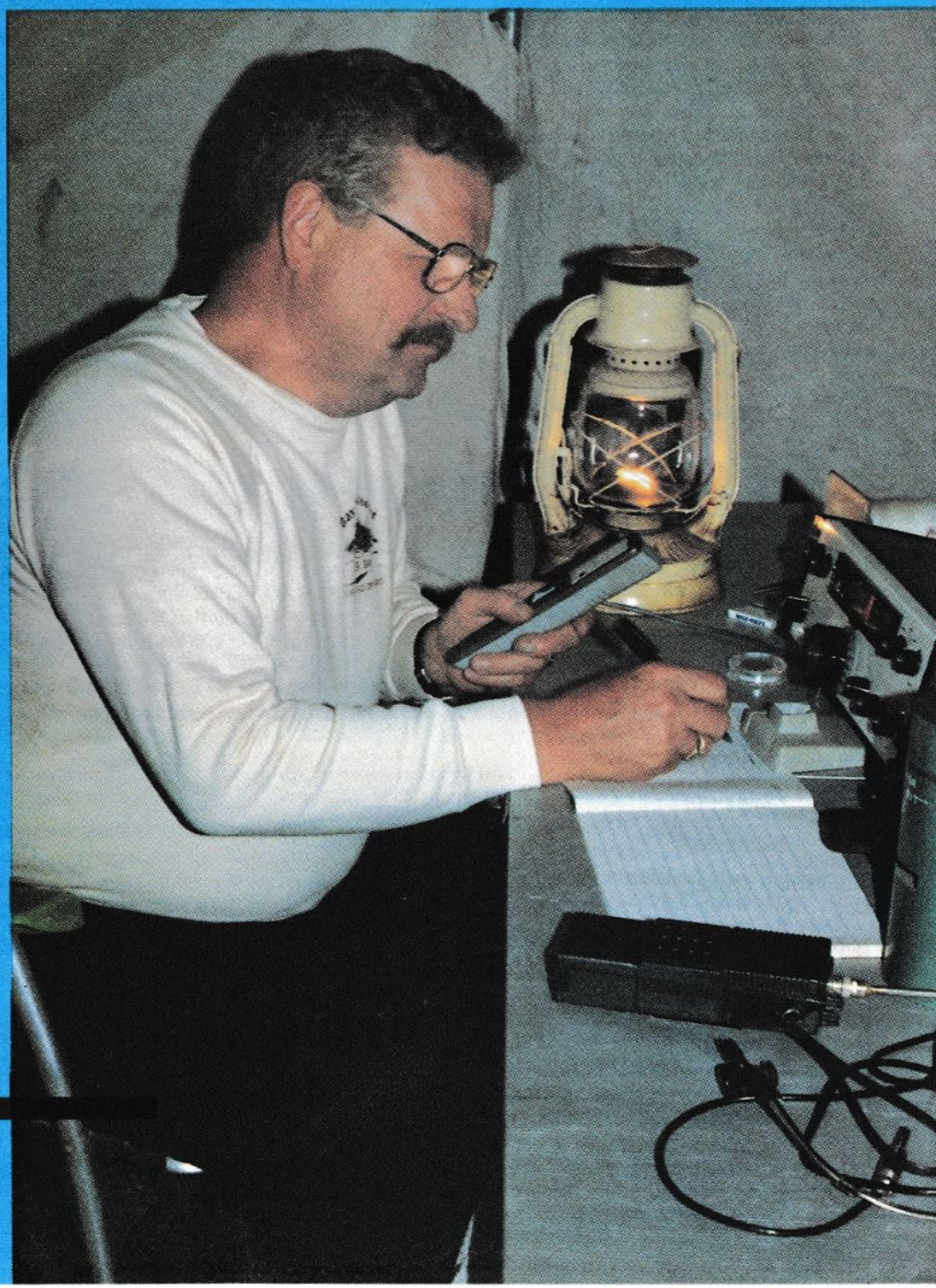
QST CANADA

Official Journal of the Canadian Radio Relay League
Journal officiel de la Ligue Canadienne de la Radio Amateur

Canadian Keys Part 2

VHF-UHF Report

$2.50
November
novembre
1988



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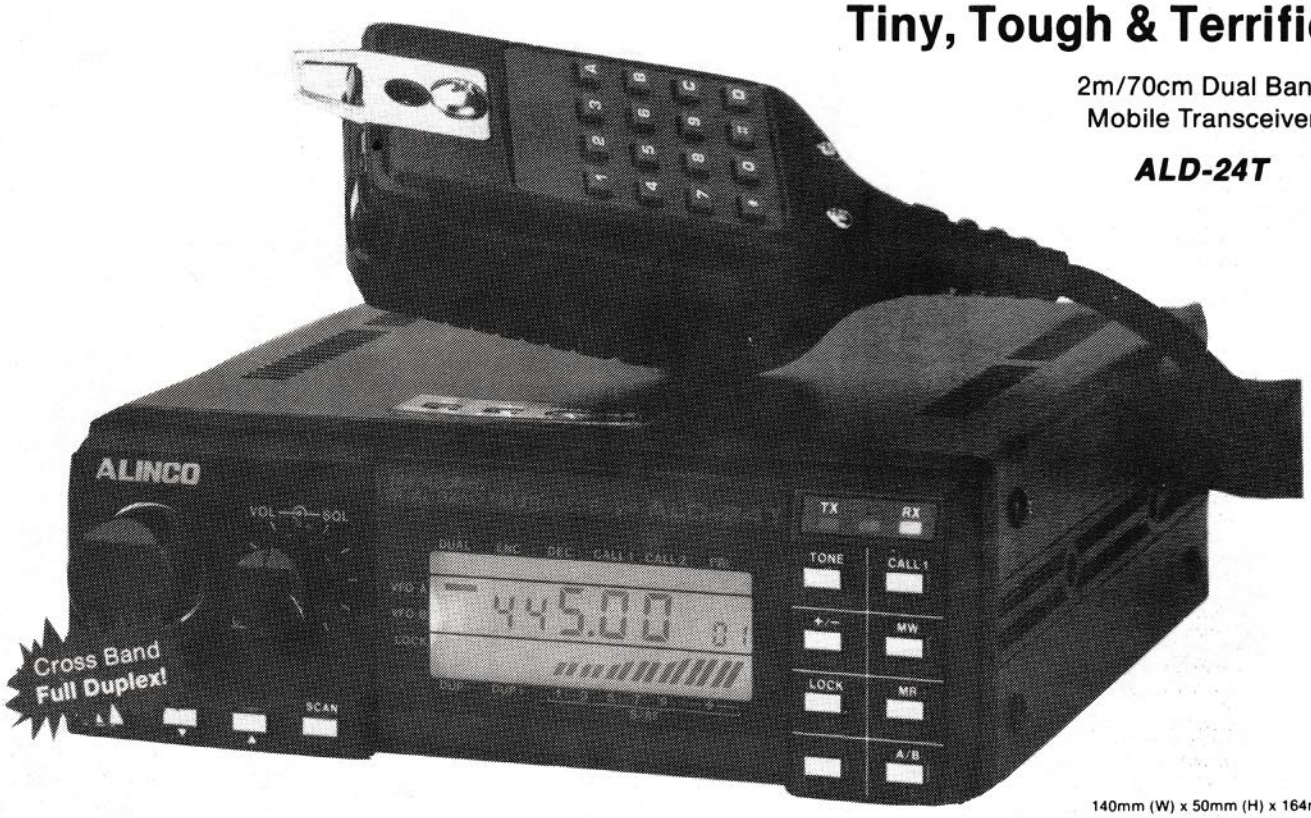

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The Canadian Radio Relay League, Inc
La Ligue Canadienne de la Radio Amateur, Inc

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 can 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).

QST Canada (ISSN 0840-6170) is published twelve times each year by CRRL Publishing, Inc, Box 7009, Station E, London, ON N5Y 4J9 (519-660-1200). *QST Canada* is recommended by CRRL and all CRRL members receive it automatically. Subscription rate: $23 for one year ($42 for two years, $60 for three years); in combination with *QST*: $45 for one year ($84 for two years, $126 for three years). Discounts are available for seniors over 65. Please write for details.

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

The Cost of Amateur Radio

"Ham Radio is just too expensive. Have you seen the price of equipment? Radios cost so much now that beginners can't afford them. No wonder we aren't attracting new hams!"

How many times have you heard this or read this in an Amateur Radio magazine? I've lost count! So I thought it would be interesting to see how much radios have increased in price over the past twenty years since I was a student getting started in the hobby. I couldn't find any old Canadian catalogues of Amateur Radio equipment, so I've based my comparison on US prices shown in *QST*.

In 1968, a medium-priced SSB transceiver such as a Swan 500C, Galaxy V or Yaesu FTDX400, with an ac power supply, sold for around $600-625. A lower-priced SSB transceiver such as the National NCX500 or Swan 350, with an ac supply, sold for roughly $500-$525. A fairly expensive SSB transceiver such as the Hallicrafters SR400, including an ac supply, sold for $920. A Novice CW station consisting of a Heathkit HR-10B receiver, DX-60B transmitter and HG-10B VFO sold for $210.

Radios were a lot less expensive in 1968, right? Well, not really. Don't forget about inflation. If we take inflation into account, those medium-priced SSB transceivers were really selling for $2200-2300 in 1988 dollars. The inexpensive transceivers cost the equivalent $1800-1900 while the more expensive Hallicrafters transceiver cost the equivalent of $3350! Even the Novice station cost over $760 in today's money.

Now if we look in *QST* today, we'll see that medium-priced SSB transceivers such as the Icom IC-751A, Yaesu FT-767 and Kenwood TS-440 sell for $1600-1900 including ac supply. Lower-priced transceivers such as the Icom IC-735 or Yaesu FT-757 cost $1200-1300 with supply, while the more expensive rigs such as the IC-761 and Kenwood TS-940 sell for roughly $2400. When inflation is taken into account, today's SSB transceivers are actually cheaper than they were 20 years ago.

As a bonus, today's radios offer vastly superior performance. In fact, if this analysis were extended to other decades, I'm sure we would find that, over the years, Amateur Radio equipment has offered a steady improvement in performance with a steady reduction in price once inflation is taken into account.

Even a "no frills" radio such as the Yaesu FT-747 costs only $1100 including a power supply. This can be reduced to around $800 if the radio is purchased without a supply and an old car battery and battery charger is used instead. So, for little more than the equivalent cost of a simple kit CW station sold in 1968, today's beginner can purchase a 100-watt SSB transceiver. And that's without exploring the option of going to used equipment.

So why aren't more people attracted to Amateur Radio? I think the answer is fairly simple. While it used to be that those interested in electronics started tinkering and learning about analog circuits and radios, today's explosive growth in personal computers has taken the spotlight away from radio and shone it onto digital electronics. For example, friends of mine who design commercial radio systems complain of not being able to find new engineers with a knowledge of radio. We seem to have forgotten that marvelous new services made possible by digital switching and transmission systems may still require a radio engineer to design the RF systems and radios to carry the digital signals.

So what can we do? First, look to Restructuring of the Amateur Service to make it easier for those interested in radio to become licensed. However, it will still take personal contact by those who are presently amateurs to inform the public about Amateur Radio and spark the interest.

Have you talked with your friends about your fascinations for the hobby? Have you told your friends about the excitement of using Amateur Radio to provide all the communications for the Skitrek expedition? Have you told your computer-enthusiast friends that they can connect their computers to Amateur Radio and communicate via packet? Have you mentioned using your local FM repeater to talk to other amateurs while driving to work? Have you talked about communicating with amateurs around the world by Morse code, voice, printed text or slow-scan television? Have you described the thrill of catching an opening on 2 metres or communicating through our fabulous OSCAR satellites?

Clubs can help too. Does your club advertise its meetings in the media? Has it ever held a meeting just to introduce newcomers to Amateur Radio? Does it run licencing classes? Does it advertise its Amateur Radio fleamarkets to the public?

Yes, Amateur Radio is a fascinating hobby. Probably, it's never been better. But is it too expensive? Why, it's really never been cheaper! —*Ray Perrin, VE3FN*

Letters/Lettres

Conducted By Harry MacLean, VE3GRO

All letters will be considered carefully. We reserve the right to shorten letters in order to have more information and views presented. The publishers of *QST Canada* assume no responsibility for statements made by correspondents.

DOC RELEASES LICENCING INFORMATION: THE BACKGROUND STORY

CRRL President Atkins: The purpose of this letter is to report to you on the progress to date of our investigation into your complaint dated February 26, 1988, against the Department of Communications. Our investigation disclosed that your access request for a listing of licensed Canadian Amateur Radio operators was received by the Department of Communications on December 30, 1987. On January 25, 1988, the Department informed you that, while they had released this type of information in the past, they had now received a complaint under the *Privacy Act* and were no longer able to release the information. At the same time you were advised that the information had been exempted under provisions of Section 19 of the *Access to Information Act*. You were also notified that you could complain to the Information Commissioner, which you did.

During this investigation, consideration was given to the possibility that this information might be releasable in the public interest as to do so, in our view, would be consistent with the purpose for which the information was obtained. A number of meetings were held with officials of the Department of Communications and we suggested that the benefit to the general public resulting from the release of the information would be considerably greater than any invasion of privacy. I should add that this view was shared by the Department of Communications. However, they hesitated in making a final decision until the complaint under the *Privacy Act* had been resolved.

As you are aware from your recent discussion with the Department, a decision has been made to release the information to you. I propose to record your complaint as justified with a resolution mediated. You will be receiving the information that you requested and, failing any further word concerning non-disclosure, our investigation will be considered closed. *—Ingar Hansen, QC, Information Commissioner*

PROUD AMATEUR

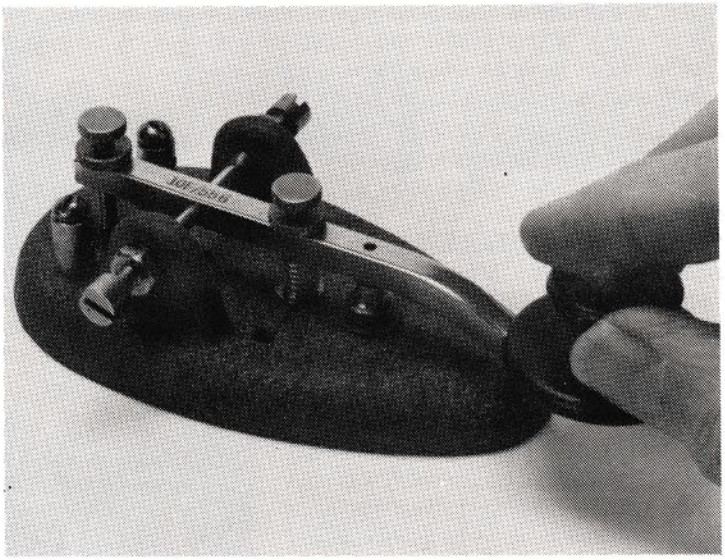
CRRL President Atkins: I have read with great interest the various articles on the Polar Bridge Skitrek and I am very impressed with the professional way that you and your team assisted. It is this type of operation which adds great prestige to the hobby. I am proud to be an amateur when I read of this type of success. *—Brian Eddy, VE3KXF*

OSC SAYS "THANKS, CRRL"

CRRL President Atkins: I want to thank you and your CRRL associates for all your support on the Ontario Science Centre (OSC) Polar Skitrek exhibit. I realize that you and your people were extremely busy prior to and during the exhibition and, for that reason, I appreciate all the more your time and your efforts to help. I am pleased that we were able to give our visitors some insight into the nature of this unique expedition. *—Vic Tyler, Science Branch, OSC*

History of the Canadian Key

Part 2: World War 2 to the present. How to collect keys.



By Murray Willer, VE3FRX
557 Spadina Rd
Toronto, On M5P 2W9

When World War 2 came along, there was a tremendous increase in the communications requirements of the army, navy and air force, and each service developed keys for its particular needs. Fig 11 illustrates several keys used by the British and Canadian armies and built by a number of different contractors. The two on the left were built by Northern Electric (now Northern Telecom). Brackets were made from plate extrusions. The two on the right were built by the Westclox Company of Peterborough, Ontario. Brackets were made from pressed steel fittings. These keys were also made with steel enclosures as shown and fitted with web straps for fastening to an operator's thigh for use in a tank or other vehicle.

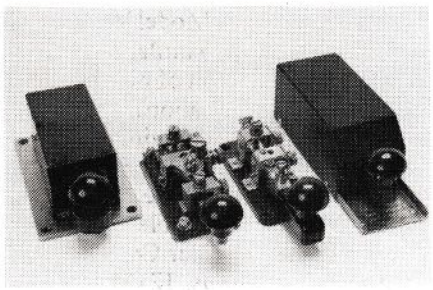
During World War 2, many small companies moved into contract work for the armed services. The Wilson Company of Toronto, which made toys before the war, built a number of keys for the RCAF. Fig 12 shows a practice set incorporating a key, buzzer and battery holder. The nameplate reads "BUZZER, PRACTICE, AIR CADET TYPE, RCAF REF No. 10A/4236". The same company made the excellent hand key shown in Fig 13. It was of teardrop design with a cast steel base in air force blue. This key had a good operating feel.

The Wilson Company also made a semi- automatic key for the air force, the key illustrated in Fig 14. The RCAF, realizing a need to quickly train large numbers of wireless operators, designed a bug that could be operated slowly, by incorporating a soft spring in the pendulum and adding two large pendulum weights. The Wilson bug was one of the few bugs that operated nicely at slow speeds. It also had a high T-bar and high damper post which allowed it to be turned on its side and, with pendulum locked, operated as a regular hand key. In addition, it could be set upside down, converting it to a left-hand bug. This bug carries the designation "KEY, MORSE, SEMI-AUTOMATIC, RCAF REF NO 10F/7390". Readily available as surplus at the end of the war, these keys are now becoming quite scarce. The key shown in Fig 15 was used in Canadian and British aircraft and was built in quantity in Canada. It was called the "bathtub key" because of its shape. All of the hardware was mounted on the upper portion of the key which swung open for contact and spacing adjustment. If the operator's aircraft was going to ditch in the ocean, the operator snapped the closure spring over the knob's protective disc. This held the contacts down to send out a carrier signal that would assist in locating the aircraft.

The flameproof key shown in Fig 16 had enclosed contacts inside a heavy aluminum case. It was manufactured for the British Admiralty by the Sparton Company of London, Ontario. The nameplate reads "ADMIRALTY PATTERN 2342 KEY SIGNALLING A/SI". It is believed to have been built for submarine detection equipment, although confirmation of its exact use is lacking.

Today

Most of the companies that built keys during the last 140 years or so have now passed into history. There are, however, several companies in the US, Europe, USSR, and Japan that still make keys,



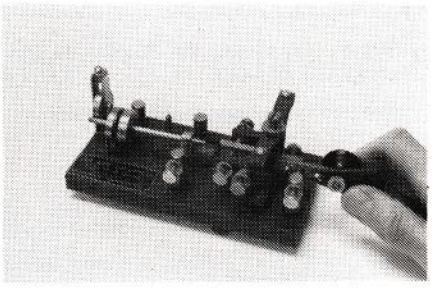
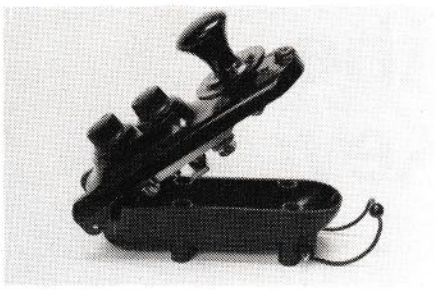


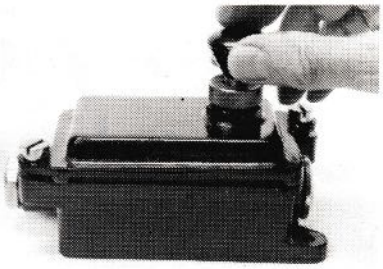
Fig 11 (left): Canadian Army keys built by Northern Electric and Westclox. Fig 12 (middle): Practice key by Wilson Company of Toronto. Fig 13 (top of page): RCAF hand key by Wilson Company of Toronto. Fig 14 (right): RCAF semi-automatic key by Wilson Company of Toronto.

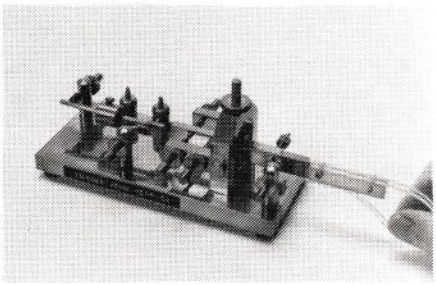
mostly for Amateur Radio market. As far as we know, there are no Canadian companies today building Morse keys on a production basis. But radio amateurs, being what they are, often build their own keys, and some interesting examples of Canadian homebrew keys show up from time to time.

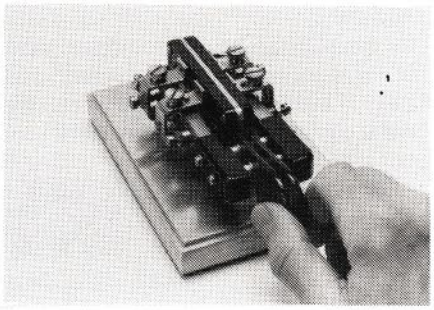
Fig 17 shows a beautifully built brass bug built by John Merrick, VE3AWA. The design is basically Vibroplex. The workmanship is excellent. Fig 18 shows another bug, this one built by Len Dodds, VE3GHN. It has a very large heavy stainless steel base and a post for holding extra pendulum weights. Fig 19 shows a key for fully automatic operation. It was built from two World War 2 Westclox hand keys mounted back to back on a heavy common base. Picked up at a flea market, its maker is unknown.

The homebrew paddle built by Ray Hunter, VE3UR, shown in Fig 20, uses a capacitance technique. The finger pieces are made of solid copper stock connected to two tuned circuits. Touching the finger pieces changes the capacitance of the circuits which are connected to internal relays. In long CW contests where fingers often take a beating, the capacitance paddle provides a softer, more restful mode of operation.









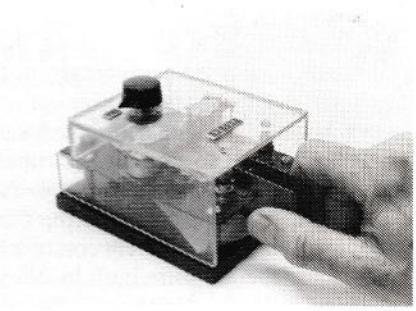


Fig 15 (top left): WW 2 "bathtub key" used in Canadian aircraft. Fig 16 (top right): WW 2 key for British Admiralty by Sparton Company, London, Ontario. Fig 17 (middle right): homebrew bug by John Merrick, VE3AWA. Fig 18 (middle right): homebrew bug by Len Dodds, VE3GHN. Fig 19 (bottom right): homebrew paddle, maker unknown. Fig 20 (bottom right): homebrew paddle and keyer by Ray Hunter, VE3UR. *(All photos by the author)*

Collecting Keys

Collecting and restoring telegraph and wireless keys can be an interesting and challenging hobby. How does one go about finding keys? Obviously, the best places are Amateur Radio fleamarkets. There are also some specialized fleamarkets (these do tend to be in the US) devoted to early radio. These are a rich source of older wireless and telegraph keys. The best of these fleamarkets are listed in *The Old Timer's Bulletin*, published quarterly by the Antique Wireless Association, Holcomb, New York. Of course, a serious collector will soon get to know other collectors who can supply historical information as well as information on where to acquire keys.

What should a key cost? This is simply determined by how much the seller wants and how much the buyer is prepared to pay. Hopefully, both buyer and seller end up happy! While today's prices for keys tend to be reasonable, prices are rising as keys become harder and harder to find.

Murray Willer is graduate of the University of Toronto and a mechanical engineer. He worked in the aircraft industry until 1959 when he established Willer Engineering, Ltd, which specializes in industrial measurements and controls. Recently, Murray turned over the management of his company to others, giving him more time to pursue other interests like Amateur Radio. Murray, first licensed in 1939, has been an active radio amateurs for many years. Now, much of his time is spent on the history of wireless and telegraphy, and on restoring old instruments. His collection of over 250 wireless and telegraph keys is probably the largest in Canada.

Murray Willer welcomes correspondence on the subject of keys.

Calendar/Calendrier

Conducted By Ray Staines, VE3ZJ

Knokke Heist, Belgium: To commemorate the Canadian liberation of Knokke Heist in 1944, special event station ON4CLM (Canadian Liberation Movement) will operate on the following frequencies on October 28-November 2: CW: 3.515, 7.012, 14.02, 21.02 and 28.02 MHz. SSB: 3.685, 7.045, 14.145, 21.245 and 28.545 MHz. A special award, with proceeds used to maintain memorial displays, is available.

CRRL VHF-UHF Fall Sprints: 50 MHz: Any 24 hours between 1000 UTC Saturday, October 29 and 0300 UTC Monday, October 31. 902, 1296 and 2304 MHz: Any 4 hours between 1800 local time and 0300 local time beginning on Thursdays, October 27, November 3 and November 10 respectively. For more details, see the rules on page 7, October *QST Canada*.

CRRL "QST" AWARD QSO PARTY: Phone: 1500-2000 UTC on both November 5 and 6. CW: 1500-2000 UTC on both November 12 and 13. Most operation on 20 metres. Work eight out of a possible eleven CRRL-sponsored "QST" stations (VOlQST, VElQST, VE2QST, etc) to qualify for the "Worked All 'QST' Award". To receive the award, send log data and SASE or IRC to CRRL Awards Manager Garry Hammond, VE3XN, 5 McLaren Avenue, Listowel, ON N4W 3K1.

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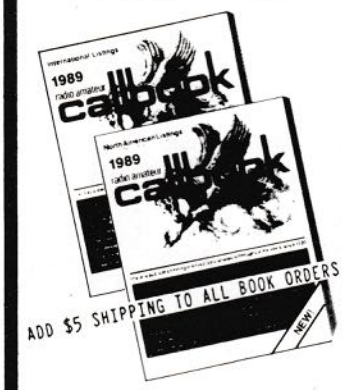

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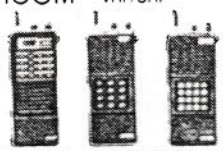

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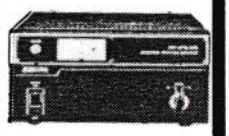

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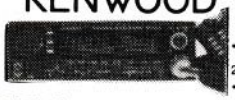

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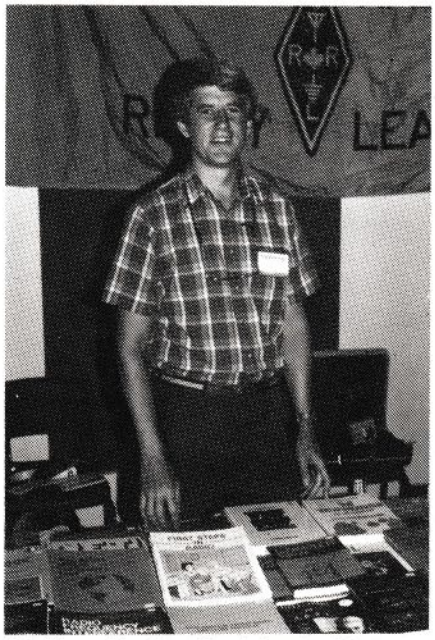
Section News/Nouvelles des Sections

Conducted By Jack Strangleman, VE3GV

The CRRL Field Organization Forum



Maritimes-Newfoundland Section Manager Carl Anderson, VE1BQO, at the CRRL booth at the Atlantic Hamfest held at UNB, Fredericton, on August 19-21. *(VE3GRO photo)*

Section Managers of the CRRL: For purposes of the CRRL Field Organization, Canada is divided into seven Sections, each headed by an elected Section Manager (SM). Your SM welcomes reports of individual and club activities. CRRL Field Organization appointments are available for a wide range of volunteer interests. Check with your SM for details.

Alberta	William Gillespie, VE6ABC, 10932 68th Ave, Edmonton, AB T6H 2C1 (403-438-2510)
British Columbia	Ernest Savage, VE7FB, 4553 West 12th Ave, Vancouver, BC V6R 2R4 (604-224-5226)
Manitoba	Jack Adams, VE4JA, 227 Davidson Ave E, Dauphin, MB R7M 2Z4 (204-638-9270)
Maritimes-Nfld	Carl Anderson, VE1BQO, 25 Lawnsdale Dr, Dartmouth, NS B3A 2N1 (902-469-9756)
Ontario	Larry Thivierge, VE3GT, 34 Bruce St W, Renfrew, ON K7V 3W1 (613-432-5967)
Quebec	Harold Moreau, VE2BP, 80 rue Principale, St-Simon PQ J0H 1Y0 (514-798-2173)
Saskatchewan	Bruce Rattray, VE5RC, 128 Durham Dr, Regina, SK S4S 4Z2 (306-584-2059)

SECTION MANAGER ELECTION NOTICE

To all CRRL members in the Ontario Section: you are hereby solicited for nominating petitions pursuant to an election for Section Manager. Nominations will be received at CRRL headquarters until 1600 EST 1988 December 10. For further details, see this column in last month's *QST Canada* or contact CRRL Headquarters.

Alberta: SM/STM/DEC: VE6ABC, ASM: VE6AMM, SEC/TC: VE6AFO, OO: VE6TY. It's August. Not much happening throughout the Section. Amateur classes about ready to start. A fairly large number of new amateurs in the Edmonton area getting antennas erected before winter sets in. Yours truly, Bill Gillespie, VE6ABC, has decided not to run again for CRRL Midwest Director. Too many things to do on the home front and it's time to let someone else take over. Still going to continue with the SM job as well as with other CRRL activities.
Manitoba: SM: VE4JA. During the early part of August, I had the pleasure of being the guest of Mr Hector Paulhaus, News and Sports Manager of Dauphin radio station "730" CKDM. Mr Paulhaus asked many questions about Amateur Radio and an Amateur Radio class to be started in early October (12 signed up as of September 1). Since I will be instructing the class with the help of Stu, VE4STU, and hopefully, Ray, VE4ADP, I took the opportunity to highlight Amateur radio here and worldwide. Since the interview with Mr Paulhaus, he attended the summer games at Pinawa-Beausejour and observed amateurs using their communications skills. He said I should mention them individually in my monthly column. So, gang of summer games 1988, very nice to have a non-amateur compliment you: Fred, VE4AC, John, VE4ADS, Paul, VE4AEY, Bun, VE4DD, Jim, VE4FK, Gord, VE4IF, Keith, VE4FR, Ken, VE4LK, Doug, VE4QZ, Rod, VE4TM, Dave, VE4XN, Cal, VE4XQ, John, VE4ZP, and organizer Dick Holder, VE4QK.
Maritimes-Newfoundland: SM: VE1BQO. Congratulations and thanks to the Fredericton Amateur Radio Club and coordinators Murray, VE1TE, and John, VE1BF, for staging the Atlantic Hamfest at UNB. The icebreaker reception, fleamarket, forums and banquet were all well attended. CRRL Atlantic Director Andy McLellan, VE1ASJ, presented Brit Fader, VE1FQ, with a well deserved award recognizing Brit's almost fifty years of service as VE1 QSL Manager. I'm looking forward to attending the Pictou County (NS) ARC 40th Anniversary banquet in New Glasgow on September 17. I also look forward to representing CRRL at other events of this type that you bring to my attention. Note to Maritimes-Newfoundland radio clubs: Please advise me of your club's roster of officers and current mailing address. Updates as officers change would be appreciated.
Ontario: SM: VE3GT, BM: VE3GSA, SEC: VE3GV, STM: VE3CYR, TC: VE3EGO. Repeater VE3LAC in London has changed call sign and location. It is now VE3LON and located at Arva on a 160-foot tower. VE3LAC becomes the call of London Amateur Radio Club. Toronto FM Society is pleased to announce a new net called the "Astro Net". Net Manager is VE3MDK. The net meets Tuesday evenings at 2200 local time on VE3RPT. Participants discuss astronomy and other space-related subjects. Some of the topics discussed recently include nebulas, galaxies, binary star systems, planets, black holes, spacecraft and telescopes. VE3SB is sporting a new TS-440 while VE3BUO has a new Ten-Tec Paragon. VE3GSA has a new Butternut vertical which will get him onto the lower bands. NTS nets operating within the Section are as follows (* denotes a Section net, frequencies are in kHz except for 2- metre repeaters which are in MHz, times are in UTC):

Net	Freq	Time	Mgr
OQNI*	3667	1830 daily	VE3GSQ
OQND*	3667	2100 daily	VE3ORN
OLN	147.66/.06	2300 daily	VE3POJ
OQNE*	3667	0000 daily	VE3CYR
OPN*	3742	0000 daily	VE3BUO
KTN	147.96/.36	0200 TuThSa	VE3AJN
OQNL*	3667	0300 daily	VE3GSQ

VE3PBO (146.625/.025 Mhz) in Peterborough can now be dialed through the VE3TBF hub in Haliburton. Activity has been high, especially between VE3TBF on 2 metres and VE3PBO. Congratulations to Peel ARC on the occasion of their 25th anniversary. The club has agreed to set up an emergency transmitter at the Red Cross headquarters in Brampton. Initially, an HF station is planned and if it works out, equipment for packet and VHF operation may be added.
Quebec: SM: VE2BP, BM: VE2ALE, SEC: VE2LYC, STM: VE2EDO. On September 1, all nets resumed fall and winter activities. VE2UMS/2 Mini-Dxpedition to northeastern Quebec, Zone 2 was held on October 1-2. Avec regret, je dois vous annoncer le déces de Jean-Claude, VE2XY. Le Jamboree des scouts le 15-16 Octobre: voir *QST* pour les détails.
Saskatchewan: It's September 7 as I'm writing and we're having cool nights and warm sunny days and the leaves are turning colour. I suspect large antenna projects are best done now. On September 2, the Avonlea Repeater Group (146.46/147.06 MHz) "Commando Section" scaled the 3000-foot height of their repeater site with the help of "mechanized goats". ETA was 10 am and by 6:30 pm, a 7-foot by 9-foot insulated building, covered with corrugated metal and complete with a 300-pound double-locked steel door covering a regular door, was finished. The "electronics" were to be moved from the presently shared building in two or three weeks. Approximately 125 hours for preassembly and eight and on-half hours on the site. But I've rarely seen a project go so smoothly. Sincere thanks to Fred, VE5IL, for being chief genius and foreman of the unruly crew of VE5s ADU, AQ, ELJ, IQ, PQ, RC, RQ, TH, WM and YR. My pleasure meeting the CRRL crew of Tom, Audrey, Ray and Harry at the Brantford (Ontario) Fleamarket, August 13. Provincial Survey reports still coming in. A complete report should be ready soon. Goodbye summer, hello winter. 73!

Silent Keys

Administered By Ray Staines, VE3ZJ

It is with deep regret that we record the passing of these amateurs:

VE2RA, Eugene Lajoie, Hull, PQ
VE2XM, Bill Oke, Lachine, PQ
VE3COK, Clare King, North Bay, ON
*Life Member, CRRL and ARRL

Note: Silent Key reports sent to CRRL Headquarters must include name, address and callsign of *reporter* in order to be listed. To avoid unfortunate errors, reports are confirmed only through acknowledgement from the family of the deceased. Thus, those who report a Silent Key may not receive an acknowledgement from CRRL Headquarters.

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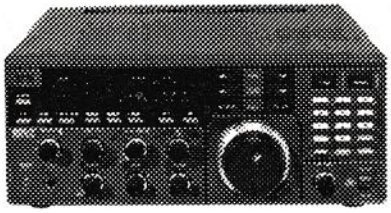

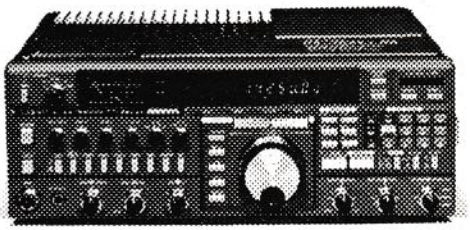

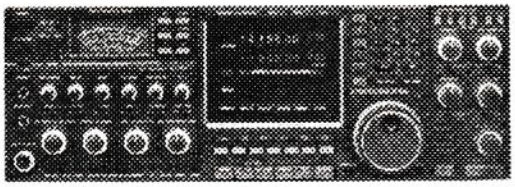

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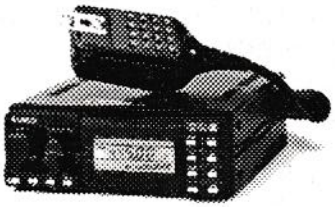

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Happenings/Evénements

Conducted By Harry MacLean, VE3GRO

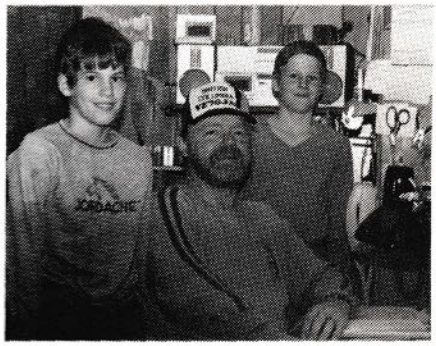
The Youngest Ham?

You've heard the story of the man with so many kids that he lost his place at the dinner table, but have you heard the one about the "old man" who lost his rig because there were too many hams in the family.? Gary Anderson, VE7GJA, of Ucluelet on the west coast of Vancouver Island, may not have lost his rig but he is sure to have scheduling problems now that his stepsons, 12-year old Michael, and 10-year old Ronnie, have joined him as licenced amateurs. Ronnie, VE7GRS, obtained his licence in May, 1988, following closely on the heels of his brother, Michael, VE7MRS, who had obtained his in April. Both were instructed at home by Gary.

The boys' interest in Amateur Radio was sparked when Gary obtained his Advanced ticket in the fall of 1986. In the fall of 1987, Michael became serious and announced that he was going for his ticket. That's when Gary started him on an Amateur Radio course at home. A couple of months later Ronnie joined in. The result: about six months later Ronnie successfully completed the written tests and code exam.

When you consider the many hours were spent by both Michael and Ronnie, studying theory, regulations, and code while still keeping up with regular school and home work, it makes you wonder where the boys found the time.

Congratulations to Gary and Michael, and especially to Ronnie who is probably the youngest amateur in Canada at this time. *—David Fancy, VE7EWI*



They're going to have set up a schedule to use the ham shack! From left to right, Ronnie Scott, VE7GRS, Stepdad Gary Anderson, VE7GJA, and Michael Scott, VE7MRS. *(photo courtesy VE7EWI)*

AMATEUR RADIO INFORMATION AGAIN AVAILABLE

CRRL's appeal to have DOC's Licencing Branch release names and addresses of all Canadian amateurs has been successful. About one year ago, DOC Licencing announced that, because of the *Canada Privacy Act*,it could no longer release this information. The CRRL appeal was strongly supported by the DOC Radio Regulations Branch which felt that public access to the information was a prerequisite for effective spectrum management. For background information, see the Letters column in this month's *QST Canada*.

CRRL DIRECTOR ELECTIONS RESOLICITATION

As mentioned in last month's *QST Canada*, in the current round of CRRL Regional Director elections, no valid nominating petitions were received from Quebec. (Actually, one valid petition was received. However, because of a change of employment, the candidate had to decline the nomination at the last moment.) The Quebec Region is hereby resolicitated for nominating petitions for the office of Quebec Region Director.

Under CRRL By-laws, candidates for Regional Directors must (1) reside in the Region they intend to represent, (2) have been a CRRL Full member for a continuous term of four years at time of nomination, (3) have held a Canadian Advanced Amateur certificate or equivalent throughout those four years, and (4) be at least 21 years of age. Additional information appears in the CRRL By-laws, available on request.

To be valid, a nominating petition must carry the signatures of 10 or more CRRL Full members residing in the Region concerned. It is advisable to have more than ten signatures. Photocopied signatures are not acceptable and signatures must be on the petition.

Petition forms (EDC-1) are available from CRRL Headquarters but are not required. The following form is acceptable:

. . . . . .(place and date)
CRRL Elections Committee
Box 7009, Station E
London, ON N5Y 4J9

We, the undersigned CRRL Full members residing in the . . Region hereby nominate . . . . . (name and call sign) as candidate for Director of this Region for the next two-year term of office.

. . . . . (signatures and call signs)
. . . . . (addresses including postal codes)

Nominating petitions for this particular election will be received at the CRRL Headquarters office until 1200 EST, 1988 December 20. Eligibility of candidates will be determined shortly after that. If only one eligible candidate is nominated in the Quebec Region, that candidate will be declared elected. If more than one candidate is nominated, a balloted election will take place. On or just before 1989 February 01, the CRRL Elections Committee will mail ballots to every person who, on 1989 January 10, was a CRRL Full member in the Quebec Region. Ballots will carry a copy of the CRRL By-laws governing the election and biographical material, up to 300 words in length, supplied by each of the candidates. Marked ballots will be received at CRRL Headquarters until 1989 March 20, and will be counted shortly after that, in the manner prescribed in the CRRL By-laws. Results will be announced on the *CRRL News* bulletins and in *QST Canada*.

You are urged to take the initiative and file a nominating petition immediately. — *Noel Eaton, VE3CJ, Chairman, CRRL Elections Committee*

ABOUT THE COVER

Who says you need high power to make good contacts? Dick Moore, VE3LRB, operated VE3QST 15- metre QRP in this year's Field Day and made over 80 contacts in a few hours of casual operating using only five watts and a ground-mounted vertical. *(VE3GRO photo)*

CRRL "QST" AWARD QSO PARTY

This event has been going strong twice a year (April and November) since 1985. Object is to work as many of CRRL's eleven "QST" stations as possible. Eight "QST" contacts will qualify you for the "Worked 'QST' Award" — a colourful certificate worthy of display in any amateur's shack. For more details, check the Calendar column in this month's *QST Canada*.

NEW RADIATION STANDARDS FOR DIGITAL EQUIPMENT?

Just before press time, CRRL received word that Communications Canada had just released a document outlining maximum allowable radiation from computers and other digital equipment. CRRL had commented on this matter two years ago when Communications Canada first indicated it was developing this document. An important point in the CRRL submission was that any piece of digital equipment creating actual interference to radio communications, even if it met standards, should be regarded as being in the wrong. Apparently, Communications Canada incorporated this point into the new document.

COMMUNICATIONS CANADA 902-928-MHz POLICY PAPER

Communications Canada's policy paper for 902 - 928 MHz should be available by the time you read this. If you are concerned about our future on this band, get a copy through your local Communications Canada office, read it and comment.

NOTES FROM ALL OVER

☐ To prevent possible interference to emergency communications resulting from Hurricane Gilbert, the phone portion of the CRRL Can-Am Contest, scheduled for September 17-18, was cancelled. Results in the CW portion, held on September 24-25, will determine winners of this year's Can-Am.

☐ We missed it too. Apparently, for several weeks in September, amateurs in Perth County, Ontario, were permitted to use the special prefix XM3. XM is a common prefix on the GRS band. This is believed to be the first time XM was made available for amateur use.

☐ Only hours before the start of the 24th Olympiad, Communications Canada approved the exchange of third-party traffic between Canadian amateurs and special event station 6K24SO at the Olympic village in Seoul. This approval terminated with the closing of 6K24SO on October 5.

☐ One of the last frontiers of the Amateur microwave spectrum has been crossed. On August 27, WA5VJB and KF5N in Texas and WA7CJO in Arizona completed the first-ever 10 GHz EME QSO. The WA5VJB group was running 55 watts from a travelling wave tube (TWT) into a 12-foot dish. The system was rounded out with an SSB Electronics Transverter. Receiver noise figure was 2.1 db. The WA7COJ group used 90 watts into a 4.8-metre dish, an image-reject mixer with a 28 MHz i-f and a 1.5 db noise figure. 20 KHz doppler shift and 1 KHz "doppler smear" made copy rough. Tnx *Rochester VHF Journal*.

☐ A letter in the May 13, 1988 issue of *Nature* from Mr Geoff Brown, Dept of Physics, University College of Wales, indicates that "Cycle 22 could be *second* to Cycle 19 as the *largest* cycle on record". Mr Brown predicts that Cycle 22's peak will come in 1990 " plus or minus one year". A related article in the July 7 issue of *New Scientist* states that NOAA predicts a peak in September 1989 with sunspot count of 170 and perhaps as high as 200. Worldwide 50-MHz communications will occur for twelve or more hours a day if these people are correct. Reception of European and Pacific TV signals is possible as well. During Cycle 21, BBC TV audio on 53 MHz could be heard for hours on end. 70-MHz crossband QSOs should be possible between the east coast of Canada and the UK.

☐ Earlier this year, New Zealand Association of Radio Transmitters (NZART), the New Zealand national Amateur Radio society, established a special "WARC '92 Fund" for defence of our amateur frequencies. Goal of the fund is NZ$ 90,000 (about CDN$ 80,000).

CHECKING POLARITY

Can't figure out which is positive and which is negative? Try this "old-timer's trick". Place your two leads in a salt water solution. When the current flows, the negative lead will have bubbles around it and the positive lead, if it is copper, will turn green. Or stick the two wires into a potato and look for similar effects. Easy!

Winners: Polar Bridge Diploma

USSR/Canada Polar Bridge

DIPLOMA

presented to

MR. TERRY KEIM CI8QST

c/o CRRL HEADQUARTERS

Обладатель этой награды продемонстрировал всему радиолюбительскому сообществу свои выдающиеся способности и профессионализм в между народной любительской радиосвязи, сумее успешно установить связи с тремя станциями в канадских Северо-Западных территориях; тремя советскими станциями в азиатской части РСФСР; одной станцией в столицах двух сторон: в Оттаве и в Москве; одной из базовых радиостанций совместной канадско-советской трансполярной лыжной экспедиции 1988 года.

"Мы хотим соединить лыжней два континента. Пешком, чтобы показать, что мы - очень близкие соседи." Дмитрий Шпаро, руководитель экспедиции

"We are going to join two continents with a ski track. It is a walking trip. . . to show that we are very close neighbours." Dr. Dimitri Shparo, Expedition Leader.

The holder of this award has demonstrated to the amateur radio community, outstanding ability and professionalism in international amateur radio communications by successfully contacting three stations in Canada's Northwest Territories; three stations in the Soviet Union's Asiatic R. S. F. S. R.; one station in each of the national capital regions of Ottawa and Moscow; and one base camp communications centre during the Joint Canadian Soviet Transpolar Ski Expedition of 1988.

Dmitry Shparo UA3AJH
Expedition Leader

Leonid Labutin UA3CR
USSR Chief Radio Operator

UK3KP

The undersigned are pleased to acknowledge and endorse this certificate diploma of achievement and commemoration.

Нижеподписавшимся доставляет удовольствие признать заслуги награждаемого и вручить ему данный диплом на память и в подтверждение его достижений.

Dated this 15th day of August 1988

Awards Manager
CI8XN Garry V. Hammond VE3XN

Tom Atkins VE3CDM
Canadian Communications
Co-ordinator

Barry Garratt VE3CDX
Canadian Chief Radio Operator

Award No. 075

The Polar Bridge Diploma awarded to CI8QST (Terry Keim, VE8TF, operator). Requirements for the Polar Bridge Diploma were one contact with a station in Ottawa, one with contact each of the national capital regions of Ottawa and Moscow, three contacts with stations in the Northwest Territories, three contacts with stations in the Soviet Union's Asiatic RSFSR and one contact with a base camp communications centre during the 1988 Polar Bridge Skitrek Expedition.

The following are the first 200 winners of the Polar Bridge Diploma:

1. VE1ASJ	41. VE6TPA	81. WDX9JFT	121. VE1AST	161. K7CU
2. CI8HO	42. G4SDJ	82. VE8AJ	122. VE7EDT	162. SM6LIF
3. VE3XN	43. VE6LQ	83. KI6WF	123. VE6BHE	163. BRS44266
4. VE2QO	44. W0RRY	84. XE1F	124. I5ZJK	164. NL5736
5. VE3EFX	45. W6TVP	85. VE3XK	125. I1SNW	165. W6MTJ
6. VE3HIR	46. N7BSA	86. N9GPK/SWL	126. DK3PZ	166. VE3GHZ
7. I8ACB	47. GM3ITN	87. KDX1A	127. G4UNH	167. NW2I
8. VY1CW	48. KD3AL	88. N4MM	128. KA9PJZ	168. G8PX
9. W0IAK	49. VE3FKD	89. VE7BAV	129. VE2PJ	169. G-1516
10. CI8TF	50. G3JBR	90. VE7ARK	130. VE3PHU	170. K6AAW
11. W0MLY	51. VE6EY	91. VE5RC	131. VE3MVP	171. DL1ES
12. N6BOI	52. WD9GQV	92. VE1BKK	132. VE3AC	172. DJ6ZC
13. W1JR	53. GM4LPG	93. VE3GQV	133. IK3JBW	173. DK6ZB
14. VE3NEG	54. KA9VRA	94. DL1523497	134. K3FN	174. VE6BS
15. VE6VK	55. W8CHV	95. VE7ZK	135. AA6FQ	175. VE7FB
16. G4RFV	56. K1HKI	96. G3KYF	136. VE7AF	176. SWL(AS)
17. VE7CEW	57. I8IYW	97. K8MDU	137. NN3Z	177. K2RSK
18. CI8YQ	58. VE6KC	98. K0HT	138. VE3NMS	178. IK5EXV
19. GW4UVL	59. VE7AX	99. G4NXG/M	139. WB1CTV	179. WA0GUD
20. K8YSE	60. KC7EL	100. WDX2TAU	140. W7CNL	180. WA8OSE
21. IK8DOI	61. W9WM	101. VE6ATT	141. VE3UR	181. VE7EAW
22. VE3DAP	62. N5KUZ	102. G4SSH	142. WD4AHZ	182. G4DQW
23. YU8SF	63. N5KMR	103. W1CRL	143. WB0N	183. I4WZK
24. ARS43633	64. VE6COD	104. ON5FP	144. KC9W	184. G3NSY
25. VE3JGC	65. W1AIM	105. W3HCW	145. G0ANH	185. VE5AEC
26. VE6CSZ	66. GM4PVC	106. VE3GOM	146. VE3BAK	186. Y37XJ
27. VE7FJE	67. KY7U	107. VE3BTQ	147. NL7HT	187. BRS90400
28. VE3NSZ	68. WB4UBD	108. G4WUK	148. W1SP	188. VO1CU
29. K5JG	69. G4SXU	109. DJ2MN	149. VE6BEQ	189. U3HB
30. VE1ACK	70. WB3CQN	110. VE6EO	150. DE0DXM	190. KA7NOC
31. VE3FXR	71. K8PYD	111. KM1B	151. NL7DU	191. WA9RCQ
32. VE3MDQ	72. LA1VFA	112. VE2EDK	152. VE7COP	192. VE6GUS
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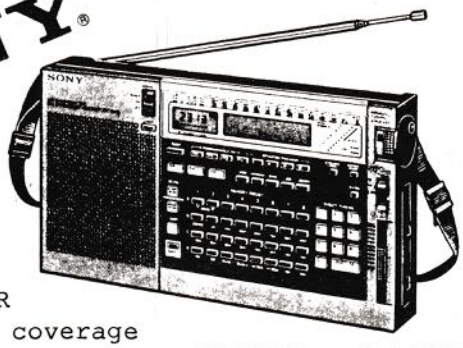

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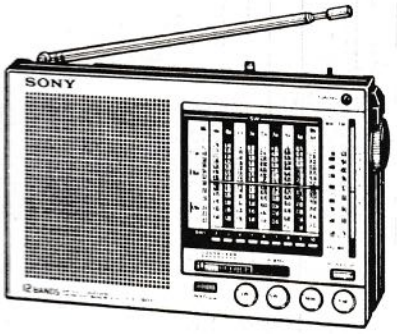

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Our VHF-UHF Multimode Resources

In this month's column I'd like to discuss some of the things necessary to get on VHF/UHF if you are interested in doing more than working your local FM repeater.

Believe it or not, there are a lot of Canadian Radio Amateurs who still don't realize that FM isn't the only mode of transmission used on VHF/UHF today. Many are surprised when they hear that you can work 200 miles easily on 144 MHz SSB and better than 300 miles on CW with 25 watts! "How do you do it?" they ask. "What kind of links are you using?" Others are amazed that similar ranges are possible on 903, 1296, and 2304 MHz using SSB, CW or non-repeater FM. It's a reality that seems to have been lost on the majority of Canadian amateurs over the last 20 years.

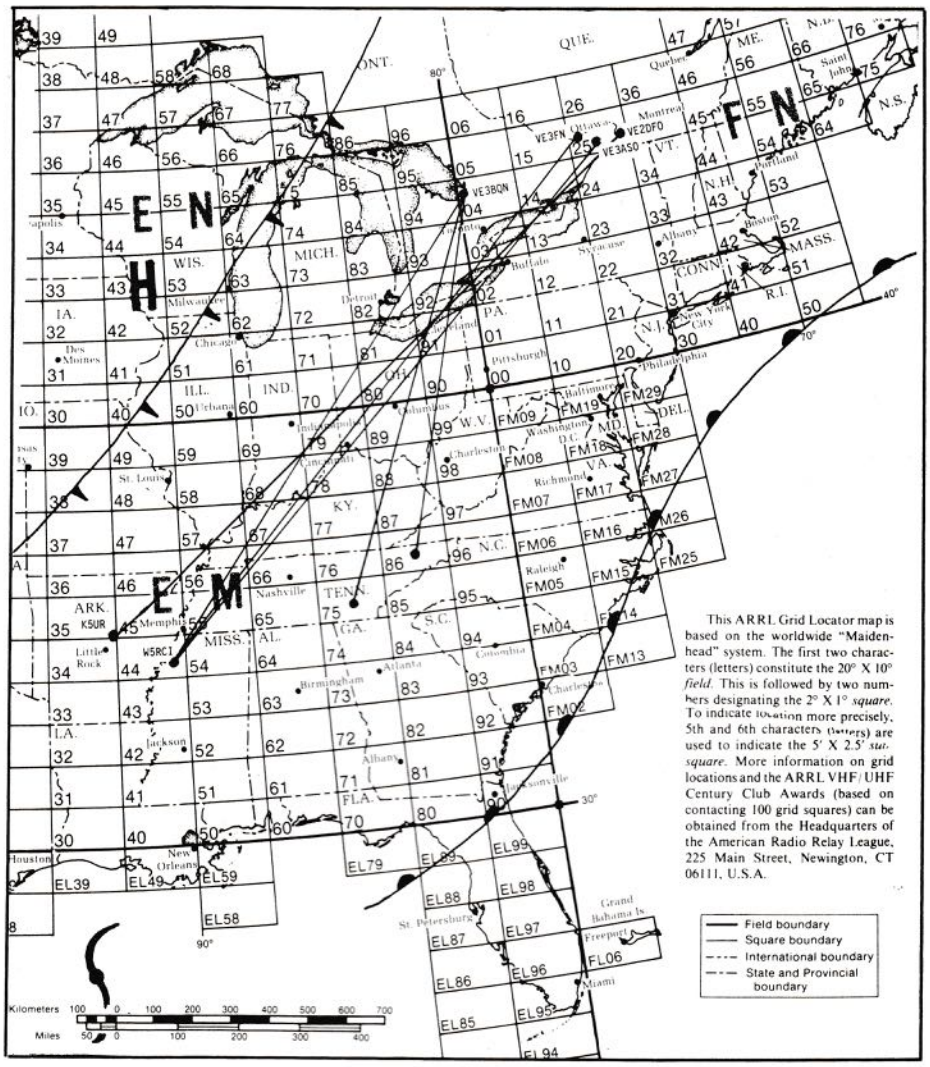
Fortunately, there is a rapidly growing group of Canadians from coast to coast quietly operating away above 50 MHz, using directional antennas, high quality feedlines, and various mixes of homebrew and commercial equipment. They are busy improving their communications potential and blazing the way into new areas of our spectrum.

Developments in solid state devices, particularly GAsFET technology, has eased the burden placed on anyone wishing to take full advantage of the entire spectrum above 50 MHz. It is now easy to get on SSB, CW or whatever and have a high level of confidence that you will be able to communicate over some pretty good distances, reliably, under normal conditions. In addition, you can use the same gear for OSCAR 13. You don't even need a special rig. You can integrate your mulitmode HF transceiver with an inexpensive ($200-$500) transverter (transmit/receive converter) to get on any of the bands between 50 MHz and 10 GHz. In fact, a transverter can be used for packet and FM if the HF transceiver has these capabilities. Many modern transceivers such as those from Icom include connection ports specifically for transverters, although the instruction manuals tend to be rather vague in describing how to use them.

Antennas, power amplifiers, high quality relays, low loss feedlines and the like are all readily available so there is no excuse for not getting on VHF/UHF except perhaps a total lack of interest in exploring, or a total lack of awareness. Over the next few months, I will try to alleviate any reader's lack thereof.

To conclude this month, here are some VHF/UHF SSB and CW operating tips:

Tip 1: To hear anyone you must use a horizontally polarized antenna. Your high gain vertical for FM will work about as well as a dummy load because the difference in polarization robs you of over 20 dB of gain! Think about this for a minute. If a station 200 miles away calls you, with a horizontal signal level of about 1 microvolt, you will only hear the equivalent of a 0.1μv signal on your vertical antenna. The difference makes for uncomfortable listening to say the least. If you try to work a station 500 miles away, you will hear absolutely nothing, whereas a neighbouring amateur with a horizontal yagi will enjoy a pleasant QSO.



This weather pattern at 0000 UTC on 1988 September 9 resulted in some interesting propagation on 2 metres.

Tip 2: To make a QSO you must get on the appropriate calling frequency and call CQ just like on HF. You will also have to be persistent. Call a number of CQ's in one direction, move the antenna and call again. You may have to do this a number of times to attract attention. You cannot expect the "instant gratification" of a contact on your local repeater. Many people monitor 144.200 MHz. A long CQ on that frequency will give everyone time to turn antennas and reply.

Tip 3: Once contact is established, please QSY off of the calling frequency, either up or down the band at least 15 KHz. This allows others to call CQ. You are not confined to channels! On SSB or CW, operation is just like HF. You will not have to worry about timing out the repeater or being told to stop tying one up.

Tip 4: Various modes of propagation add to the excitement of operating on VHF/UHF. Band openings can be caused by ducting, temperature inversions, meteor showers, lightning, and high levels of solar

activity (F-layer, aurora, sporadic E) to name a few.

The above should help those contemplating getting on VHF/UHF for the first time, or those who want to make the most of the VHF/UHF bands without spending a lot of money. I like FM and packet for their inherent capabilities. However, there is so much more that our VHF/UHF bands can offer that I hate to see people continuing to live in an "FM ghetto" — or is ignorance bliss?

Think about it and join in the fun. You'll learn more than a few new things. I certainly have!

BAND REPORTS

July, August and September brought some interesting and spectacular DX opportunities through to 2304 MHz, a bonus to the spectacular 50 MHz Sporadic E openings in June. On July 9, Ray, VE3FN, reported working K2SMN in Princeton, NJ, on 1296 MHz, with signals 559 each way. K2SMN runs four 45 element loop yagis at 170 feet and 250 watts. Ray runs a single loop yagi at 50 feet and 100 watts. July 10 brought good 50 MHz sporadic E to Len, VE3BGH, who contacted VP9ID (FM72, Bermuda) for another new country, and VE4ABE (EN19) for a new province. Len runs 25 watts to a single four-element yagi.

On July 16, a major ducting event involved stations on the US East Coast, Quebec, Ontario, and Midwest US. Reports indicate that contacts were made at distances of 700 miles on all bands up to and including 2304 MHz.

The following evening brought some limited enhancement with signals from Connecticut and New Jersey being much stronger than normal on 220 MHz at VE3DSS (FN03). VE3DSS also managed to work some new DX and grids on 1296 MHz (FN23 and FN13).

Gary, VE3OGS, sent me a report of his contacts on the evening July 18. QSOs included N6NB/8 (FM08), KD9VV (EN70), AF9Y (EN71), W9ODI (FN52), WB9UAI (EN62), KA9VYI(EN51), WD9AHX (EN52) and KA2FWN (FN23). Gary runs a Cushcraft 215WB at 35 feet and 160 watts. Another lucky 144-MHz operator was John, VE3OZB, who worked 11 stations during the opening, including WB9OCY (EN63), W9/G4FDX (EN60), and W9JB (EN51).

July 22 brought some local enhancement to 145 MHz, from VE3DSS via packet radio. Using a 5/8 vertical at 50 feet, packet BBS's from Detroit, Rochester, and Northern PA were accessible with less than 5 watts. Who says you can't work DX on packet? In fact it makes an interesting mode for monitoring band conditions. The packet BBSs make reliable propagation beacons that can be monitored and logged continuously on a computer.

On July 25, VE3FAC, called in the early afternoon to report hearing SSB signals with a "British" accent on 50.11. Careful listening revealed VE7AFL (CN89) in QSO with VE5LY (DO70) at 1755 UTC. Signals at VE3FAC were 5 by 5 using a dipole at 50 feet and an IC-551D. Richard managed to QSO both stations using this simple antenna.

On July 27,Bob VE1YX (FN74), one of Canada's premier six-metre DXers, worked KP4A at 2151 UTC, copied the VP5D (50.1 MHz) and FY7THF (50.038 MHz) beacons, and contacted J73PD at 2228 UTC. Incidently, Bob has worked well over 150 stations in Europe this summer on 50 MHz sporadic E. Let's hope that he makes the first 50 MHz DXCC sometime in the next 12 months.

August 2 found the 144-MHz QRP operations of both Rob VE3HJK/3 (FN05) and Steve VE3SMA (FN05) going great guns. Rob was having no problem contacting stations 300 miles out from his cottage construction site. He ran 25 watts to 14 elements except when the generator was misbehaving. Steve had similar success with his 2 watts and 4-element beam.

August 4 found bad news waiting in the form of an FCC announcement regarding 220-222 MHz in the US. The band has not been lost as yet, and ARRL is continuing its efforts to avert this disaster. CRRL is maintaining close contact with ARRL and Communications Canada on this issue. I would like to see Canada maintain the full 5 MHz for Amateur use no matter what. If US amateurs lose 220-222 MHz, this segment could be used for Canadian wide-band packet trunking, with weak signal operations moved to 222.0-222.5 MHz. I would be interested in your comments on this.

The August 6-7 UHF Contest provided some surprises on 220, 432 and 1296 for VE3DSS. On Sunday, conditions were good enough to enable 1296 contacts with KB8ZW (EN91) and WA2FGK/3 (FN21), both new grids. The 23-cm station at VE3DSS presently runs 1.5 watts to a single 45-element loop yagi at 55 feet. Vic, VE3LNX, and Bob, VE3ADJ, did some interesting grid hopping during the contest. Lucky Bob managed to travel to EN92, EN93, EN94, FN04, FN05, FN14 and FN15 while Vic sat at home and racked up the new grids on all bands through to 2304 MHz. Vic also worked WA2FGK/3 for a new grid on 2304 MHz for a total of 15. Vic's grid totals include 39 on 1296 MHz, and 36 on 903 MHz. Other stations noted active in the contest included VE3ASO (FN25), VE2DFO (FN25), VE2DUB (FN35), VE3FHM (FN03), and VE3MWM (FN03).

The morning of August 8 brought some good tropo for the Ottawa-area 2-metre gang with numerous contacts being made into North Carolina. August 10 brought 50-MHz DX for VE6AFO (Calgary area, DO31) including KA0JGH (EN10) and N7LFX (CN82).

VE3BQN (FN04) has been skedding KI3W off the moon each night starting in early August. They have managed to QSO within the first three minutes of each nightly sked. In related moonbounce news, Dennis, VE3ASO (FN25), called and played tapes of his incredibly loud echoes from a "horizon" shot on 144 MHz. Dennis runs an array of four Cushcraft 18-element yagis. This reminds me of the echoes I observed using a single yagi when I contacted YU3WV. Who says EME is difficult? Incidently, on September 4, VE3ASO worked W5UN via the lunar path. Needless to say, W5UN was loud.

The Persieds meteor shower is one of the best of the various showers that occur during the year. Ionization generated by meteorites can support VHF communication up to 1500 miles or more for periods up to 90 seconds. This mode of operation is a great way to pick up new provinces, states or grids without waiting around for a tropo or sporadic E opening. One of the initiates into this mode was VE3OZB who succeeded in working WB0JKJ (EM18) and WB0TEM (EM12). The skeds were run on Sunday morning August 14, well after the shower's "peak", but QSO's were still completed in less than fifteen minutes. John runs just 25 watts and two Boomers. We tried 220-MHz meteor scatter with K5UR of Arkansas on the morning of August 11 but were unsuccessful. Better luck next time, eh? Tom W2DRZ (FN02) reported a massive tropo opening from eastern NY to the Midwest US on the evening of August 14. N0LL (EM09), worked over 180 stations and was "S9" at W2DRZ on 432 MHz. And August 22 found VE6AFO making numerous aurora QSOs on both 50 and 144 MHz. On 6 metres, Ken worked W7HAH (DN26) and N7ML (CN87). Two-metre contacts included WA7GSK (DN13), WM7A (CN87), WA7KHO (DN47), N7EIJ (DN17) and VE7MK (DO00).

The evening of September 8, and morning of September 9th brought spectacular tropo ducting to the eastern half of the country. VE3FN, VE3ASO, VE3KKL and VE2DFO (FN25), VE3OZB (FN03), VE3BQN (FN04) were among the lucky ones to get some new grids such as EM44 offered by W5RCI in Mississippi. Not satisfied with 144-MHz DX, VE2DFO also worked K5UR on 220 and 432 MHz, DX of approximately 1500 km.

What was happening? Upper air data provided by meteorologist and VHFer VE3CIE indicated that, during the evening of September 8, a temperature inversion (K-850 refractive index of 265) developed at about 1500 metres. Apparently it was "trapped" along a line running from Maine to the Gulf of Mexico between two stable frontal systems. It appears that the boys in FN25 were just on its edge, as signals were very weak with rapid QSB. Meanwhile, in EN93, it was just the opposite. Dave, VE3GYQ, newly QRV on 144 and 432 SSB, worked stations in 16 new grids on 144.2 MHz, including K5UR and W5RCI. Dave stated that signals died out around 0600 UTC. Dave's own signals on 144 and 432 MHz are outstanding and his high level of gleeful excitement in working DX is encouraging. I thought his comment "I can't believe the propagation on this end of the band!" was proof enough that the bands above 50 MHz are a treasured resource that we all should utilize better.

Traditionally, the September VHF QSO Party is a contest full of surprises. This year was no exception with a mixed bag of aurora both Saturday and Sunday interspersed with tantalizing tidbits of tropo, and finally, in the east at least, capped with superb tropo during the last three hours of the contest. Details of scores from across the country will have

to wait. However, VE3OZB, VE3ASO, and VE3LNX did superbly. VE3OZB's best 144 MHz DX was into EM86 on tropo and EN25 on aurora all with 25 watts! VE2DFO, VE2BKL, and VE1RG were heard on 50-MHz aurora. Tropo conditions were so good Sunday night that the W2SZ/1 group on Mt Greylock were S9 into Cleveland and S5 into London, with their 144-MHz radio connected to a dummy load! We worked some good DX on 1296 MHz including W1XX/3 (FN00), K3YTL (FN11) and W8IDU (EN83), all with QRP. VE3SMA (EN93) also succeeded in contacting W1XX/3. 1296-MHz radar signals from Michigan were extremely strong in the Toronto area Sunday night. Things were so busy Sunday night that W2SZ had a 25-minute waiting list for 1296 MHz skeds. VE3ASO (FN25) also reported that their 2304 MHz signal was 20 dB over S9 on Sunday evening. Look out folks! This September's contest scores are going to be out of sight!

RAMDOM SCATTER

☐ Long time VHFer VE3BQN has officially moved to FN04. His new address is R R #2, Elmvale, Ontario L0L 1P0. In addition to a busy dental practice, EME on 144 MHz, and tropo activity on 432 MHz, Ted has managed to set up a landline BBS system with both Amateur Radio and astronomy conferences. Ted's board can be reached at 705-322-0405. Ted also tunes cavities in his spare time.

☐ According to Barry VE4MA, a number of wideband digital duplex links are operating in the 2300-2450-MHz band in Manitoba. This operation is entirely legal, albeit on a non-standard basis. Hopefully we will not encounter operational problems that will prevent us from utilizing our *worldwide communications* frequencies on 2304.1 MHz (moonbounce and tropo) or on 2400.1 MHz (OSCAR 13). Barry called me the other night during a somewhat longer than expected airline layover in Toronto. He has been busy on 2304 MHz working twelve new grids with the help of area hams who rove out to the rare ones. He is also only three states away from 432-MHz WAS. Barry further reported that the OSCAR 13 2400.6-MHz beacon was "real loud " reaching 20 dB above the noise. More news about VE4MA on his return from the THORN EME Conference in Germany.

☐ Stu, VE3MWM, hopes to explore working long haul 10 GHz by scattering signals off aircraft. Plans now include removing the random nature of this activity by tuning in on the aircrafts' radar transponders that operate at 1000 MHz and actually extracting the range and azumith data via a PC. Specific aircraft will then be targeted for scattering signals into specific grid squares.

☐ According to Bob, VE1YX, CO2CB should be on 50 MHz by the time you read this. Bob and Reg, VE1BNN, sent CO2CB a TS600 and 5 element F9FT yagi this summer. Looks as if the true spirit of Amateur Radio is alive and well on the East Coast.

☐ After finishing the CRRL Sprints in November, don't forget to get ready for another big push in the ARRL January SS. Remember that clubs affiliated with ARRL or CRRL can submit scores based on the individual contributions of their members. Will Canadian clubs make a showing? It's up to you!

Brantford Welcomes Amateur Radio Celebrity

Brantford (Ontario) Flying Club was the location of an historic summer meeting of the Brantford Amateur Radio Club. Convened by club president Jack Ridley, VE3DLR, it featured as special guest speaker his long-time friend and internationally-known antenna expert, Louis Varney, G5RV, who, with his wife, was visiting Canada and the US.

This was a rare and rewarding opportunity to hear and meet the "antenna guru" G5RV tell more than sixty radio amateurs, on a very rainy and foggy night, many interesting observations and facts about antenna systems. In spite of the bad weather (the first of some very badly needed rain), amateurs came from as far as London, Orillia, Niagara Falls and Toronto. All were rewarded by good advice and some practical demonstrations of antenna and feedline efficiency.

CRRL President Tom Atkins, VE3CDM, thanked Louis on behalf of all present and Canadian amateurs in general, and presented Louis with a special CRRL Certificate of Merit in recognition of Louis' outstanding service to Amateur Radio. Jack, VE3DLR, on behalf of the Brantford club, presented Louis with an engraved silver tray to commemorate the occasion. *—Tom Atkins, VE3CDM*

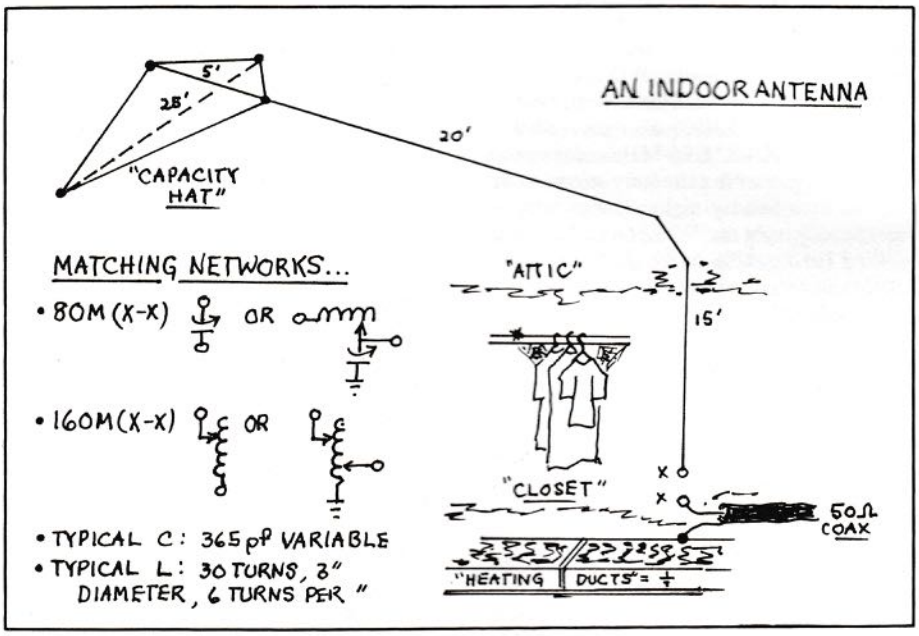
CRRL President Tom Atkins, VE3CDM, presents a CRRL Certificate of Merit to antenna expert Louis Varney, G5RV, at an August meeting of Brantford (Ontario) ARC. *(VE3AND photo)*

Conducted By George Murphy, VE3ERP
103-1095 Mississauga St, Orillia, ON L3V 6W7
Tel 705-326-9612

Getting Out by Staying In on 80 and 160

Many amateurs avoid operating on 80 and 160 metres because they think they have no space for an antenna. In our case, we had some space, but the covenant on the deed to our land said "no aerials or antennas of any nature or kind" and a few of the neighbours were sensitive. What to do? We put the 80-160-metre antenna where sensitivity wouldn't matter: inside the house.

Overall length of the antenna was about 40 feet. (See the diagram for details.) It began on the floor of a back bedroom closet, wound its way through the wife's summer clothing and passed through the closet ceiling into the attic. It then proceeded along the peak of the attic at the dizzying height of 16 feet and ended in a large capacity hat. Heating ducts located just under the closet floor served as a ground. The whole system was fed with 50-ohm coax. Resonant frequency was about 2.7 MHz and simple matching techniques quickly brought the SWR down to 1.5:1. Slightly more complex matching techniques brought the SWR down to 1:1 and improved the bandwidth between the 2:1 points. The transmitter liked this antenna.



We'll cover other details in a question and answer format.

What kind of wire did you use? Insulated. This ensured that no one would get fried while rummaging through the closet for clothes. It also eliminated the need for insulators in the attic. We just tied or tacked wire to roof trusses or whatever was handy.

What was the idea of the capacity hat? Basically, the hat took the place of wire we didn't have room for. The hat ensured that the antenna was "electrically long" on 80 metres. Results: On 80 metres, the high-current portion of the system which did most of the radiating was in the antenna wire and not in a base loading coil; the input impedance was well above 50 ohms, ensuring that the ratio of power going into the antenna wire compared to the power heating up a ground (the efficiency of the antenna system) was favorable; finally, the hat ensured that the bandwidth was reasonable for a 40-foot end fed wire; in fact, bandwidth compared favorably with an inverted-V which I installed later when the covenant ran out. Of course, on 160 metres, the antenna was still "electrically short", though not as short as it would have been without the capacity hat. On 160, with our particular ground system, input impedence was only slightly below 50 ohms.

How did you match the system to your 50-ohm coax? Initially, we used just one component for each band: an old broadcast-band variable capacitor for 80, and an old piece of 3-inch diameter B & W coil stock tapped with an alligator clip for 160. If you do the same, just put the component between the centre conductor of the coax and the antenna, apply a bit of power and adjust the capacitor or clip for minimum SWR. Later, to get a perfect match, we made up a simple "L" network for 80 metres and a simple tapped coil network for 160. To adjust for 80, you tap off a few turns, apply power and sweep the capacitor through its range. Somewhere, the SWR will dip. Now move the tap a couple of turns and try again. You'll soon find out which way to go to get 1:1 SWR. For 160 metres, you place the feed tap 3-4 turns up the coil, apply power (gently on this one) and move the antenna tap up and down the coil while watching the SWR meter for a dip. Readjust the feed tap and try again. As with the 80-metre procedure, you'll soon find out which way to go. Warning: In search of perfection, you'll probably end up moving taps one-eighth turn at a time. Read on.

I've tried some of these homebrew matching methods and I can never get 1:1 SWR. Us too, and we've found two reasons for this. As we said above, you may find yourself making some very fine adjustments on the coils by moving taps (usually alligator clips) and their associated leads. More often than not, a lead gets into the field of the coil and adds or subtracts its own inductance. It can happen, for instance, that, as coil is tapped off, the lead brought around the coil adds inductance equal to what should now be gone! Result: a net change of zero and one frustrated amateur. Fortunately, the solution is simple: bring the leads up *inside* the coil and make your taps from there. This works every time.

The other reason you may not get 1:1 SWR is the presence of harmonics. Even the most expensive rig has some harmonic energy in its output. And while your matching network may be adjusted perfectly for your operating frequency, for any harmonic energy, it will be all wrong. As a result, the harmonic energy will be bounced back to the transmitter through your SWR meter, giving you a reflected power reading on the way. (Good thing it works this way, though. It helps keeps harmonic energy off the antenna where it could be radiated.) Solution? Ignore the reflected power indicated on the SWR meter (you can't beat this method for cost-effectiveness) or install a good low-pass filter like a Drake LP-3000 between the SWR meter and the transmitter. Incidentally, if you have an antenna tuner with three adjustments and have never been able to get your SWR down to 1:1, now you know the reason.

Does having an antenna in the house create RFI problems? Not necessarily. Our antenna never bothered our stereo and it only marginally affected our television set on certain channels. It did create some interesting effects in certain parts of the house. On 80 metre CW, you could follow the keying by watching the florescent light on the kitchen stove. One cold December night, we noted that, with key down, the lights on the Christmas tree glowed warmly even though they were not plugged in. We did worry about harmonics that can be created when RF flows through non-linear joints like ones bound to show up in a heating-duct ground system. Wherever possible, we used copper straps to bond joints in the ductwork. We also tied water pipes into the ground system and later, even added some radials tacked to the ceiling joists of the basement. These are now hidden under drywall, awaiting discovery by archaeologists in 4000 AD.

How well does this antenna work? Many times, we compared our 80-metre signals with those of nearby friends who were using inverted-Vs. Signals on the indoor antenna were always within an S-unit or two of the signals from the Vs, sometimes stronger, sometimes weaker. On 160, comparisons were more difficult to make. All we know is that we could work everyone we heard. On crisp winter nights, that included Alaska and Europe, both on CW and SSB.

Crisp winter nights are coming. Don't let lack of space keep you from operating on 80 or 160 metres. Get out by staying in with a simple indoor antenna like this one. *—Harry MacLean, VE3GRO*

Tech Topics is *your* column. So how come I (with a little help from our editor this month) have been doing all the work? All you have to do is send me all you Great Ideas, Cogent Comments and Widget Sketches for me to pass on to our fellow hams in order for them to realize what clever chaps you and I really are. While you are rushing to the Canada Post office to send me your stuff, I, in the absence of input from either of my regular readers, will proceed with more mumblings and mutterings from the bottom of my junk box. *—VE3ERP*

In Training/En Formation

Conducted By Mitch Powell, VE3OT
782 North Mile Rd, London, ON N6H 2X8
Tel 519-471-6853

Some Thoughts and Two Lessons

Greetings, fellow classmates. This month, let's take a look at some new ideas and some variations on some old ideas. I have my copy of RIC-24 (syllabus) and RIC-25 (regs) from Com (nee DOC) and have been deciding what subject material to cover in the next few months. I will continue to emphasize the concept of "looking at the course and course material from the beginner's viewpoint". To the student, the syllabus must look like an unsolvable puzzle. I think it is important to point out that the syllabus merely lists subjects and does not indicate the level of technical expertise or math required. That's why I would refer you to the *Amateur Questions Bank* book, available from CRRL. With that in hand, you can quickly determine the amount of math required as well as the general approach to take. Here's something to think about: Check the book, organize it into five subject areas as in the syllabus, and then plan your course and associated materials to answer the questions. That might seem like a reverse technique, but it is a technique that works well. Remember that the "novice", seeing all those technical terms and phrases will require moral support at all times. Referring to specific questions and indicating their simplicity will help maintain confidence.

Propagation

Meanwhile, back in my class in London, we've been able to get a handle on propagation after only an hour or so. Let me tell you how it was done. Then you can vary things to suit your own situation. The lesson began with an audio generator (tube-type!) and a cheap eight-inch speaker with some long leads. The speaker was not mounted in a cabinet because we wanted students to see it vibrate at low frequencies. I changed the frequency from 15 Hz to over 15 kHz, demonstrating the vibrations of the speaker and the limits of hearing. Beyond 15 kHz I explained that another method was used to convert the electrical energy from the generator and allow it to be radiated. We all accepted the fact that this was an antenna, and at this point I rolled out a chart which showed frequency allocations for the entire RF spectrum. The chart, available from the Queen's Printer or bookstores that handle government publications, costs about $4, is very colourful and indicates all the broadcast, amateur and commercial (TV, FM, satellite) frequencies on a continuum. It's important to have students spot the 535-1605 kHz AM broadcast band, followed by "short-wave" bands, followed by the familiar 88-108 MHz FM broadcast band. These are terms they will understand, though they may not know the relationships of these bands in terms of frequency or wavelength.

Now that wavelength has been mentioned, it might be appropriate to mention the speed of light and electromagnetic energy. Relating $300/f$ to wavelength and asking the students to calculate wavelengths for some of the amateur bands is a useful task. It is even more meaningful to have students calculate the wavelength of their local AM broadcast station and then think about the physical dimensions of its antenna. Then have the students try it for 144 or even 1296 MHz.

The lesson on propagation can continue because we can now talk about MF, HF, VHF and UHF frequencies with some confidence. Now we can introduce the Sun, the Earth and the ionosphere, and talk about solar activity and the creation of the ionized layers. I find it important to begin with the AM broadcast band, because everyone is familiar with its day-night variations. With the broadcast band, it is easy to explain daytime absorption and nighttime propagation which follows sunset and the disappearance of the D and E layers. On the blackboard, I show how rays of RF going to the ionosphere change direction of travel at various heights of reflecting medium. Then I do a few examples of distance - London to Thunder Bay, Winnipeg, Halifax, Calgary and Vancouver - without changing the angle at which a ray hits the ionosphere, but with changing the frequency, thus showing the effect of frequency on distance travelled. This leads to an explanation of use of VHF and UHF for satellites and other space communications. At these frequencies, the ionosphere is virtually transparent.

Traffic Handling

After all this technical material, it's time for some listening to the bands and pointing out one of the most interesting aspects of the Amateur Service: traffic handling. This is part of the same the evening's schedule, since I feel that a whole evening of "high-tech" may cause student burnout. So the night's "entertainment" can be traffic handling. A receiver can be set up and tuned to one of the provincial traffic nets. Because of timing, and the fact that most nets meet early in the evening, you may want to do this before the technical part of the evening.

In preparation, you might distribute a list of nets. A discussion could follow to explain 24-hour time, net frequencies, and types of nets from swap to ragchew to traffic to emergency and international nets. I was able to use the 14273 and 14325-kHz hurricane nets during Gilbert. Since, even now, the hurricane season continues, check these out. On 75 meters, check out the ARRL/CRRL traffic nets, where formal message handling is the rule. An alternative would be a less formal net that handles traffic through phone patches. Many population centres now have 2-meter nets that may run on a class night. A tape recording of a net would be useful. As you play it back, stop and start to provide explanations. Remember that CRRL Headquarters has net and repeater directories to help you find those nets. In addition, consider inviting a local amateur who is active on the nets, or even better, active in ARES. But you should sit down with this "gracious volunteer" beforehand and plan the presentation, whether it be for ten minutes or one hour. This will help both of you, and your students will benefit.

I stay with SSB or FM nets at this point in the course because student code speed is not up yet. There are CW traffic nets, from slow to high speed, that cover the entire continent. These are Section and regional and transcontinental nets, part of a very complex traffic system capable of relaying messages between cities, provinces and states, and even to foreign countries. These use CW short forms and QN-signals (Q-codes for net use). It would be very difficult to eavesdrop on a CW net this early and know what was going on. However, a slow-speed CW net might be taped with the text written out and supplied to the students. This would become a useful lesson. More next month. 73.

QARC Starts an ARES Group

Is your community one of those that does not yet have an active ARES group? Have you been wondering how you might get one organized? John Lester, VE3MB, recently established an effective group in his area and we asked him how he went about it. Here is his report:

"In 1986, the Quinte Amateur Radio Club (QARC) had no emergency plan in place and had no connections with the people in our community who carried the responsibility for our welfare in time of trouble.

In our area, Hastings and Prince Edward counties, nature is lush and bountiful and nothing ever goes wrong. The general feeling is strong that nothing can disturb our peace: Other folks have tornados, and some have unfortunate highway and rail accidents. Some have large fires and others have floods. But none of these things happen here.

Our club executive decided, nevertheless, that we should look into the feasibility of organizing an emergency group. We began with a survey of our club members. A one-page questionnaire was included with our club bulletin. The response to the survey was not overwhelming, but not too bad. After the dust settled, we had eighteen reports from a club of over sixty members.

A small group of us went to Kingston to attend a meeting of the Kingston ARES Group. We were made welcome and I came away with copies of their material as well as plenty of ideas. The main point I received was that ARES was the way to go. In today's world, the structuring of society makes it obligatory that an emergency response team be organized to mesh with its various support people and with the social agencies as well.

The next step was to apply to Jack Strangleman, CRRL Ontario Section Emergency Coordinator (SEC) for an assignment as Emergency Coordinator (EC) and to request the various training aids and traffic material that CRRL provides.

Along with the foregoing, I approached the Ontario Red Cross branch office in Belleville. Here I was able to arrange for a one-day seminar designed to make volunteers familiar with Red Cross functions and procedures. Our QARC mustered thirty-two amateurs to attend this "level one" course.

At this point, I formed a close radio link with Gord Fraser, VE3HSF, who is EC for Metro Toronto. Also, I attracted to our group the former EC for Prince Edward County, George Edward, VE3GTF, who brought with him a group of people who had shown an interest in ARES.

I had also set in motion some ideas for training in traffic handling. Like most clubs, to a considerable extent, QARC centres around the 2-metre FM mode where informality is the style. I prepared sample taped traffic messages which were copied at our weekly club meetings and on our weekly 2-metre net. So far, ARES has just been fitted into our regular net. Each issue of our club bulletin carries some items on ARES training. Several talks at club meetings this winter have also dealt with ARES.

One time-consuming job which was finally completed was the creation of a local emergency plan for the ARES group to follow if called upon in a civil emergency. Because of the close alignment with Ontario Red Cross, which, in turn, fits into city and country emergency plans, it is imperative that we, as radio communicators, do our job in a way that will maximize effectiveness of the emergency response group as a whole. I based our plan on the Kingston ARES plan, incorporating ideas from the Metro Toronto and Prince Edward County plans as well.

All of this took time, of course, but other activities still went on concurrently. One of the things we have looked at is the identification cards. A basic card is available from CRRL. I personally like a couple of items in addition to those on the basic card. British Columbia has Social Insurance Numbers (SINs) included in their province- wide all-service card. I also favour adding a passport-size photo to the card. Having the finished card encapsulated in plastic is easy

CRRL Field Organization Reports 1988 August

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: VE3ORN (137), VE4JA (129), VE4LB (104), VE4IX (79), VE4JR (74), VE3CYR (73), VE4FP (69), VE3GT (68), VE4TE (63), VE3GSQ (61)

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.

CRRL Section Traffic Manager Reports

Call	Orig	Rcvd	Sent	Dlvd	Total
VE1VX	18	3	21	3	45
VE1IH	13	0	13	0	26
VE2BP	6	16	13	14	49
VE2WH	2	11	10	14	37
VE2EC	8	6	4	7	25
VE2GEJ	4	7	4	6	21
VE2JN	1	5	3	2	11
VE3CNE	273	8	259	2	542
VE3GSQ	0	155	107	0	262
VE3ISD	3	108	139	4	254
VE3FAS	0	110	78	0	188
VE3CYR	3	96	67	3	169
VE3GT	0	56	70	0	126
VE3ORN	3	53	55	8	119
VE3GNW	0	33	44	0	77
VE3EAM	11	11	21	21	64
VE3BUO	1	39	3	8	51
VE3SB	0	17	21	0	38
VE3KCZ	0	15	10	5	30
VE3NVJ	4	10	6	8	28
VE3ORV	0	6	5	1	12
VE3WM	0	5	3	4	12
VE3AJN	0	4	5	0	9
VE3FGU	0	3	5	0	8
VE3KXB	0	3	4	0	7
VE3MO	0	3	1	3	7
VE4JA	24	23	35	23	105
VE4JR	-	-	-	-	58
VE4FP	-	-	-	-	52
VE4TE	-	-	-	-	35
VE4LB	-	-	-	-	34
VE6CHK	-	-	-	-	74
VE6XV	-	-	-	-	31
VE6GUS	-	-	-	-	14

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 662:

Reporting	ARES Members
VE3GV (VE3s EFX, FB, FOB, FUN, GNW, HNH, HSF, JJA, JPP, LKI, SV, TNL)	555
VE6AFO (VE6ABC)	107

National Traffic System

Net (Mgr)	Sess	QNI	QTC
KTN (VE3AJN)	13	100	8
OLN (VE3POJ)	28	479	37
OPN (VE3BUO)	31	554	212
OQN-1 (VE3GSQ)	30	51	91
OQN-D (VE3GSQ)	30	85	94
OQN-E (VE3CYR)	31	135	83
OQN-L (VE3CYR)	27	79	57
MEPN (VE4LB)	31	926	43
MTN (VE4IX)	18	119	20
MWXN (VE4TE)	31	614	28
APSN (VE6AKY)	31	740	11
ATN (VE6XV)	31	208	57
BCEN (VE7EJU)	30	700	200

Service and Specialized Nets

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

Net (Mgr)	Sess	QNI	QTC
ARES CANADA (VE3GV)	4	85	0
ARES ONTARIO (VE3GV)	1	5	0
ONTARS (VE3AQ)	31	13449	0

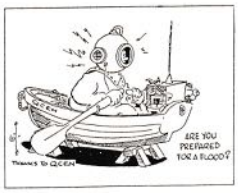
these days. Here, our local public library will do it for a dollar. We are also looking at other identifiers including arm bands and caps. The arm band is only visible from one side and the cap requires a patch or other artwork on it. There are no quick solutions here.

At present, I am busy interviewing the many persons responsible for our well-being in our area and have been very well received. Each key person is given a copy of our QARC plan so that they will know what we are and what we can do. I have been careful to stress our health and welfare traffic handling ability and our National Traffic System with its daily functioning on a continent-wide basis. Our plan includes a list of forty amateurs with their telephone numbers. Prominently displayed are the names and telephone numbers of our four Assistant Emergency Coordinators (AECs) and myself, and I point these out to each official and stress that we should receive early notification in a emergency before telephone lines become saturated with calls.

So far, we have arranged for a 2-metre antenna for the Ontario Red Cross building in Bellville and I am looking into doing the same thing at the Belleville General Hospital and Belleville Police Headquarters. Costs for this type of preparedness are almost nil. We construct the cheap but sturdy antennas and, so far, the cost of the coax and fittings has been borne by the agency involved.

To date, our ARES expenses have been met by the QARC general fund. It may be that, in the future, we will have to look into fund raising. A well planned presentation to local municipal councils by the Emergency Coordinator should result in a grant sufficient to cover most expenses."

Well, that's how the Quinte club went about it. If you'd like more information, contact John at Box 55, Foxboro, ON K0K 2B0. — *Bob Boyd, VE3SV*



ARES is a branch of the CRRL Field Organization, although you do not have to be a CRRL member to take part. It is hoped that this column, which also appears in The Canadian Amateur, *can become an ongoing source of news and information for members of CRRL and CARF on ARES activities across Canada. ARES members and particularly ECs are invited to send information on what they are doing and on developments they would like to share with other ARES members. Bob Boyd, VE3SV, will pull this together for future columns, with the objective of increasing our collective ability to serve, should disaster strike.*

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PRINTED IN CANADA