

THE CANADIAN AMATEUR

Canada's Amateur Radio Magazine

La Revue des Radio Amateurs Canadiens

MAY 1988

INSIDE THIS ISSUE:
THE RAVENSCROFT APPEAL
DAY TWO

CARF REPRESENTATION ON
CSA STANDARDS COMMITTEE

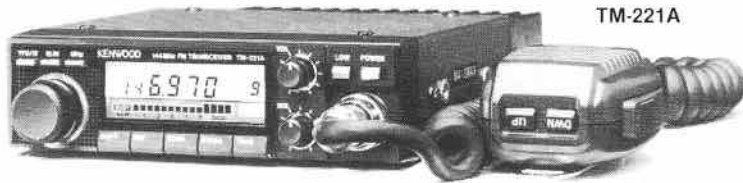
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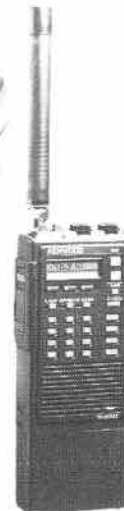
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Canada's Amateur Radio Magazine

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The Canadian Amateur is published in Canada 11 times per year to provide Radio Amateurs, those interested in radio communications and electronics, and the general public with information on matters related to the science of telecommunications.

Unsolicited articles, reviews, features, criticisms, photographs and essays are welcomed. Manuscripts should be legible and include the contributor's name and address. A signed article expresses the view of the author and not necessarily that of C.A.R.F. Publications Limited.

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WHAT IS ?

The Canadian Amateur Radio Federation, Inc. is incorporated and operates under a federal charter, with the following objectives:

1. To act as a coordinating body of Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members and the Department of Communications;
4. To promote the interests of Amateur radio operators through a program of technical and general education in Amateur matters.

EDITORIAL

One Year Later...

BY GEORGE SANSOM
VE3LXA

Boy, how time flies! One whole year since I inherited the Editor's job, and what a year it has been! Ravenscroft, restructuring, and to merge or not to merge, those were the questions! I've learned a lot. Mainly how to bite my tongue, but nonetheless I have learned a few things!

One of the most important things is the fact that there is one heck of a lot of talent out there in Amateur Radio Land. It's too bad I can't print ALL the articles and club bulletins I receive. There are so many people writing and documenting experiments in new technologies and improving on old ones. Your articles are much appreciated! Keep them coming!

The amount of mail amazes me. I drop by the office about three times a week and my box is always full. The following letter is a sample of the comments received.

"I really enjoy reading your magazine, and especially your editorials and letters received from concerned and disgusted Amateur Radio operators, over Amateur Radio's future and its licensing practises. 'My hat is off' to Mr. Bill Rook (VE3MBF's) recent letters to your magazine. He sure tells it the way it is, that's for sure!!

"I also wish to mention Robert Smit's editorial (VE7EMD) in the Feb. '88 issue. He truly represents what Ham Radio is all about. We need more leaders like Mr. Smit in our hobby, and I truly congratulate him for his efforts to save and stimulate Amateur Radio.

To conclude, I feel your magazine should include more information, along with pictures and specifications, on the very many HF-type antennas that are used throughout our hobby.

I find some of *The Canadian Amateur's* recent write-ups on HF Antennas lack basic information that new Ham operators and Shortwave Listeners might need.

Again, my appreciation for a fine

magazine, and a job well done goes out to all TCA's staff and contributors.
William C. Linkletter VE1AVB'

I chose to print Mr. Linkletter's letter for two reasons. First, thanks for the good words and second, I hope I can answer your question.

Very soon now, CARF will be offering our latest Reference File. It consists of past articles from *The Canadian Amateur* pertaining to antenna building. Bernie Burdsall VE3NB has spent many hours choosing the articles and doing just what you ask: making sure they are the type that allow you to build something without a lot of trouble (lots of diagrams, too). I'm looking forward to the finished product.

While on the topic, I should mention the remainder of the Reference Files. These are available from the CARF booth at your local flea market or by filling in the appropriate blanks on the order form at the back of *The Canadian Amateur*. Every Amateur should have a complete set! The material included is priceless. For instance, 'The Amateur Bands' gives an insight into the bands and sub-bands. 'Amateur Design of Printed Circuit Boards' explains the methods to use while designing and manufacturing PCBs in your basement. There's something for Contesters, DXers and SWLers. In a nutshell, something for everyone.

Finally, I am pleased to welcome two new columnists to *The Canadian Amateur*. Bob Boyd VE3SV will be taking care of the 'Amateur Radio Emergency Service' (ARES) column. Bob is the Emergency Coordinator for Kingston and has agreed to write for both CARF and CRRL.

Our second newcomer has been with us for some time as one of the many volunteers who handle QSL cards for the CARF bureau in Toronto. Antonio Salvadori VE3NXQ hails from Guelph, Ontario and will lend his keyboard to 'Nybles and Bits', our new computer column. Welcome aboard guys, we all look forward to seeing you in print. ■

NEWS

GROWTH OF AMATEUR RADIO

There seems to be a general view among hams that Amateur Radio is not growing and that hams are now scarce. I think the opposite is true.

Over the past two decades the number of hams in Canada has risen considerably, both in absolute terms and as a percentage of the population. In 1987, the 'Callbook' lists 24,356 hams (actually station licence call signs) in Canada among a Canadian population of 25,550,000. Thus, just short of about one person in one thousand is a ham, or more precisely 0.0953% of Canadians are hams.

The year before that, the percentage was 0.0893%, and in 1985 it was 0.0892%. In 1981, there were 21,324 hams in the Canadian population of 24,343,000 or 0.0876%. Going back even earlier (and I thank Brian McIntyre VE7BWM and Dave Gilmore VE7YG for their assistance; even the Vancouver Public Library throws out all its old 'Callbooks'), the corresponding figures in 1974 were: 13,546 hams in a 22,402,000 population or 0.0605%; and in 1966, 11,200 hams among 19,903,000 Canadians, or 0.0563%.

Unless I am missing something, Amateur Radio is almost thriving. The number of hams has more than doubled since 1966, while the population has risen by only about one quarter. Relative to the population, hams are 70% more common in Canada now than they were 20 years ago.

At the same time, the Department of Communications provides the following breakdown by age of hams: under 30 - 5%, 30 to 40 - 15%, 40 to 50 - 20%, 50 to 60 - 21%, 60 to 70 - 22%, and over 70 - 17%. A reasonable inference is an average age of 55.

Yet the earlier figures show that about half the hams have obtained their certificates in the past 15 years. Therefore, a person on average became a ham at age 40, or thereabouts. Lots of people are becoming hams, but not until middle age. Our hobby is not getting old; it simply attracts only those who are no longer young. I was 44 when I obtained my certificate last year (I refuse to call myself old). At the time I thought I was unique. Now, it appears I may be typical.

Interestingly, the average ham (if there is such a person) obtained his certificate in the late 1960s or early 1970s, not a period normally thought

of as conducive to technical pursuits.

A few other figures of significance also emerged during my review. My random sampling of listings in the 'Callbook' indicated that about 60% of hams in 1974 had advanced beyond the basic Certificate, but only about one-third had in 1986 (this was not a scientific sample). In other words, it appears that the number of basic hams grows, but most do not advance beyond the initial level. (My sample also suggests that the percentage of advanced hams is much higher in British Columbia than elsewhere, but I did not do my counting carefully enough to conclude this; no doubt the correct

SILENT KEYS

VE3NFG— Don Chown Captain (N) (R) O.M.M., C.D. Kingston, Ont. March 16, 1988.

VE3AHW— Harry 'Sandy' Sanderson of Guelph on Feb. 18, 1988. The 75 metre band will never be the same.

figure could be obtained from DOC).

The situation appears similar in the United States, where Novices and Technicians grew from 27% of hams in 1974 to over 40% today. In the U.S. however, overall growth is more irregular. The number of hams (again as measured by the 'Callbook') actually fell from 438,000 in 1985 to 436,793 in 1986, before recovering to 442,136 in 1987. As a percentage of their population, though, hams in the U.S. form a greater share than here: 0.177%. Despite the irregular growth,



Communications
Canada

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March 14, 1988

Mr. John Iliffe
President
Canadian Amateur Radio Federation Inc.
P.O. Box 356
Kingston, Ontario
K7L 4W2

Dear Mr. Iliffe:

On behalf of the Director General, Telecommunications Policy Branch, I wish to acknowledge receipt of your comments on Canada Gazette no. DCTP-010-87 concerning "Utilization of the Radio Frequency Spectrum in the range 30.01-890 MHz".

As noted in the Canada Gazette, approximately two weeks after the close of the comment period, copies of all written submissions received in response to this notice, will be available for public viewing in the Department's regional offices and in its headquarters library in Ottawa. Copies of these submissions may also be obtained, by phone, mail order or over the counter, from Kwik Kopy Printing, 300 Slater, Ottawa, K1P 6A6, telephone (613) 234-8826. Reasonable costs of duplication and distribution will be charged.

Thank you for your interest in this subject and your comments.

Yours truly,

Parke L. Davis
Director, Spectrum & Orbit Policy
Telecommunications Policy Branch

Copies of the CARF 'Brief' may be obtained from the CARF Office. Cost is \$2.00 to cover copying and postage.

there are 85% more hams relative to population in the U.S. than in Canada. The lower entry standard may account for this. Without almost 200,000 Novices and Technicians, the proportion would be about the same. Most growth has also been in these entry categories, and again, it may be that not many advance.

We can welcome the growth in the number of hams in Canada. I do wonder, though, whether we are being separated into two camps: those with advanced status, and all others. The twain may seldom meet and do not do so even on the air as the HF bands are off limits to most hams. This may account for the impression of decline. The advanced hams, who continue to dominate the hobby, form a group separate from the interests of the majority of new (and some not so new) hams.

Michael C. Crowe

COLLECTORS' ITEMS? —————

A single copy of each of the following is available to anyone interested on a first come basis just for the cost of mailing.

XTAL Vol. VI NO. 3 Oct-Nov 1945.
Manual for Hallicrafters HT40.
Manual for Hallicrafters SX140.
Manual for Raytheon TWR 7C.
Callbook DX listings Vol. 46 No. 3 Fall 1968.

Moe Lynn VE6BLY,
10644-146 Street,
Edmonton, AB. T5N 3A7

MAINVILLE'S FT2700 —————

I am writing to you with regard to the letter in *The Canadian Amateur* concerning Mr. Mainville's FT2700 radio. We thank you for your interest in a fellow Amateur's equipment, however this has unfortunately been a long and complicated issue.

Mr. Mainville purchased a second hand radio, which subsequently became defective. He took it to be serviced at a dealer (which Yaesu Canada does not do business with), where their technician seriously damaged the unit, almost beyond repair. The radio was finally sent to us at Armaco/Yaesu Canada and our technician spent 14 hours correcting previously damaged work. Further shop time was spent installing a new VHF unit and power amplifier. These parts had to be sent air express so our technicians could finish the work to correct this radio as quickly as possible. The parts used to repair Mr. Mainville's radio have been at cost and Armaco has spent \$560 of shop time to do the necessary work (which has not been billed to Mr. Mainville.)

We too wonder if the 'good guys' finish last, but we stand behind our Yaesu products at Armaco and firmly believe in customer satisfaction. If a

customer has a problem with one of our products then he should deal with us directly so that we can rectify the situation as quickly as possible.

Guy McKenzie-Smith,
Customer Service,
Armaco Electronics Ltd.

REPEATER DIRECTORY —————

Here is another \$6 I've picked up in \$1 contributions for copies of the CARF Repeater Directory. It would be nice if they, and similar contributors, could be recognized in some unused corner of a future issue of *The Canadian Amateur*.

The contributors are: VE6AND, VE6VET, VE6RAB, VE6AAH and VE6RPN. The feedback on the quality of the directory is very positive.

Earle Smith VE6NM

THANKS FROM VE3BYH —————

To all Amateurs I have met on the air waves:

As a lot of you know, I was burned out of house, home and everything I had on Jan. 28.

We were well looked after (my son and I) by local people who took us in, gave us clothes, etc. until something could be worked out.

I want to thank all Amateurs who sent cards, get well wishes and help in our time of need. We were able to get a small two-room apartment and have settled in.

All my burns have healed. I still have trouble because of smoke inhalation. However, we have a good roof overhead, food on the table and have picked up a Yaesu FT101ZD which seems to work really well. The lady I got it from said that I could pay her as I go along. So, very shortly, fellows, I hope to be handling Ontars from 9 to 10, 5 days a week, and talking to all my good friends out there. Thanks again fellows.

Dick VE3BYH

AN ACT OF BRAVERY —————

I would like to bring to your attention an act of bravery by a Montreal region Amateur, George Whelan VE2TVA.

One morning last fall, George was travelling between Montreal and Sherbrooke, Quebec, when he spotted an overturned car in a ditch. George stopped at once and rushed to the car. In it, a young driver was unable to get out and was afraid of a fire eruption.

While another automobilist arrived at the scene to offer some help, George was able to pull the young driver away to safety. Minutes later, the car became a torch. Luckily, no one was injured. This young man certainly owes his life to a brave man who did not hesitate to risk his life.

George is a popular TV announcer

as well as at radio stations in Montreal.

I do not have the exact date or the precise time of the accident, but the above facts have been on live TV in Montreal. George VE2TVA and the rescued fellow were present.

I sincerely think that George deserves a mention in our magazine. I don't know him personally, but spoke once to him on portable handheld.

Marcel Gingras VE2ESI

NEWS FROM VE4WSC —————

Here is some news from the Winnipeg Senior Citizens' Radio Club.

Our Seniors Radio Club is equipped to operate on HF, VHF, UHF and Oscar Satellite. Our membership is growing steadily and we look forward to beginning operation soon via Packet Radio.

We held our Annual Election of Officers in December '87. The following are the Table Officers: President Keith McConnell VE4BC, Vice President Gareth Evans VE4ANT, Secretary Jim Rogan VE4MT, Treasurer Albert Diamond VE4AX/AIP, Past Pres. Charles Harvey VE4FG.

Our Senior Citizens' Radio Club is a CARF affiliate. We are DOC authorized Morse Code Examiners since 1986.

Albert Diamond VE4AX/AIP

AN ENCOURAGED AMATEUR —————

This is a letter from an encouraged prospective Amateur in comparison to the letter from Mike Weir published in the February '88 issue of *The Canadian Amateur*.

I can certainly understand how Mike (and his friend) would be very discouraged and frustrated, and I only hope that they find a club, or individuals, that will provide active, ongoing interest, and encouragement, to assist them in obtaining their certificates.

At the same time, I would like to thank the following VE3s for their time and effort in assisting me in a multitude of ways related to Amateur Radio: Earl CTY, Jeff WJB, Murray FUU, Tony HDA, Gord IH, Ken IZM, Terry MFR, Jack AFN, Bob JAN, and the members of the South Waterloo Amateur Radio Club. This list is in no specific order and my apologies to anyone whom I might have forgotten to mention.

At present I am studying and reviewing the DOC question bank with three other prospective Amateurs: we meet once a week for about 1½ hours and I have found these 'sessions' very helpful. The group is determined to be four new VE3's soon!

W.D. Gray

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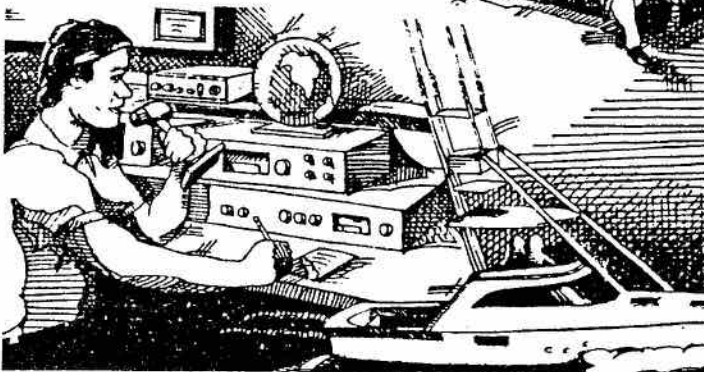
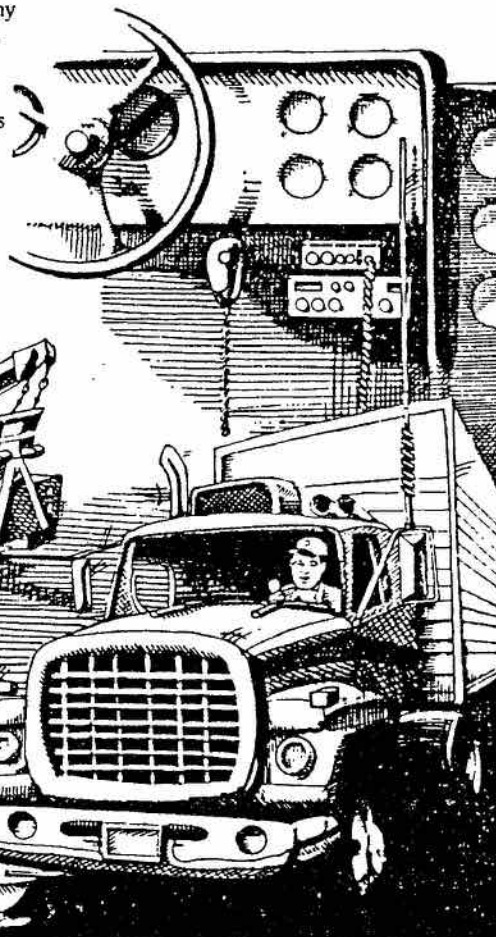
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SCAN PROGRAM SWITCH starts scanner programming.
MODE DISPLAY shows Rx, Tx or Split mode.

MEMORY CHANNEL DISPLAY shows memory channel selected.
SPLIT SWITCH allows for Tx and Rx on different frequencies.
SPLIT PROGRAM SWITCH for programming split offset.
SPLIT + or - SWITCH selects + or - split offset.
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MODE SWITCH selects mode of operation.

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better than + 10 ppm from 0-40 degrees C after 15 minute warm up

Modulation Type:
A3J: Balanced Modulator
A3: Voltage Modulator
F3: Frequency Modulator
Maximum FM Deviation:
5 KHz
Output Impedance:
50 ohms (nominal), unbalanced
Microphone Impedance:
low (500 to 600 ohms)
POWER CONSUMPTION:
30 Watt 6 Amps
100 Watt 25 Amps
POWER OUTPUT:
30W Model CW 30Watts SSB
25Watts PEP
AM 8Watts FM 8Watts RMS
100W Model CW 150Watts SSB
120Watts PEP
AM 30Watts FM 30Watts RMS

Frequency Range:
28.0000 - 29.9999 MHz
Circuit Type:
Superheterodyne, dual conversion
Clarifier Range:
 \pm 500 Hz
Sensitivity:
(CW, SSB and AM figures measured for 10 dB S + N/N)
SSB, AM, CW better than 0.3 μ V
FM better than 0.5 μ V for 12 dB SINAD
Intermediate Frequencies:
1st IF 10.695 MHz
2nd IF 455 KHz
SSB, CW IF 10.695 MHz
Image Rejection:
better than 70 dB
IF Rejection:
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RECEIVER

Selectivity:
-6dB -60dB
SSB, CW 2.6 KHz 4.6 KHz
AM, FM 6.0 KHz 18 KHz
Noise Blanker:
Switchable six stage high gain type
Dynamic Range:
better than 100 dB
Audio Output Power:
2 watts minimum (into 8 ohms, with less than 10% THD)
Audio Output Impedance:
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POWER CONSUMPTION:
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DIMENSIONS
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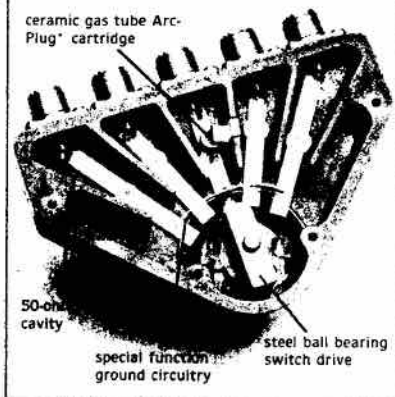
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- DELTA-4 handles full legal power.
- Designed and produced in the U.S.A. by Alpha Delta.

ceramic gas tube Arc-Plug™ cartridge



Model DELTA-4 (UHF connectors, 500 MHz)
Model DELTA-4/N (N-type connectors, 1.3 GHz)

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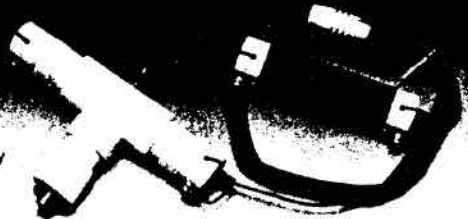
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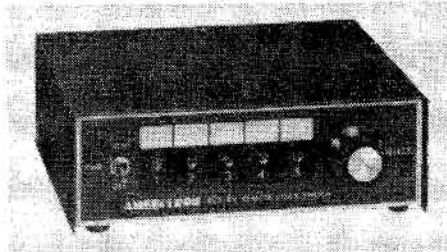
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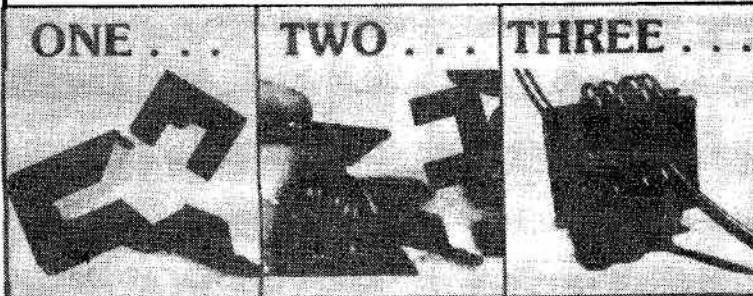
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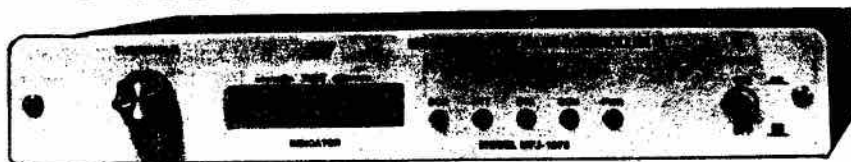
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Good news for SYSOPs! New software lets the MFJ-1278 perform flawlessly as a WORL/WA7MBL bulletin board TNC.

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You can copy all shifts and all standard speeds including 170, 425 and 800 Hz shifts and speeds from 45 to 300

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A high performance modem lets you copy both mark and space for greatly improved copy under adverse conditions. It even tracks slightly drifting signals.

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You get both the American Western Union and the International CCITT character sets. Autostart for unattended reception and selectable "Diddle".

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You can transmit and receive 7 bit ASCII using the same shifts and speeds as in the RTTY mode and using the same high performance modem. You also get Autostart and selectable "Diddle".

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You get a Super Morse Keyboard mode that lets you send perfect CW effortlessly from 5 to 99 WPM, including all prosings -- it's tailor-made for traffic handlers.

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Turn on your MFJ-1278 and it sets itself to match your computer baud rate. Select your operating mode and the correct modem is automatically selected.

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The Ravenscroft Appeal

CONTINUED FROM LAST ISSUE

BY RALPH CAMERON
VE3BBM

DAY TWO, JAN. 29, 1988,
9:30 A.M.

In beginning his presentation to the Court, Mr. Bredt led off with the four causes of the current problem. This was done in an attempt to describe to the Court the problem, in a manner that could be understood from a relatively non-technical viewpoint. It was done mainly by inference to observation and statements contained in the records from trial.

FINDINGS OF FACT

1) In Judge Hollinger's findings, at page 12, he at no time stated that the cause was the transmitter of VE3SR. The evidence is uncontradicted that the lack of immunity of the appliances is the reason certain effects were caused.

2) In support of this Mr. Bredt explained that the transmitter was operated correctly. There was no recourse but to cease operating, in order to stop the effect. The argument was heard that the complainant's equipment was acting as a radio receiver, something it was not designed to do. The age of the appliances had some bearing on the degree of severity of the effects.

3) The organ equipment was affected by other sources. We previously heard that the Court record indicated a low powered handy talky caused a marked disturbance and both GRS and 150 MHz handhelds caused similar results.

4) The early morning visit by DOC to VE3SR's substantiated that other sources caused interference to the complainant's TV reception.

Next, Mr. Bredt described the testimony of expert witnesses who stated in varying degrees how well the equipment could be suppressed. In the opinion of DOC, suppression could eliminate and reduce the interference due to lack of immunity. VE3BBM had testified that an estimate at total suppression could not be made because it had not been possible to enter the complainant's home. In spite of this, the Yamaha service manager estimated he had been able to effect 75% suppression.

This had been done solely by reference to circuit schematics. The question put to witnesses at trial was whether or not 100% suppression could be guaranteed. Obviously, no one could make this guarantee without seeing the physical layout of the organ. Nor could the manufacturer even guarantee 100% that the organ would operate every time it was turned on. The question as to whether this was a reasonable question to put to witnesses was not questioned.

Is 100% reasonable to expect? The DOC felt that total suppression could be effected given full access to the organ. This fact was even stated by Mr. McLarty of DOC, who acted as witness for the complainant.

The Bench stated that, "to the extent possible" was more appropriately applied to the degree of suppression sought.

The conclusion from all this was that only closing the transmitter would prevent a recurrence of the problem. In an action for nuisance there should be a balancing of the interest. It was felt there was no balance given in the judgment handed down, for the foregoing reasons.

Justice Krever asked the question as to who would bear the cost of such modifications.

By way of reply, Mr. Bredt stated that most manufacturers would be willing to bear the cost. (We know from past experience that many manufacturers are unaware there is a problem and do not know how to deal with it. The majority of problems go unreported because they fail to fall under any regulatory mandate.)

Mr. Bredt stated that where interference can be eliminated or reduced by reasonable steps there is no actionable nuisance. As an example a case involving the South African Telegraph Co. was entered.

METALLIC CIRCUITS

In the South African Telegraph Co. case, a user had brought a charge of nuisance against the company because a telegraph circuit was affected by noise entering the cable and messages were being lost. It subsequently turned out that the noise was generated by the sheath.

The circuit, because of economy, had been based on a single wire and earth return. The friction of the sheath moving under the sea's pressure caused the noise disturbance. The Telegraph Company had to bear the cost of installing a separate earth return wire so as to stop the action of the sheath.

A second case, which occurred in the U.S. Supreme Court, dealt with the Pacific Light and Power Co. and a Philip A. Proximity to a high power transmission line cause interference to Philip A's telephone, which had a single line circuit. The cure was to 'metallize' the phone circuit so as to eliminate circulating earth currents. The power co. argued their transmission lines were state of the art. Adding the additional telephone conductor cured the problem.

Judge Krever stated that broadcast facilities are located far from built-up areas and would not be shut down. The statement went uncontested.

Mr. Bredt then told the Court what VE3SR had done to help resolve the problem.

STEPS TAKEN

1) He spoke to all neighbours and offered to help resolve any problems.

2) Restricted operation to hours of 8 a.m. to 10 a.m.

3) Avoided direct transmission over the complainant's home.

4) Offered a time sharing arrangement.

5) Agreed to continue further tests.

Further presentation of past case law was made in reference to an Ontario Supreme Court case, in which Justice McIntyre attempted to judge nuisance on the basis of balancing and compromise between the two parties. In the present case Mr. Bredt stated the evidence was conflicting and called for compromise and an injunction is an inequitable remedy. He felt that Mr. Ravenscroft had entered the Court with, "clean hands". (I'll make no attempt to define this term.)

Justice Krever questioned Mr. Bredt as to whether he felt the Respondents had come into the Court with "unclean" hands. The question was never directly answered although one must be very cautious in replying to

such a question. The question of, "clean vs. unclean" is a distinction provided by legal reference in judging whether it is obvious some illegality has been committed. As an observer I would have to have no opinion.

Mr. Bredt again stated that the injunction was inequitable remedy because it is absolute and, "serves one party's interest and not the other. The character of the locale, which is one of Linden's Law of Tort measurements, to be used in nuisance determination, would indicate that with the high number of transmissions there was really only one serious complaint.

UTILITY OF CONDUCT

The question of one other measuring tool proscribed by Linden in his classical text of Tort Law, "Utility of the Conduct" was discussed, first by the Court then by Mr. Bredt. The object was to lend credence to the objectives of Amateur Radio and in particular to the Appellant (VE3SR). Justice Krever stated, "It is only a hobby, is it not?" Mr. Bredt replied that it was a hobby but directed the Court to the transcript of Mr. Perrin VE3FN who had so succinctly described what Amateurs have been doing for the past 50 years and their contributions to society as a whole. Mr. Bredt also pointed out that organ playing too, was a hobby to which Justice Krever replied that an organ didn't cause interference. Mr. Bredt agreed and also stated that the organ didn't cause interference but did cause the issuance of the injunction.

There was a recess from 11:15 to 11:30 a.m.

STATUTORY AUTHORITY

In presenting some of the final arguments in the defence of VE3SR, the Defence of Statutory Authority was discussed. While this issue was the most compelling in terms of its power, the sub issues surrounding it relate to whether the station was authorized; whether the interference was inevitable and whether there had been any negligence in the operation of VE3SR.

In defence of the first issue, it was stated the station was duly authorized by the authority of the Radio Act.

At this point Justice Krever asked whether the evidence related to this issue had been called by the pleadings or not (i.e. raised at trial as an issue). He declared that an amendment to the pleadings must be made. The purpose of this step was to insure that the complainant's lawyer had an opportunity to argue the issue at trial. By not raising the issue of

Statutory Authority at trial, the Court felt the Respondent would be disadvantaged in preparing for her Cross Appeal. While the reference on page 18 of the Judgment referred to Linden's text, it was insufficient to allow the argument much weight.

Justice Grange requested that Mr. Bredt proceed with the argument and the latter made the Court aware that there was no stipulation for Amateurs as to where the station should be established. The station was expressly authorized and no negligence was shown in the DOC report, by the operation of VE3SR station.

Mr. Bredt observed that the damage complained of was the inevitable result of the operation although there is an 'arc' of 265-325 degrees at which no affects are apparent. The Court then was directed to the nearest wall clock which was used to relate the bearings which seemed to overlap and the whole discussion slowly melted into a number of bobbing heads, both on the bench and in the chambers.

Several side issues related to the Statutory Authority and various inferences were made by reference to some of the known facts. Just how much weight these carried could not be determined. This much was known:

- 1) Some interference was to be expected.
- 2) Nuisance was a Provincial law and not a Federal one.
- 3) This was not a radio determination service as excluded by the Radio Act.
- 4) There was no interference to a fixed service, medical or otherwise.
- 5) Interference under Sec. 64.4 of the Radio Act must be to radio-communication devices.
- 6) Under Sec 107(d) there is nothing VE3SR can do to prevent the interference. i.e. additional filtering devices on the transmitter would be ineffective.

Review of the provisions of the General Radio Service Sec 71 sub (2) relates to it being primarily a business activity; however, operators were subject to laws of slander and libel in using the station. The attempt here was to convince the Court that a Federally licensed station was excluded from a common law of nuisance, under the circumstances of its authority.

AN OFFER

A statement was made to the Court that VE3SR would be prepared to provide technical assistance and the required device not otherwise provided by the manufacturers to the satisfaction of the DOC in the suppression of the equipment.

A recess was taken at 12:15 for 15 minutes.

Upon return, the Court stated there were three major issues of which one was the Constitutional aspect. The other two were Statutory Authority and the reasonableness of the Respondents.

REASONABLE REFUSAL

The Court explained that issues one and two need not be addressed by the Respondents' lawyer, in cross Appeal. The Court directed the Respondents' lawyer to summarize for the Court whether the refusal of the Plaintiffs to take reasonable steps to immunize their equipment, when immunization was done at no expense, is a fact to be balanced in their prima facie, in order to determine whether there was actionable nuisance.

Break for lunch— Court resumes at 2:15 p.m.

Ms. Angel Henry representing the Respondents took the stand to present her issues.

It was stated that the Respondents did not refuse to suppress their equipment. The degree to which this would be necessary is the real issue here, as the testimony bears out. It was not felt that the offer made prior to lunch break had been previously open for consideration.

The Respondents had been inconvenienced several times in having to ensure that one of them was home during the time the technician worked on the organ. This occurred five times, with no end in sight. 75% reduction in interference had been achieved.

Mr. McLarty, a DOC witness, had testified that the noise would be objectionable to most people.

It was stated that during the DOC tests the furnace had further activated although some conjecture still occurs about this issue, it is in the Court Record as being fact.

It was also argued that, with the exception of the organ, the evidence stated by expert witnesses that all other appliances could be 100% suppressed.

DOC STANDARDS

At this point the Court questioned Ms. Henry by raising the rhetorical question, "What standards are acceptable to DOC?" (A pin could have been heard to drop.)

The Court stated that 25% remaining interference was "trifling, compared to a permanent injunction."

ORGAN QRM

Under further examination, it was confirmed that the Respondent played the organ at full volume so as to get maximum effect. Justice Krever stated the record shows the Yamaha

Continued on next page ▶

RAVENSCROFT (cont'd)

service manager confirmed the interference had been reduced by 75% and at normal listening level was negligible. Justice Krever then asked how the interference could be heard if the organ was played a maximum volume. The answer was not totally comprehended by this observer but was noted by the Court.

The Court also asked what further compromise the Respondents were willing to make. In defence, Ms. Henry cited the letter from DOC Regional office in Toronto laying down the ground rules for resolving the problem. (Spring of '85.)

It was stated the interference was noted on both antennas used by VE3SR (a 204BA and a ground plane). (Prior to the raising of the beam the ground plane had been in operation without incident.)

LETTER EVIDENCE

During the preliminary hearing in Ottawa, VE3SR had taken a letter he had received from DOC into the Courtroom. The letter related to steps to be taken to attempt resolving the interference issue. It implored both sides to be co-operative. On the letter were notes VE3SR had penned to be able to respond to the issues. The letter with notations in the margin were not unnoticed by Justice Krever who asked where the letter had originated. A similar question arose as to how a

letter from the Minister of Communications had been received by the plaintiffs in respect to this issue. While read by the Court and entered at trial as an exhibit, it was argued that it not be admitted since the Minister had not been called to testify at trial.

Some issues relating to resolving the case were then stated by the Court. There was the issue of whether complete interruption could be justified with proper suppression and the question of 60 degree restricted coverage. (It was debated whether this sector remained to be free and clear of all interference.)

In summing up the cross appeal arguments, the question arose as to the determination of damages. It was stated the previous amount awarded was a nominal sum for the inconvenience suffered. It was felt the damages should have been higher. In supporting the request, various medical evidence from the record was restated for the benefit of the Court. It was also mentioned that the Respondents intended to install central air conditioning yet felt there would be no guarantee that this, too, would malfunction in a way similar to the other appliances.

DAMAGES

The Respondents asked for damages of inconvenience of \$7500. In part, the changes to the character of the Respondents was quoted from the

Court transcripts. It was felt the changes noted by their neighbour were solely due to the mental stress imposed by the nuisance. They believed they could not operate any of their appliances because of interference.

The Court asked to confirm the operation of the furnace. It was so stated.

The Court asked to confirm who paid for costs associated with suppressing the organ. These were absorbed by Yamaha. Ferrite beads were supplied free by VE3BBM.

The Court noted in the Respondents' Offer to Settle that there was to be no more suppression and no more people were to be allowed in to do so. In the Appellant's offer he had stated he could restrict his operation between 260-60 degrees. (In actual fact this is what the Respondents had requested.)

Note: VE3SR had agreed to avoid 100-180 E. of True North.

RESPONSE TO CROSS APPEAL

At 3:05 p.m. Mr. Summerville pointed to steps his client took by referring to the letter VE3SR had written to DOC. In summary, Mr. Summerville stated that VE3SR will assist DOC and manufacturers and will provide to the extent not provided by DOC and manufacturers all technical assistance and suppression devices to standards acceptable to DOC.

The rest is history. The judgment has 90 days from January 29, 1988 to be carried to successful completion.

Note: Information taken at Appeal moved rather quickly over complex matters of law. At no time is this article to be construed as a Court Record; although, this has been quoted liberally. For those readers unfamiliar with the case, such quotations fill in needed information. Facts were presented in the order given at Appeal. Mistakes in references or quotations may have been due to the manual transcription and my apologies to those so affected. The purpose of the article is to bring attention to lack of immunity and the legal recourse necessary in this instance. This article is not meant as a post judgment in any way. ■

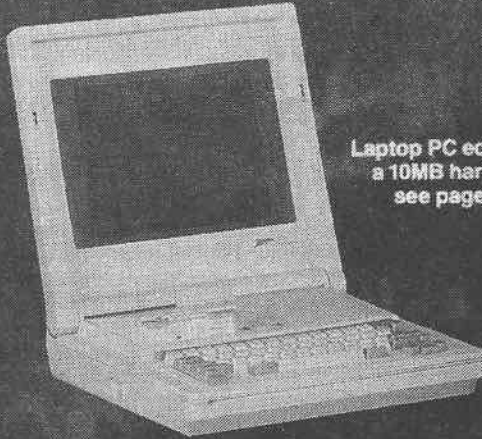
CHECK YOUR LABEL

Debbie at the CARF office asks that you check your mailing label on this issue of *The Canadian Amateur*. If it is marked with a highlight marker, your subscription has expired. Just fill out the form at the back of this issue and send it along to the CARF office.

Shack of the Month



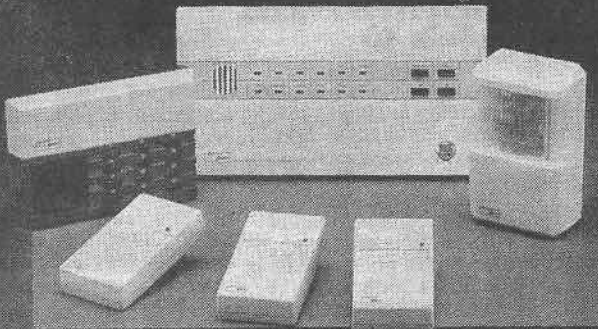
Mike Miskell VE3HRT writes: "Please find enclosed my entry to Shack of the Month. I know it isn't much to look at, but it's about all I can afford after paying my taxes, etc. It is, however, very easy to take care of since it only has two rooms. Also, I never seem to be bothered by annoying salesman knocking at the door."



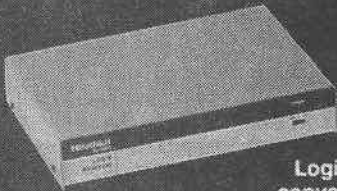
Laptop PC equipped with a 10MB hard disk – see page 84



Analog Trainer and Backpack – see page 58



Wireless Security System – see page 102



Logic Analyzer converts PC into a test instrument – see page 42



Pack-Kit Multi-Mode TNC and 1KW Linear Amplifier – see pages 32 and 36

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Critical Thinking

BY JOHN CONNOR
VE1BHA

In 1984, a story began circulating in the media about people having their contact lenses fuse to their eyeballs by sparks. It became so widespread and persistent that the American Ophthalmological Association was compelled to respond via the press, stating that there was no basis to the story.

Imagine my reaction, then, when I saw the same story repeated on page 42 of the March issue of *The Canadian Amateur*. My initial thought was to write a letter to the Editor refuting the story, but further consideration led me to the idea that a short article on the broader topic of critical thinking might be more appropriate.

One is faced with no end of fantastic claims these days, ranging from the obviously ridiculous flying saucer stories to not quite so obviously ridiculous stories as the contact lens one. How does one separate the truth from the sensationalism? Let's take the latter story as an example.

The claim is that a spark caused the wearers' contact lens to adhere to the eye. Subsequently, the wearer removed the cornea while trying to remove the lens. The damage is claimed to be caused by microwave absorption. What are the obvious questions that one should ask? For starters:

1. How much power would be needed to evaporate all of the fluid under the lens?
2. Would this bond the lens to the eye? Or would the lens have to be melted, and if so, how much more power would that take?
3. How could this process possibly be painless?
4. Even granted a lens solidly bonded to the eye, how could that possibly result in removing the cornea?

Are you beginning to doubt this story? I would certainly hope so.

For anyone who knows a little bit about contact lenses, it would be evident that it would be virtually impossible to melt almost any of the modern types of lenses. Contact lenses are mostly water. All that microwaves would do is dry the lens out.

For those who are not convinced by

this line of reasoning, let's do a few simple calculations to see how much power would be needed to dry up the fluid under a contact lens. We will do what is called an order of magnitude calculation, which means that we will be satisfied with an answer that is correct to within a factor of ten.

The volume of fluid under the lens is given by

$$V = \pi r^2 d$$

where r is the radius of the lens and d is the thickness of the fluid under the lens. A lens is about 4 mm in radius, and the fluid layer is probably about 1/10 mm. Therefore, the volume of fluid is about $\pi(16/10) \text{ mm}^3$.

A quantity known as the latent heat of vaporization tells us how much heat we need to evaporate a given amount of water. This number is 2.5 Joules per cubic millimetre, written 2.5 J/mm^3 . Therefore, a little arithmetic shows that we need to supply:

$$(16/10) \cdot 2.5 \text{ Joules}$$

or about 12.5J.

Now it so happens that a watt is one Joule/second. So, if we can make a reasonable estimate of how long a spark lasts, we can estimate how much power it would have to deliver in order to evaporate all the fluid under the lens.

So, how long does a spark last? Certainly more than 1/30 second, because otherwise you could not see it. A second seems much too long, so 1/10 second seems about right. Thus, if we have to supply 12.5 Joules in .1 seconds, we are going to have to generate 125W in our spark! Worse than that, it all has to be at an appropriate microwave frequency so that it is absorbed, which happens to be near 10 GHz. But a spark will generate radiation over a very wide range of frequencies, which is why you can hear a loud pop in your receiver every time you turn off the lights. Since the energy will be distributed more or less equally over all frequencies, we would then get 125W at all frequencies from a simple spark, and every time you turned on the lights, you would risk destroying your front end!

In fact, if we said that the spark generated 125W at each of 1000 frequencies from 0 to 10 GHz (which means that each channel is 10 MHz

wide), the total energy of the spark would be 125 kW. We might then have a chance of drying out the fluid under the lens, but we still would not have succeeded in either bonding the lens to the cornea, nor in removing the cornea. We would, however, almost certainly have destroyed the switch!

The point of all this is quite simple. If a claim seems too fantastic to be true, then it probably isn't true. A few simple questions can usually reveal the utter impossibility of such claims. It is becoming more important all the time that we be able to distinguish truth from mistruth, fact from fantasy. This is true whether we are deciding public policy questions, or trying to judge an advertisement for an antenna.

I guess the moral of the story is: don't believe everything you read. Just because it is in the paper doesn't mean that it is true. After all, there probably isn't a newspaper in North America that doesn't have an astrology column. ■

PACSAT

According to *Westlink Report* AMSAT has undertaken a crash program to build and launch an Amateur radio packet satellite (PACSAT) within the next two years. A special fund is being created to support this project. Meanwhile, plans are still 'go' for launch of a Phase 3C satellite. The unit is currently undergoing tests at AMSAT-DL in West Germany. If all goes well, this new OSCAR will be launched on European Space Agency's (ESA) V-22 mission planned for March 15.

This new unit will be placed in an elliptical orbit in such a way that it will spend most of its time above the Northern Hemisphere. It is expected to carry three linear transponders (Mode B: 435 MHz up 145 MHz down, Mode JL: 145 and 1269 MHz down, and Mode S 435 MHz up 2400 MHz down) and a fixed-frequency digital transponder (1269.675 MHz up, 435.675 MHz down).

VE2VQ has been elected Director (First Alternate) of AMSAT North America.

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CARF representation on CSA Standards Committees

The Canadian Standards Association has several committees involved in one aspect or another of EMI standards. Amateur representation is critical on these committees to ensure that future standards address the high RF environment that can exist near an Amateur transmitter.

Recently CARF appointed Ivor Nixon VE3IHN as our representative to the CSA. Now retired, Ivor has had previous experience with CSA technical committees and is a valuable addition to CARF's participation.

In this article, Ivor explains the CSA committee system, how it fits into international standards organizations and what we can expect to accomplish toward EMI-proofing consumer devices. He also describes some of the active committees and which ones require Amateur participation.

PROGRESS REPORT ON DEVELOPMENT OF STANDARDS FOR ELECTROMAGNETIC COMPATIBILITY

BY IVOR NIXON VE3IHN

Canadian Standards Association action with regard to the development of standards which will attempt to control the possibility of unwanted interference from and to unrelated electronic receiving and transmitting equipment and telecommunications and power circuits is now being stepped up. This is due to a certain extent to publicity given such problems as the Ravenscroft case and recognition that these will inevitably increase, but more to international initiatives such as free trade within the European Economic Community to be implemented in 1992 in consequence of the Treaty of Rome. The latter requires that common standards be developed by that date for adoption by all EEC countries. To meet this goal, the International Electrotechnical Commission headquartered in Geneva has established an International Special Committee on Radio Interference (acronym CISPR from the French equivalent) which has been hard at work on standards development for some time.

Worldwide trade in electronic equipment now makes it mandatory

that producers and users everywhere collaborate on universally-recognized performance criteria, and while this seemed until recently to be an unattainable goal, it would now appear that the next three or four years will see tremendous strides made.

CISPR is the international body recognized as having exclusive authority for the writing of standards dealing with the emission of radio noise (and susceptibility to same) by electrical and electronic equipment, and is only one of the more than 100 technical committees of the IEC. Canada has been an active member of both organizations for some 40 years, and interfaces with them through the Standards Council of Canada (SCC) which takes the responsibility of ensuring that this country is appropriately represented on the various technical committees. This has been accomplished by designating CSA as the official standards writing organization in the technologies being addressed by CISPR.

To this end, CSA set up a Steering Committee on Electromagnetic Compatibility whose duties are twofold: to write voluntary Canadian standards for radio interference, and to represent Canada in the CISPR forum. Its current Chairman is Conrad Maheux of R.C. Maheux & Associates of Willowdale, Ont., and the Vice-Chairman is F.G. Diamante, Director, Long Range Planning and Interconnection at DOC.

This Steering Committee in turn spawned some eight Technical Committees (TCs) to develop measurement procedures and to establish precise performance parameters in various areas of concern. Most of these Committees are 'harmonized' with the parallel IEC/CISPR groups so that the solutions, like the problems being addressed, will be globally applicable while still recognizing any regional differences which emerge.

The CSA Steering Committee meetings take place only once a year or so, the last being in November 1987, and before that in November 1986. The Technical Committees meet more frequently, with the dates

varied to maximize accessibility to CISPR's work. The Amateur fraternity is represented by delegates from CARF (the writer, replacing Gord Roberts VE3IMA who has been unable to participate) and from CRRL (in the person of Bill Loucks VE3AR). In addition to being members of the steering Committee, we will both sit on the following TCs initially:

1. EMC of Domestic Communications and Entertainment Products (C108.9). Its meeting in October 1987 was the re-activation of an earlier group which last met in November, 1982. The current Chairman is Gordon Roberts, Director, EMC Analysis and Consultation at DOC, Ottawa. The October meeting examined five draft CISPR Committee E standards, dealing with radio frequency emissions from radio receivers as well as immunity to same. It was noted that certain changes were obviously indicated before they could be recommended by CSA for eventual adoption as National Standards. Inasmuch as the immediate task for this Committee will be to scrutinize the forthcoming revisions of these CISPR documents, the next meeting awaits the call of the Chair. In the meantime, the membership is being reviewed to ensure that attendance and active participation is maximized.

2. EMC of Information Processing Equipment (C108.8) (CISPR/G). This Committee is being re-formed under a new Chairman and will be activated as soon as the process is complete. C108.8 will deal with emissions from computers, terminals, calculators and the like.

A number of other Committees are being formed where active Amateur Radio representation does not seem necessary at the present time, except perhaps as observers. These include:

C108.1 and C108.2, EM Measurement Methods. CISPR's work is fairly well advanced and has been scrutinized.

C108.3, EMC of High Voltage Systems. A functioning group.

C108.4, EMC of Ignition Systems. A new CISPR draft is expected and will probably be adopted by SAE and

Continued on next page ▶

Emergency Communications Plan in Cumberland Township

BY RIC GUIDONE
VE3NJM

I was reading one of the local newspapers one day, and I happened to notice an advertisement asking for any Amateur Radio operators in the area to volunteer in assisting the Fire Department in their efforts to establish an 'emergency plan' for the township. I hesitated a few days to let the enthusiasts and those people who were so much more knowledgeable on 'emergency procedures' to get involved, and then I phoned to volunteer my services. As fate would have it, I was the first and only person who had called to date.

I arranged a meeting with the staff of the Fire Department, then started testing the local 'waters' for potential volunteers. To my surprise, I was able to amass a list of a possible 40 hams in the township who might be interested.

The next step was to get everyone together, and then, hopefully, a leader from the Ham Radio group would surface. You guessed it... and here I still am, not without the help of several dedicated people, I might add.

The organization of the CERG is complete for the most part. The call-out and operations procedures are almost finished at the time of this writing.

The group is composed of about 35 volunteers with numerous skills and resources. We have set up a call-out procedure that will place a net control operator at the communications

centre and other operators at different locations as required, including the emergency site.

We approached the Department of Communications about a licence for the station and were lucky enough to get VE3CER—Cumberland Emergency Radio.

The 2-metre antenna has been installed on the fire station's tower. Testing has shown us and, more importantly, the Fire Department personnel, that we can provide communications into areas that they have had problems reaching with their commercial gear.

We have approached the local businesses and social clubs for assistance in the provision of permanent radio equipment for the communications centre. One of our more enthusiastic members has been able to get a used school bus that can be converted into a mobile communications vehicle. This will eventually be equipped with complete HF and VHF stations and antennas.

The Fire Department personnel have consulted us throughout all the phases of this set-up and have allowed us to have input in the township's 'Emergency Plan'. This plan was recently passed as a Bylaw.

At this time, we are considering setting up a more 'rigid' structure for the group to allow other people to participate in its organization and day-to-day running.



Photo by VE3PAE

Ric Guidone VE3NJM is responsible for the operation of the Cumberland Emergency Radio Group.

We hold monthly meetings at the fire station and are constantly trying to locate films, videos and/or speakers which may assist us in our preparation for the disaster that we all hope never comes.

All of our contacts within the Fire Department have had extensive emergency preparedness training and are very willing to assist us in any way possible.

We are planning several small exercises in the spring and a full scale exercise some time after that. ■

CSA COMMITTEE (cont'd)

CSA for both the U.S. and Canada. The Committee is otherwise inactive.

C108.5, EMC of Low Voltage Apparatus. Awaiting the relevant CISPR versions.

C108.6, EMC of RF Generators (Industrial, Scientific and Medical equipment). Little if any manufacturing activity in Canada in this area, but the Committee is active.

It might be noted that the Steering Committee has decided that the terms 'susceptibility' and 'immunity' mean the same thing for practical purposes and can be used interchangeably. Further reports will follow from time to time. ■

CARF's Great Canadian Article Contest

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- A project or technical discussion?
- How about a story from your past?

Beginning this month your editor is accepting entries for The Great Canadian Article Contest. First prize in each of the three categories is \$75, runners-up \$25 and honourable mentions will be published in the July/August 1988 issue. Entries will be accepted until the holiday weekend in May.

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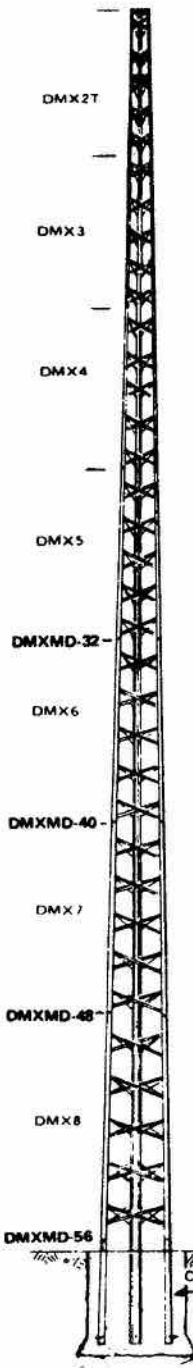
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2. All entries become the property of CARF Publications and must be identified with your name, callsign and category.
3. Decision of the Judges is final.

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Memories of 40 Squadron, 1944

Part 2

When the station came on the air each half hour, the morse code signals could be read on the intercom by me. Very few messages were sent by either base or us and radio silence was maintained except that all aircraft were told to report their ETA to be about one hour from landing. This was often hard to do because of the QRM, so I usually tuned up to the low frequency DF station and passed it through them.

Nearing the base we could relax a bit and tune in the U.S. Forces radio station in Foggia for some nice music. A good lookout was still a must to avoid collisions in the landing circuit. After landing, we had a few cups of hot sweet tea and a smoke before debriefing. The debriefing allowed the crews to talk and get some of the fear and tension out of their systems, otherwise it was almost impossible to sleep. We then had some breakfast. I think we got the 'operational egg' or was it powdered egg?

I remember one crew, the pilot was Tom Wasson, an Aussie, big noisy drinking type. One night he returned to the school where we were living, well under the influence, and he dived onto his bed which collapsed at one end so that he lay there with his feet high and head low. This did not seem to bother his crew, he slept there like that all night. This crew was flying the 4,000 pounder out over the Balkans one night when they were attacked by night fighters and riddled with bullets, but otherwise unharmed. They continued to target and returned safely home. At debriefing they were still shaken up and the WOP proudly showed off his battle dress sleeve with the bullet holes. They did complete their tour.

We were witness to a few attacks by night fighters and could see them occasionally speed past, and we saw many burning planes go down and explode on the ground. This often happened going out to the target and we would be expecting our turn to come next. This was the time when we would have our parachutes right close and keep an eye on the escape hatch.

Generally we did not wear the chute but kept it very handy. Usually one was uptight at the time and later,

when things eased up, one would get a cold sweat. This did not make for happy flying, particularly when there were two tons of bombs and a thousand gallons of petrol on board. The WOP was standing on them and on long trips we also had extra petrol tanks inside by the WOP. Needless to say we did not smoke in any Wellington but I sure puffed away when we landed.

The view for the Astrodome where the W/OP stood facing the stern was a wonderful spot to see just about everything. A normal scan covered 180 degrees but the target area lights and flashes could be seen by turning slightly. Some nights were very black and it was hard to focus one's eyes; others were beautiful, the millions of stars looked so close and the sky was a black velvet. Taking off in the evenings when the sun was setting gave an unreal feeling as we floated through clouds touched with a red glow.

We had many kinds of weather and due to lack of accurate weather forecasting we would get mixed up in storms and wind changes, rain, icing and static.

One particular storm the pilot, Jack, reported that the port wing tiplight was on and to fix it quick. I checked the switches and found they were all off, I didn't know what was wrong and then the static built up and the props were two whirling arcs of light, the guns sparked across. I quickly grounded the radio antenna due to the static. The wire antennas were also looking red hot. It was probably St Elmo's fire. We managed to stay right-side-up but it does take the pleasure out of flying. When we got out of the rain storm everything was okay.

FROM THE LOG

Looking at my log, I remember the night of May 6, 1944 when we attacked the marshalling yards in Bucharest. We were told to turn north before setting course for home. This would take us between Bucharest and Ploesti (very heavily defended area). This we did and right into flak and searchlights. We were coned solid and began to be hit. This was about 8-10 thousand feet, so the light AckAck would get us. Jack put the nose down

and tried to get away as fast as possible. I don't remember how long we were in the lights or what speed we went, but it took the strength of Jack and a brand new 2nd Dickey to pull us out of that dive. They say the airspeed indicator went around twice. (I often wonder what the 2nd Dickey thought when he had another 35-40 trips to do after that initiation).

I turned and faced forward during this action and could see the gun flashes from the ground. It all passed so fast and only luck could get you through.

We got out of the lights— must have been close to the ground— and Terry said that the rear turret was jammed. I went back along that dark passage and manually cranked it back. Got back to the Astrodome and saw that the port engine was on fire. Jack feathered the prop and I shut off the gas line. The fire went out but NOW how to fly 500 miles on one engine.

I called up base on the radio and told them of the distress we had. They weren't too sympathetic. After a while Jack started up the engine while I watched and we found the flames were from the exhausts and as the engine cowlings had been riddled by bullets and flak, the exhaust was coming out through all the holes. We set course on two engines, I called base giving them our news and ETA. That engine was watched closely but we were okay, just about an hour late. There were many holes in the plane but we were lucky that time.

June 9, 1944: I see we took off at 0115 hours for a short run to Turni. I should have been home in bed with my wife on this first wedding anniversary day, but there was no way I could make it back to Toronto, Ontario even in a Wimpy.

The 13th of June saw us flying over the Alps to Munich, think it was a Messerschmitt factory, anyway the winds changed and our squadrons arrived 20 minutes early. What to do now? There were lots of searchlights and light and heavy AckAck. The light for the lower Wellingtons and the heavy stuff for the Halifaxes and Liberators. If one can take a detached view of this, it was a real fireworks display.

Continued on next page ▶

MEMORIES (cont'd)

Tracers would start off slowly from the ground and then curve towards you and then speed up and pass by at great speed. The shrapnel bursts would be loud enough to be heard over the noise of the engines and through your leather helmet. They must have been close, sometimes sounding like a plane was being hit with a giant hammer.

There we were, milling around and getting shot at. The flares went down to indicate the target and I could see planes all over the sky— kept a good lookout for collisions— looked up to see planes with bomb doors open— hope they can see us— see planes spinning down out of control— as light as day here. The floor of the Wellington was fabric, with many holes— there is a wooden walkway— and I can look through the open bomb bay doors to the ground. I tell Jack that we are bombing the wrong target as shown in the briefing. Nothing I can do, he says. Alick lines up the target indicators and we bomb, the plane lifts a little and we take our photo. Doug gives us the course for home. Back over the Alps and the night fighter bases in Austria. No problems.

Some targets were long and very tiring, others short and not so bad. If one had to parachute out, then Italy would be fine. I wasn't too fussy about doing that over Hungary or Roumania. Some crews did arrive back from Yugoslavia via the Partisans and some from Bucharest after Roumania had been invaded by Russia.

Even small targets such as the ones in northern Italy could be tricky. I remember one port we attacked in early evening in waves of three aircraft every half hour. The three of us went in one by one and bombed. We were the first and as there was no gunfire we figured this was easy. However the ground held their fire and had got us nicely set up for speed and height and then bang-bang. I could see the bursts coming from astern right up to our height. "Skipper turn port— go go," I yelled and as we turned I could see the burst where we might have been. At this point the guns opened up at us at random but without scoring any hits.

This was one of our early trips and we were still learning. It emphasizes the need to keep a good lookout at all times.

Some gunners and W/ops would take empty bottles up and throw them out over the target, hoping to frighten someone with the noise of the whistling bottles.

We often had a box of small incendiary 4 lb. bombs for the W/op

to throw out over the target area. These were often thrown out at any odd lighted or built-up area we passed. The path of the bombers would be lit up for the fighters to follow—a dangerous stupid practice. Many crews would drink before ops, maybe even the night before and they would have trouble staying alert through the long night's flying. Many crews died through lack of training or common sense.

Luck was important, but training and a good crew were the best hope of staying alive. Discipline in the air was essential as panic could be contagious.

I remember only one crew member being brought back dead. There may have been others but it seems you either survived intact or failed to return.

We had almost no contact with the ground crew who serviced the Wimpys. They were across on the far side of the airfield and as we did not

"The shrapnel bursts would be loud enough to be heard over the noise of the engines and through your leather helmet."

fly the same plane each time, as did U.K. crews, we were not too interested in who serviced them. When a crew used only one plane, they were proud of it and decorated it with art work and the number of ops.

At 23, I was the oldest crew member, it is incredible what can be done by young men, the morale was good. I do not remember hearing of anyone refusing to fly. I think fear of losing one's aircrew badge and NCO rank and of being put back to AC2 in the cookhouse or worse kept people going.

The 'Lack of Moral Fibre' (LMF) in the RAF crews was very low indeed, much less than that of the U.S. Airforces.

Probably the Air Gunner had the worst job, one that might cause a breakdown in mental and physical health. I would sometimes relieve Terry, the R/AG, and the turret vibrations made me fearful that it would fall off. It was bitterly cold as the perspex between the Brownings had been removed; the gunner was remote from the rest of the crew and the vigilance required took its toll on your emotions.

The perspex on the windows, turrets

and astrodome scratched easily and after a while one seemed to sense a movement or to see something out of the corner of one's eye which turned out to be a spot of lint or a wing tip movement; maybe a star group looked like a set of aircraft lights and the tip of the rising moon caused a sudden surge of the heart. Night flying was hard work but daylight bombing at the 8-10,000 foot level was suicidal, even if one could see what was going on.

THE NIGHT THE TIRE BURST ON TAKE-OFF

It must have been in April, 1944. We were not flying and I was downtown in Foggia in the early evening when there was a violet explosion, the buildings rattled and the tiles fell off roofs and the Italians screamed, thinking it was an air-raid. We could see the glow over the airfield and flares went off, ammunition was exploding and then there were more explosions.

We got the news that a bombed-up Wimpy had blown a tire on take-off. The runway was grass and a flint or other sharp object could easily puncture a tire that was bouncing along with a full load of bombs and petrol. The crew escaped with minor burns and ran from the burning plane. The other aircraft couldn't take off and taxied away as fast as they could go in fear of their bombs going off in sympathy. The burning plane blew up, spreading fire to other aircraft parked along the runway and other bombs exploded. Luckily no one was killed. The scene next morning was of bits and pieces of aircraft and chunks of metal strewn all over the grass runway.

No aircraft could take off for fear of more blown tires, so everybody was lined up at one end of the airfield and we walked up and down for days picking up bits and pieces of metal until it was declared fit for take-off. Naturally we were concerned it might happen again— don't think it did.

Another take-off in early evening; we were lined up ready to take-off next, I had opened the astrodome— it swung down on a hinge and I always did this so I could make a fast exit and to avoid the possibility of its jamming if the plane's frame got twisted or warped on crashing— and then I took up my crash position by the main wing span. I was looking out of the opening and watching the plane ahead take off, it got up to a few hundred feet and then burst into flame, staggered and crashed, blowing up and burning. Our pilot and bomb-aimer saw it also and then as the explosions died down we were given the green aldis to take off over

this terrible sight— there were some shaking knees and fast-beating hearts.

In Bomber Command each aircraft and its crew were alone from take-off to landing, almost like a little unit fighting its own private war. The skipper had to be obeyed implicitly and he had to impart a sense of duty and high morale and to have an ability to conquer fear, no mean feat for 20 year olds.

DAY & NIGHT BOMBING

You could see too much, the enemy fighters, flak bursts, disabled planes, crews bailing out, planes on fire and spinning out of control, you would see your friends 'go for a Burton'.

At night you felt alone; although the skies were full of planes, you caught only occasional glimpses of them until the target was reached with its flares, fires, photoflashes, tracers and explosions. You would see planes on fire both going to and returning from the target, but who it was you might never know.

Flies in Italy were a problem, they would bite you right through your socks, get into the food as we carried our mess tins of food from the cook-house to the Sergeants Mess tent. Mosquitoes, mice and sandflies made life miserable. Southern Italy was not the best tourist area, very dry and dusty with sudden, very heavy rain storms.

The Squadron toilet area was a few hundred feet along a path through the grass field that led to a village in the distance. There were a number of buckets with seats and a burlap screen for privacy on the camp side. We used to sit and enjoy a visit and a chat and eventually got accustomed to passing groups of Italians, mostly women, who merely said 'buon giorno' and moved on. To them it was natural. How right we were to stick to our positions.

On the Wimpy there was an 'Elsan' toilet. To use it you had to remove your parachute harness, your Mae West and your flying suit, if worn. The toilet was situated just before step-down above the bomb-bay, about half way back of the rear flare chute. It was generally cold around the backside and it was really urgent before you would use it. There were lots of leaflets of 'nickels' for bum paper. To pee for relief almost anywhere would do, as long as it didn't get into the draft through the leaky planes. Some pilots would let it hang out and pee straight down. The Rear Gunner took a bottle which he often tossed overboard over enemy territory.

Generally I flew in battle dress, flying boots and a very long school scarf wrapped around my neck and

tucked into the battle dress. Heat came from a flexible hose that I could aim at my body if necessary.

Later I read that the Bulgarian, German and Roumanian airforces had more than 700 AA guns in the Ploesti area. Bucharest and Munich were also heavily defended. The Yugoslavian coastal area is one of a series of mountains 6-8,000 feet before the Adriatic is reached.

THE CASE OF THE PHANTOM NIGHT FIGHTER

At debriefing after a night operation one crew reported being fired upon by an aircraft ahead and above. The tracers came down towards them so the commissioned bomb-aimer who happened to be in the front turret pointed his 2-303 Brownings up and fired away. The plane took evasive action and returned the fire. We now have two planes weaving through the night sky firing at each other until the front turret guns ran out of ammunition (the front guns had only a few hundred rounds of ammunition each, while the rear turret had plenty). Another crew also reported being fired upon from below and at the same time and location. Both crews being from 40 Squadron, they were introduced to each other with much embarrassment and hopefully a lesson learnt.

It was general practice to fire a burst from the rear turret when over the Adriatic or other safe area soon after take-off. With luck all four guns would fire but I have known three to jam leaving only one for our defense.

Living in an isolated world, there is not much radio news that I can remember of the war, even other squadron activities. There was no large mess or 'public houses' where one could drink and relax in nice surroundings with Waafs, etc. I can't even remember a DRO (Daily routine order) notice board.

From a distance of 42 years only some highlights are remembered, the tension, the boredom and the fears tend to fade. The amount of danger was realized later when reading wartime memoirs.

I can remember the high squadron losses though— I think we had about 30 trips in and we were the senior crew, the next crew had about 15 trips. We may have missed some bad trips when three of our crew were in hospital with boils and sandfly fever and a week's R&R in Sorrento.

Quite a lot of squadron reminiscences appear in *Wellington At War* by Chaz Bowyer, ISBN 0 7110 1220 2, published in 1982 by Ian Allan Ltd., Shedderton Surrey, U.K. Mostly about 40 Sqdn. at Whyton and Alconbury in 1940/41. ■

SWAP SHOP

FOR SALE: HOME in Nakusp, B.C., 733 Columbia Crescent. Nine yrs. young, 1450 sq. ft. plus 325 sq.ft. court-yard-sundeck. Beautifully fenced and landscaped. Double garage, Sauna with pool. Underground wiring, sewer, street lights, side walks. EXCELLENT DX-Location. Curling, fishing, golf, Hot Springs, Ski Hill. Contact VE7EHD, 604-265-3175.

WANTED: Wireless set no. 19 equipment and accessories. Especially looking for power amplifier and pocketwatch. I am willing to buy and/or trade equipment. Please write to Chris Bisailion VE3CBK, RR#1 Old Carp Road, Kanata, Ont. K2K 1X7.

FOR SALE: FOXX transceiver kits are available from Frank Hughes VE3DQB, RR 2 Green Lane, Hawkesbury, Ont. K6A 2R2. Diode tuner kit \$40, variable capacitor tuning \$50. Either kit \$5 postage and packing.

WANTED: Viewstar 300A tuner. Not interested in Tuner Section but use back section with tuner cut out and wattmeter enables me to tune properly. My last one lost in fire. VE3BYH R.J. Boutet, R.R.#1, Noelville, Ont. POM 2N0.

FOR SALE: 1-HAL Communications Terminal CT2200, 1-HAL Keyboard KB2100, 1-HAL RS2100 RTTY Scope, 1-Tandy Monochrome Monitor VM-4.

Complete with all manuals etc. Simple connections to your transceiver gives operation. Send and receive. RTTY, ASCH, MORSE. All shifts and speeds. Total \$575. Tel. 705 657 3242. D. Riley R.R.1 Lakeland, Ont. KOL 2H0.

WANTED: High Grade Late Model QRP Rig such as Argonaut 515, Yaesu FT-7, Kenwood TS130V. Allow a few weeks for reply due to isolated QTH. Rick Van Krugel VE7FOU, P.O. Box 7000, Port Hardy, B.C. V0N 2P0.

FOR SALE: Icom 745 HF Transceiver, PS 15 External Power Supply, FL44A and FL52A filters, Ex 243 Keyer, HM1Z Mobile Mike, all cables, original cartons. All Mint Condx \$1,500 o.b.o. Kenwood TS830S Transceiver, VFO Digital VFO, SP 230 Speaker all cables, original cartons, all mint condx. \$1,300 o.b.o. Contact: Ron Philip VE7NS, RR3 Site 376 C-36, Courtenay, B.C. V9N 5M8. 604-338-7668. Please send your 'Swap Shop' notices to the *The Canadian Amateur Swap Shop, Box 356, Kingston, Ont. K7L 4W2. Single insertion is \$1.00 minimum (10 words) and \$1.00 for each additional 10 words. To renew, send copy and payment again. Please print or type, and put your membership number and call (not counted) at the end of your ad. Include your full address with postal code; if using a phone number, include the area code.*



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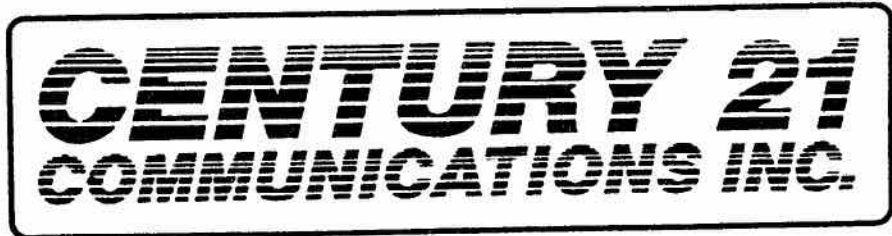
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Canada Winter Contest

Dec. 28, 1987

CONTEST QRM:

JH4UYB.. I'd like to work more VEs next year. OF3GD... It was unexpected that VE stations give me 001. VO1SA... Where were the VE4s and VE5s? Oh well, always next year. VE7YL... I know that my effort may not be in the top ten but was very happy to take part. VESXU... I would need an afterburner at age 75 to go the longer hours of all-band. VE6CPP... Not what I would call the best condx— still had a great time, CU next year. WONGB... I worked everyone I heard calling CQ. VE2RQ... where did the VE6s go? NWOFF... Just a short note to say thanks for the nice award for ALL BAND CW last year. W5FO... My fourth year to enter, see you again next year. N1FES... The first contest I have participated in— age 13. VE6CIZ... As usual the contest was a lot of fun. VEOCX... My next entry for the winter contest will likely be from XE2/MMland.

CHECK LOGS: SP3AZO, YO3DCO, VE6GUS, VE6VCA, VO2AC and VE3GWM.

COMMENTAIRES:

Norm VE2FQX: Ce concours avait lieu le lendemain de Noel l'an prochain ce sera la veille du jour de l'an ce sera encore plus spécial. '73'
René VE2AHC: Concours très difficile comme vous pouvez le voir sur la photographie. Très déçu de la participation des canadiens pour le seul concours canadien. Que faut-il faire pour les intéresser? Faire tirer un voyage a la jamaïque?... '73'

Sylvain VE2FOT: Pour une sixième expérience a ce concours, je remarque que les américains semble découvrir ce concours, contrairement aux canadiens. Félicitations aux nombreuses stations VCA TCA. '73'

Amateurs in Vancouver found a beacon station on 440.0 MHz last December identifying itself as belonging to Canada Customs and Excise. It is believed this station was conducting propagation tests prior to construction of a permanent station and was assigned the 440.0 MHz frequency in error. It is no longer in operation.



Left:
VE6CIZ

Results on Next Page



Rene Biron VE2AHC says: "It's very difficult... a contest after Christmas. HiHi!"
Photo by VE2FOT.

CANADA CONTEST (cont'd)

CLASS: 15M SINGLE BAND MIXED

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE5XU	43	142	5	1098	8	8,784
LZ2TU	1	7	0	31	1	31

CLASS: 20M SINGLE BAND MIXED

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VO1QU	188	625	8	4544	23	104,512
VE6BST	85	165	1	1530	18	27,540
VE7ARS	74	189	2	1536	17	26,112
W5FO	52	150	3	1366	18	24,588
VE6CPP	41	43	2	622	14	8,708
VE6CIZ	37	41	2	574	14	8,036
DF3GD	18	43	0	352	8	2,816
VE6APY	18	3	2	232	10	2,320
GM4WEW	12	1	1	144	5	720
YU7FT	5	6	0	74	3	222
YO3DCD	3	0	0	30	3	90
IK4GNK	3	0	0	30	3	90

CLASS: 40M SINGLE BAND MIXED

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VO1BA	142	184	4	2236	17	38,012
NWOF	20	33	1	352	7	2,464

CLASS: VCA TCA ALL BAND MIXED

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE2TCA	87	28	6	1102	38	41,876
VE7TCA	49	64	2	786	49	38,514
VE3TCA	87	57	3	1158	32	37,056
VE4VCA	91	39	6	1186	30	35,580
VE3VCA	55	67	0	818	24	19,632
VY1TCA	41	11	2	494	19	9,386

CLASS: 80M SINGLE BAND MIXED

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE7DLM	132	46	5	1604	11	17,644
VE1DX	97	69	2	1286	13	16,718
VO2AC	47	19	3	606	16	9,696
VE2RQ	49	38	2	682	10	6,820
VE6LQ	37	27	2	518	8	4,144
VE3LRB	37	13	2	462	6	2,772
VE7YL	14	4	3	216	5	1,080
VE6GK	11	1	1	134	3	402

CLASS: MULTI SINGLE TX

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE2FOT	176	134	14	2576	52	133,952
VE8RCS	78	4	3	856	13	11,128

CLASS: ALL BAND MIXED

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE1ZJ	136	131	5	1984	58	115,072
VE3FGU	126	75	10	1760	36	63,360
VE6DZ	103	43	8	1362	32	43,584
N1FES	155	41	6	1834	22	40,348
VE3NXQ	154	133	5	2172	45	32,204
G4LQI	42	9	1	476	24	11,424
K8OC	50	0	3	560	17	9,520
VE300L	26	7	4	368	20	7,360
VE3IDW	28	7	2	348	21	7,308
VE5FN	38	1	4	464	13	6,032
WA2LBT	31	21	1	414	11	4,554
W3DYA	22	10	0	260	13	3,380
VE2RO	23	22	4	398	7	2,786
IK4GNH	16	57	0	217	13	2,821
W0NGB	17	7	2	248	9	2,232
VE5GHC	8	30	2	240	9	2,160
VE6BEQ	15	12	1	218	9	1,962
N7JB	11	0	3	170	6	1,020
KA9NCC	11	2	0	118	3	351
OE1TKW	4	0	0	40	4	160
JH4UYB	2	4	0	36	2	72

CLASS: ALL BAND SSB

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE6BS	115	205	8	2130	32	68,160
VE7HAM	77	18	7	982	23	22,586
VE6AAT	55	105	3	1030	16	16,480
VE6BOS	59	10	7	770	21	16,170
VE4HQ	53	8	4	642	21	13,482
VE3IQZ	46	0	2	480	19	9,120
VE7GDX	52	5	2	580	14	8,120
VE0CX	31	37	2	498	13	6,474
VE7XO	30	4	3	376	17	6,392
WK4F	25	1	6	374	16	5,984
VE4ZH	35	8	3	442	13	5,746

CLASS: ALL BAND CW

CALL	VE QSOs	OTHER QSOs	BONUS QSOs	QSO POINTS	MULTI	TOTAL
VE3NBE	72	131	4	1324	25	33,100
VE5XC	38	39	6	656	39	25,584
VE7HDX	34	89	3	765	16	12,096
VE3PJL/VE1	28	41	1	464	13	6,032
VE6BMX	24	55	1	480	12	5,760
VE2LRB	12	7	7	288	10	2,880
KA7FEF	11	4	1	146	7	1,022

Notice of Motions

A motion will be put to members at the Annual General Meeting on June 18, 1988 to amend the Bylaws by staggering the Regional Directors' terms of office. This will avoid an excessive changeover of Regional Directors at one election.

It is proposed that a further motion will be put forward to increase the number of Directors in areas where the Amateur population is very spread geographically in order to improve service to membership.

Canada Contest Multiplier Chart

Province Province Territory Territoire	VO1 VO2	VE1 NS	VE1 NB	VE1 PEI	VE2	VE3	VE4	VE5	VE6	VE7	VE8	VY1	VE0	TOTAL
Band/Mode Bande/Emission														
1.8 cw														
1.8 phone														
3.5 cw														
3.5 phone														
7 cw														
7 phone														
14 cw														
14 phone														
21 cw														
21 phone														
28 cw														
28 phone														
50 cw														
50 phone														

Rules: contests are open to all Amateurs. Everybody works everyone.

Classes:

In the single op section there are 10 classes of entry. They are All Band Mixed Mode (CW-SSB), All Band CW, All Band SSB, and Single Band Mixed Mode (CW-SSB). There are two multi op classes and they are Single TX All Band (Multi-single) and Multi TX All Band (Multi-multi).

Exchange: Operator's name; Signal report; Consecutive serial number; Province, territory, state or country. Multi-multi entrants use separate numbers for each band.

QSO Points: 10 points for each station operating in Canada and for all VEO stations, and 4 points for stations operating outside Canada. An additional 20 points may be claimed for each official station using the VCA or TCA suffix.

Multipliers: As listed above for a possible total of 182.

Frequencies, kHz: 1825/75, 3525/3775, 7025/7070/7155, 14025/14150, 21025/250, 28025/500, 50040/50125 kHz

Entries: A valid entry must contain log sheets, signed statement, summary sheet showing claimed score, QSO's, a list of multipliers and bonus stations. Entries must be postmarked within 30 days of the contest. Please send in your comments and photos.

Awards: Certificates will be awarded to top scoring entries in each class in each province, territory, DXCC country and each U.S.A. call area. Trophies for All band Mixed mode, All band CW, All Band SSB, Single Band 14 MHz, Single Band 7 MHz, Multi op single, Multi op multi. Trophy winners may win the same award only once within a two year period.

No Cross mode QSO's are allowed. Single ops must use own station.

CANADA DAY CONTEST ENTRIES go to:
John Clarke VE1CCM, 16 Keefe Ave., Sydney, N.S. B1R 2C7

CANADA WINTER CONTEST ENTRIES go to:
J. Parsons VE6CB, Acton Corners Rd. Oxford Mills, Ont. K0G 1S0

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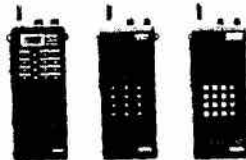
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 288 1.8 KHz 8-pole SSB filter..... 130
 700C Electret hand microphone..... 65
 705 Electret desk microphone..... 130
 1140 18/24.3A DC circuit breaker..... 33



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 561 9-band digital transceiver..... \$395
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 263G Remote VFO..... 130
 282 250 Hz 6-pole CW filter..... 130
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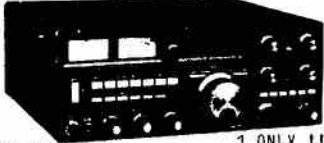
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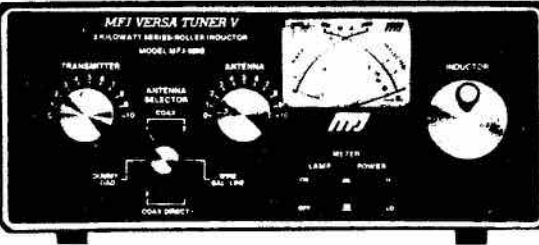


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The world's most popular 3 KW roller inductor tuner with cross-needle meter gives you the widest range matching network available for coax, balanced lines and random wires plus you get antenna switch, dummy load and balun - all at a super price . . .

The MFJ-989B is a compact 3 KW PEP roller inductor tuner with lighted Cross-Needle SWR/Wattmeter that handles the highest power of any MFJ tuner! Its roller inductor allows you to get your SWR down to the absolute minimum. And you get other outstanding features like an antenna switch, dummy load, balun and more -- all at an outstanding price.

At only 10 1/2"x4 1/2"x15, the MFJ-989B matches the new, smaller rigs. Why can you get your SWR down to minimum every time? Because the MFJ-989B has a roller inductor with 3-digit turns counter plus a spinner



MFJ-989B \$599

knob for precise inductance control. And because it has the widest range matching network available for coax, balanced lines and random wires. And it covers 1.8 to 30 MHz continuously.

The MFJ-989B's 2-color, lighted Cross-Needle Meter not only gives you SWR automatically with no controls to set but also forward and reflected power at a glance!

Plus . . . 6-position antenna switch, 50 ohm dummy load, 4:1 balun for balanced lines, ceramic feed-through, and flip-stand for easy viewing. Meter light requires 12 V

MFJ's Best VERSA TUNER II



MFJ-949C gives you a clutter-free shack and all the features you could ever want at a super price. Here's what you get: coax/balanced line/random wire 300 watt tuner for 1.8-30 MHz, Cross-Needle SWR/Wattmeter, 50 ohm dummy load, 4:1 balun and 6-position antenna switch . . . all in a compact 10x3x7 inch cabinet that matches the smaller new rigs.

You can tune out SWR on dipoles, vees, long wires, verticals, whips, beams and quads.

A lighted Cross-Needle meter gives you SWR, forward and reflected power -- all at a glance. A 6-position antenna switch lets you select 2 coax lines, direct or through tuner, random wire/balanced line and dummy load. 1000 volt capacitors, efficient airwound inductor, heavy duty switches.

MFJ's smallest VERSA TUNER



MFJ-901B is our smallest -- 5x2x6 inches -- (and most affordable) 200 watt PEP Versa tuner -- when both your space and your budget is limited. Matches dipoles, vees, random wires, verticals, mobile whips, beams, balanced and coax lines continuously 1.8-30 MHz. Excellent for matching solid state rigs to linears. Efficient airwound inductor. 4:1 balun.

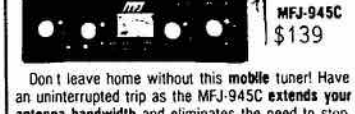
MFJ's Fastest Selling TUNER



The MFJ-941D is MFJ's best selling 300 W PEP antenna tuner! Why? Because it has more features than tuners costing much more and it matches everything continuously from 1.8-30 MHz. It matches dipoles, vees, verticals, mobile whips, random wires, balanced and coax lines.

SWR/Wattmeter reads forward/reflected power in 30 and 300 watt ranges. Antenna switch selects 2 coax lines, direct or through tuner, random wire/balanced line or tuner bypass. Efficient airwound inductor gives lower losses and more watts out. Has 4:1 balun, 1000 V capacitors. 11x3x7 inches.

MFJ's Mobile TUNER



Don't leave home without this mobile tuner! Have an uninterrupted trip as the MFJ-945C extends your antenna bandwidth and eliminates the need to stop, go outside and readjust your mobile whip.

You can operate anywhere in a band and get low SWR. You'll get maximum power out of your solid state or tube rig and it'll run cooler and last longer.

Small 8x2x6 inches uses little room. SWR/Wattmeter and convenient placement of controls make tuning fast and easy while in motion. 300 watts PEP output, efficient airwound inductor, 1000 volt capacitors.

MFJ's 1.5 KW VERSA TUNER III



The MFJ-962B lets you use your barefoot rig now and have the capacity to add up to a 1500 watts PEP linear amplifier later. Its small size -- 10 1/2"x4 1/2"x15 inches -- matches the new compact rigs.

A lighted Cross-Needle SWR/Wattmeter makes tuning a snap and gives you SWR, forward and reflected power -- all at a glance.

6-position antenna switch handles 2 coax lines, direct or through tuner, wire and balanced lines. 4:1 balun, efficient airwound inductor with heavy duty ceramic switch, 6 KV capacitors. Flip-stand tilts tuner for easy viewing.

MFJ Artificial RF ground



You can create an artificial RF ground and eliminate RF "bites", feedback, TVI and RFI when you let the MFJ-931 resonate a random length of wire and turn it into a tuned counterpoise. The MFJ-931 also lets you electrically place a far away RF ground directly at your rig -- no matter how far away it is -- by tuning out the reactance of your ground connection wire.

MFJ MULTI-MODE DATA CONTROLLER \$429

MFJ has introduced the model 1278 data controller. The unit supports packet radio, ASCII, Baudot, CW, SSTV, HF FAX and CW contest-keyer operations. The 1278 features high-performance HF, VHF and CW modems, software-selectable dual-radio ports, a tuning indicator and 32 bytes of RAM. An ac-operated power supply is built in. External equipment requirements include an HF or VHF radio and a computer with a serial port and terminal software.

MFJ offers a package of materials to get you started with the 1278. The Starter Pack includes a computer interface cable, terminal software and an instruction manual. Versions are available for the Commodore 64/128, VIC20, and the IBM PC or compatible computers. \$39.95

The 1278 automatically sets itself to match your computer data rate. It also features a threshold control to compensate for varying band conditions, lithium battery backup, a tune-up command, RS-232-C and TTL serial ports and a watchdog timer. Included with the 1278 is a package of test and calibration software and instructions



M.F.J. 1278 \$429 M.F.J. 1274 \$299 M.F.J. 1270B \$249

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 1 July every year.

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CALL _____ TRANSMITTER _____

NAME _____ ANTENNAS _____

ADDRESS _____ OPERATORS _____

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- All Band/Mixed Mode CW/SSB
- All Band CW
- All Band SSB
- Single Band Mixed Mode CW/SSB _____ MHz

MULTI OPERATOR

- Single TX- All Band
- Multi TX- All Band

SCORE CALCULATION

TOTAL QSO's					
CANADIAN QSO's		X 10			PTS.
OTHER QSO's		X 4			PTS.
BONUS QSO's		X 20			PTS.
TOTAL QSO POINTS					PTS.
MULTIPLIERS					See Chart
TOTAL SCORE = QSO Points X Multiplier					PTS.

This is to certify that in this contest I have operated my station within the limitations of my licence and have observed fully the rules and regulations of the contest.

(Signature) _____

**Logs must be postmarked no later than 30 days from the date of the contest.
 Results will be published in TCA- The Canadian Amateur Magazine prior to the next contest.
 Non-members of CARF must include an SASE to receive contest results.**

The decision of the Contest Committee is final.

Heard but not frequently seen

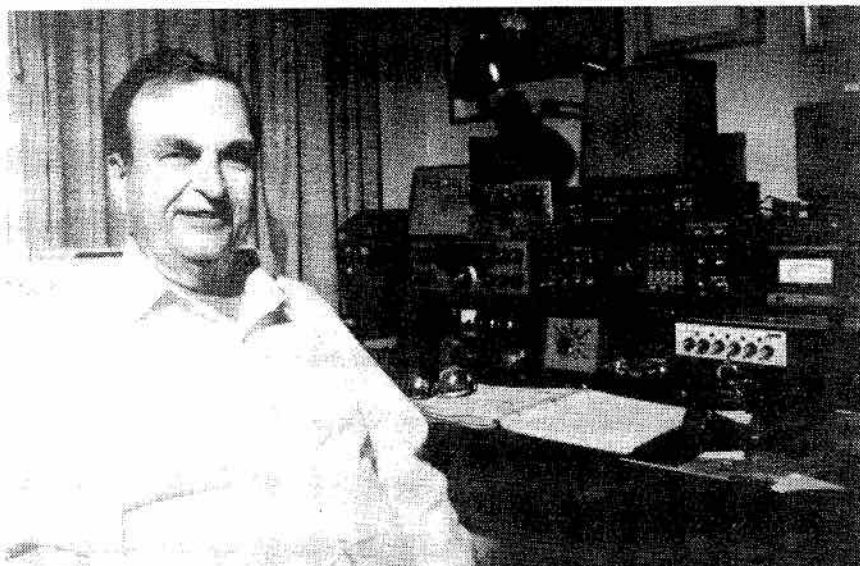


Photo by VE3PAE

One man frequently heard on the air in the Ottawa Region is Ed Morgan VE3GX. There is a reason for this: Ed conducts the weekly Swap Net during the Capital City FM Net sponsored by the Ottawa Amateur Radio Club, every Monday evening.

The Swap Net was started by Ed on Sept. 1, 1969. Each session averages 20 'for sale' and 10 'wanted' items. That's over 15,000 and 8,000 listings respectively to date. Everything is filed for reference!

Also a part of his weekly schedule of activities is the Pot Lid net on 3620 kHz every Sunday at 11 a.m. local. This is a slow-speed CW net which Ed started on Feb. 4, 1973.

Ed's signal is always full quieting in the VE2CRA repeater. No wonder: he puts out a whopping 500 mW of power. The trick? Direct line of sight with the repeater! ■

— Chris Rochefort VE3PAE

HERE'S A CHANCE TO HELP TRUE LOVE

John Cover is not an Amateur. He is in love however, and it is his misfortune that his paramour is a long way away. In Israel in fact.

John would like to talk to her often, more often than he can afford on the international telephone system.

If anyone around the Toronto area can help with a phone-patch or two into Tel Aviv, please give John a call: John Cover, 404 McRoberts Ave., Toronto, Ont. M6E 4R2.

PHOTOTRANSISTOR

A solid state device passing an increased amount of current when illuminated. The transistor photocell is referred to as a transistor because of its three-crystal section. However there is no electrical connection to the base. In effect, the light falling upon the base area serves the same purpose as the base current in a regular transistor. Light shining upon the base area breaks down the charge barrier at the base-emitter and base-collector junction. Therefore, the collector current is dependent upon the level of illumination.

— *The Algoma Amateur MOVING?*

If you're moving, please let Debbie know your new address. Write her at P.O. Box 356, Kingston, Ont. K7L 4W2.



Photo by VE3PAE

Award from Scouts

During the October meeting of the Ottawa Amateur Radio Club, Scout Master Ross Male presented the President, John Drajewicz VE3NVF, with a certificate for the club for its participation in the 1986 scout rally held in Ottawa. George Caskey VE3NIN was organizing communications for this year's event which took place a few weeks after the presentation.

— Chris Rochefort VE3PAE

Things that go bump in the night

Morris VE3DEO had a lengthy but colourful story in *Nortopics*, the bulletin of the Nortown ARC, Willowdale, Ont., of interference that no one else could hear but which conveniently dropped out when the radio inspector came around. Morris described his tormentor variously as "armaments of the space age, video game arcade tweedle tweedle... zap," 24 hours all day all the way to 20 MHz, and a rushing and thumping on 2M. Eventually Morris did what he

admits he should have done earlier. He ran around inside the house with his 2M handheld and located the culprit: a TV with a converter that contained an electric digital clock. Two RF chokes and two bypass capacitors installed inside the converter cleared that problem. My Bulgarian uncle would have said: "Don't blame the cow for the sour milk." He was a good man on cows but he didn't have much of a feel for EMI.

— *The Groundwave*

IPARN

Canada's Growing Full Duplex Trunk Network

BY BILL BLAKE VE7CQ

Part 2— System operation of the Trunk Network and advantages over the Hub and Link systems. Part 3 will cover the Trunk/Repeater Interface.

TECHNICAL DESCRIPTION

The task of designing a network that incorporates numerous VHF repeaters into a single system is both challenging and rewarding. Before one can start such a project, the available design options should be examined and either accepted or ruled out. In order to evaluate these options, we must first look at our overall objectives and the reasons for networking as a whole.

A well developed network should provide a service to Amateur radio operators in an open, reliable and effective manner. The system-wide quality and performance must be such that it is easy to use and not 'restrictive' in its design. In short, the network should be a tool that any Canadian Amateur can make use of should the need arise. He should not be required to jump through all sorts of 'hoops' in order to take advantage of the system.

The connecting or disconnecting of repeaters to/from one another is not

difficult in itself, but the manner in which it is done has a very strong impact on the way they can be used and how they affect each other. This aspect becomes more prominent as the system grows and if attention is not paid to good design, soon the system will strangle itself with on/off codes and all sorts of special little quirks that a user needs to remember in order to use the system.

There are basically three types of network designs that interconnect repeaters. These designs: The Hub System, The Cascaded System and the Duplex Trunk System, all have advantages and disadvantages.

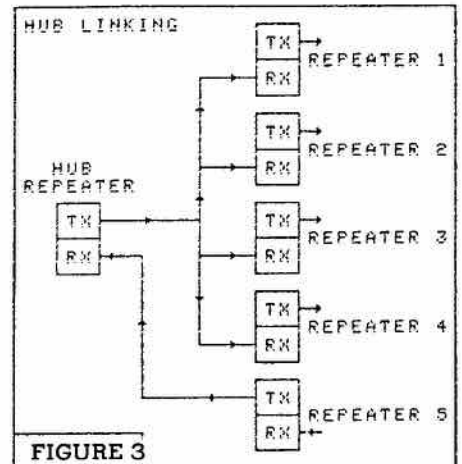
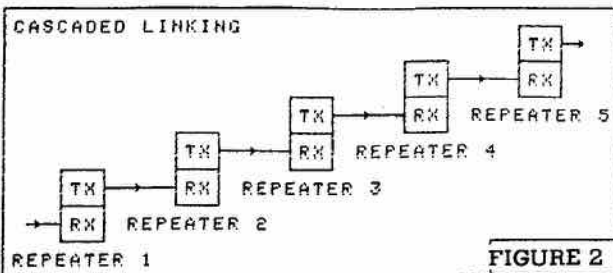
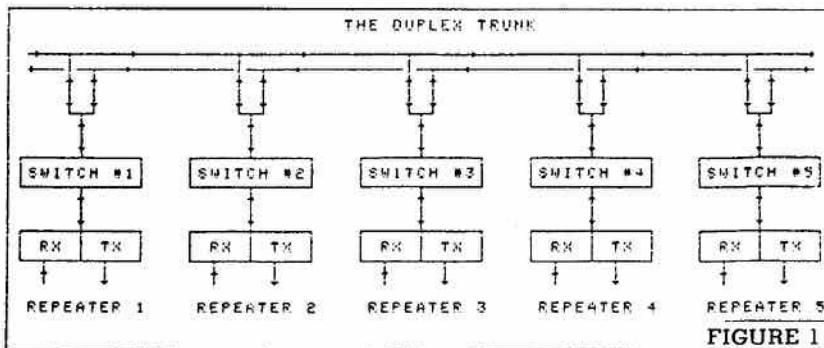
Before proceeding further, we need to examine the difference between a simplex system and a Duplex design. When a station cannot hear the person he is talking to while he is in the transit mode, that station is operating in simplex. Simplex is not the 'using of a simplex channel' but is a word that describes the type of operation. In spite of the popular expression, "Let's switch to simplex...", most repeaters are simplex in their operation. This means that only one signal can use the repeater at a time and probably the person using the repeater is not

monitoring its output as he talks. If two signals tried to use the repeater at the same time, one or the other or both would end up not able to be understood. In summary, unless you are able to hear the person that you are talking to, while you yourself are talking (like on the telephone), then you are operating 'Duplex'. Try it sometime using your portable and a mobile or other 'second' radio and operate on two different frequencies. The effect is wonderful and if some way was contrived to keep the signals from interfering with one another, a very convenient and versatile communication concept will result.

Keep this simplex/duplex concept in mind when reading the following paragraphs, as it is the basis of the network design that incorporates the best of all features needed for a good system.

THE HUB SYSTEM

The first design discussed is the hub type system. It could be thought of as a "repeater's" repeater. The Hub of the network is a (UHF) repeater that is repeating signals which are occurring on any of the system's VHF repeaters. Each of the VHF repeaters has incorporated with it a UHF radio that passes the signals to the Hub. Such a design is simplex in its nature. This means that only one station may transmit anywhere in the system and all other users must standby or wait their turn. A mobile using one repeater is heard on a second repeater



selective calling circuits and not interfere with the system as a whole (see Fig. 4).

FEEDBACK

After controlling some part of the system or given repeater, it is nice to know that you did in fact accomplish what you set out to do. Whether it be placing a call via an autopatch or picking up one or two repeaters on the trunk, some form of acknowledgement is needed to let you know how you made out.

This acknowledgement is usually in the form of a CW ID response. It may contain other pieces of information as well. Normally a repeater has a CW identifier that arms itself and identifies after a specific period of time has elapsed. It also does its identification after the keyed signal on the repeater is gone. After such an operation, it then remains dormant until the cycle repeats itself. If the repeater was part of the network, it is important that during the normal cycle it does not also identify on the

trunk. This would create confusion and detract from the meaning of the CW ID on the trunk.

When connected to or disconnected from the trunk, the repeater should sign-on and sign-off with its CW ID to let the people listening and the person controlling know that the operation has taken place. Builders of trunking sites might want to include with the identification a 'slash d' or some other letter to signify that the drop enable code was operated. This appended '/d' would not be heard during the normal identification cycle and only on the drop side when it IS heard.

It is redundant to put the '/d' on the trunk since the only CW IDs that will be heard via that mode will have been as a result of a drop-code function. This gives a nice smooth operation if you happen to be listening on the side to a QSO between two or more

repeaters in the network. All that you would hear in the form of an identification would be a clean CWID from a new repeater that has just come on-line. It is equally important that the local identification cycle not be triggered by 'activity' on the trunk but only from the repeater side.

If this procedure is followed when building a trunking site, the operations throughout the network will have the same meaning to the users. No 'special' little explanations will be needed to clarify the unusual 'quirk' in the operation. It is standards like these that make a network out of a collection of repeaters. There are other standards that concern everything from frequencies to audio, and they will be covered in future articles on Networking.

Watch for the next article, Part 3: The Trunk/Repeater Interface. ■

MORE ON AMATEUR ADDRESSES

Late in December, 1987, the DOC informed CARF that the Canadian Amateur address list would no longer be made available to the public. CARF has questioned this action with senior DOC officials and with the Minister. We have learned that the decision was not made by DOC. A complaint was apparently filed with the Privacy Commissioner by someone who felt that the information was personal information as defined by the Privacy Act.

CARF is attempting to have this decision overturned. We have requested that the Minister of Communications investigate the possibility of an exemption from the Privacy Act for Amateur address information on several historical and practical grounds.

Failing that, we have made certain suggestions as to how the requirements of the Privacy Act could be satisfied and still allow the release of the information.

The *Canadian Amateur* will keep you informed of future developments.

CHECK YOUR LABEL

Check your mailing label on this issue. If it is marked with a highlight marker, your subscription has expired. Just fill out the form at the back of this issue and send it along to the CARF office.

Send your comments to Box 356, Kingston, Ont. K7L 4W2.

1988 Membership Drive

From March 15, 1988 to May 15, 1988, the following policy will be in effect:

REGISTERED Affiliate Clubs will be eligible for a 20% rebate on every new CARF member recruited through club facilities! (limited to 1 year memberships)

Have prospective NEW CARF members fill out a copy of the application found at the back of The Canadian Amateur. Collect the FULL membership fee and send all applications along with a cheque for the total amount to: CARF, Box 356, Kingston, Ont. K7L 4W2.

LIMITATIONS

- A NEW member has not been a CARF member since March 15, 1986.
- \$1.00 rebate for each RENEWAL submitted during promotion.
- Renewals will be appended to existing membership expiry dates.
- Rebates paid to REGISTERED Affiliate Clubs only.

If your club is not already a CARF affiliate, why not become one? Affiliation is a free service providing regular news bulletins, reduced rates on study guides and other specials.

Further information is available through the CARF office in Kingston.

DOC/Industry Committee

DOC HQ established on Feb. 20 what it calls a DOC/Industry committee to advise on the restructuring of the Amateur Radio Service. Representatives of CRRL, CARF (one of which was a new Amateur), CGRSA and some DOC Regional staff are taking part.

There were 594 submissions in response to DOC's paper of two years ago. Of those, 86% were from Amateurs and the rest from non-Amateurs. While 73% were in favour to varying degrees, only 27% were opposed. Taking all these comments into account, DOC proposed a four level structure and left many aspects to the committee to resolve.

About the only aspect that is definite is a no-code entry level certificate that requires about 40 hours of classroom study or the equivalent and passing an

examination on basic electronics, antennas, station operation, interference control and regulations.

The highest level would be the equivalent of the existing Advanced Amateur Certificate and carry the same privileges.

All in all, DOC hopes the new structure will enable new Amateurs to enjoy easier access to the bands below 30 MHz with two levels of code operation, to more easily acquire the needed technical knowledge and ability to operate an Amateur station and to obtain certificates without arbitrary waiting periods.

DOC is worried about the lack of growth in the Canadian Amateur Service over the past several years. It sees this Service as important to Canada and is hoping to have the new structure in place by the summer of 1989. ■

NYBLES AND BITS

Antonio Salvadori VE3NXQ
17 Colborn St.,
Guelph, Ont. N1G 2M4

COMPUTER BASICS

I hope that this will be the first of many columns in which I will try to discuss with you some of the many fascinating mysteries that pervade the computer world. I would urge all of you to write to me with any computer problems you may wish me to address or to try to solve for you. Depending on the volume of the mail I shall try to answer all the queries.

If you are interested in this column and own a computer, I would like you to complete the short questionnaire in Fig. 1 and send it to me directly or via the QSL bureau (in the next batch of cards you send out.) In this way I will better know what to write about, making the column much more useful to all. The plan is to make all the programs published or summarized in the column available for a small fee from CARF. This we hope, will be

another service to all Amateurs, provided by your association.

If you want to share any programs that you may have with other interested hams, let us have them and we will review them in this column and, if possible, CARF will distribute them from the Kingston office.

So much for the preliminaries. During my last four years as a ham, I have come across many fellow hams who have bought computers which now are gathering dust in the shacks. How can you avoid this?

Let us start with the basics and discuss the problem of purchasing a computer. If you already own a machine you may refresh yourself with the basics.

There are many makes and models on the market. What should you buy? Where should you look? How much are you likely to spend?

The first question that you should ask is, "What do you want it for?" Do you want to use it for RTTY, for packet communication, as a CW generator? Do you wish to keep an automatic log, to keep track of and calculate your contest results? Do you want to obtain weather data from the satellites? Do you want to use it for dupes on field day? Do you want to use it to write letters or to play electronic games? Do you want to do propagation forecasting with it? The list goes on and on. These are all possibilities but you should sit down and write the precise functions you envision now and in the future. This latter point is very important since the computer should satisfy current and future needs. Be aware that computers are like rigs: as time goes on, they become obsolete and you may want to buy a more up-to-date model.

If you simply want to connect your computer to your rig to do RTTY or packet, then a relatively inexpensive computer may be fine but if you want to do some of the other items I have mentioned above, then you will have to be a little more careful and knowledgeable.

Fig. 2 is a block diagram of a computer system. There are six parts that we will presently explain. The monitor or TV screen is the device on which the information is displayed. All systems have to have this device. The cost of this can run from \$125, for a cheap monochrome—only one colour—to \$1000 for one displaying all the colours of the rainbow. With some computers you can also use a TV for this but the quality of the display will be very poor and could, in the long run, cause eye problems.

The printer is an optional device but is necessary if you want to do any letter writing or keep results on paper. Most modern microcomputer printers produce characters using tiny pins called dot-matrix. There can be from 7 to 24 pins on the moving head and the quality runs from very poor to near letter quality (NLQ). Printers also work at different numbers of characters per second. The more you pay, the faster it will print. One thing to watch out for is how much it costs to replace the ribbon. Normally these come in cartridges and can be very expensive—\$25 or more. Most people can use a ribbon for one to two months depending on how much they print. Printers range in price from \$200 up. I would advise you to buy one in the \$400 to \$500 range. The moving head may also have to be replaced every couple of years at a cost of about

TO: VE3NXQ

Call: _____

Computer(s): _____

Size of Main Memory: _____K

How Many Floppy drives do you have: _____

If you have a hard drive, what capacity is it: _____Mb

What languages/packages do you use: _____

THANKS for your co-operation.

Fig. 1— Computer Questionnaire

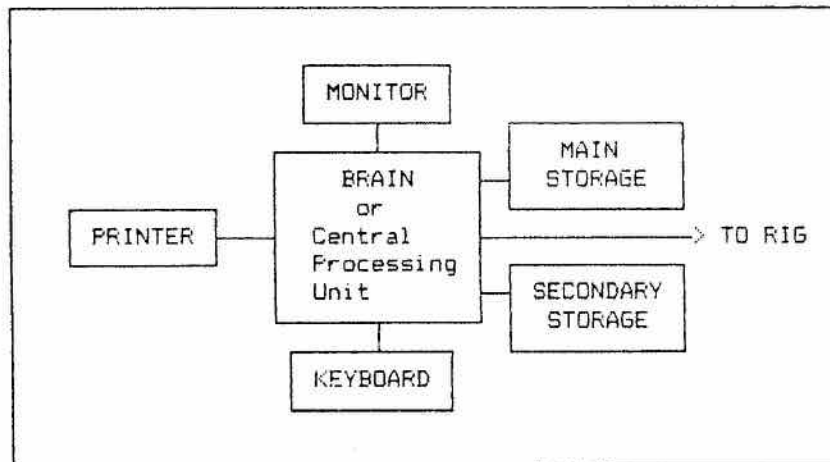


Fig. 2— The basic components of a Computer System.

\$100. The price of the printer does not include the price of the cable— about \$25— to connect it to the computer, so make sure you ask about this. Get the dealer to throw one in free if you are buying a package.

The *keyboard* is the device used to type or enter the information into the computer. This quite often is physically attached to the brain and main memory as one unit (for example in the Commodore 64 or Apple II. If not, you have several choices depending on how fancy you want to be. Normal keyboards have the type-writer letters plus special function

WIND PROFILER

The Toronto group of concerned Amateurs who met to attempt to find a solution to the Wind Profiler frequency coordination problem in Toronto did not disband after presenting their recommendations to the DOC Toronto office.

DOC, as you will know, would not accept arguments aimed at placing the profiler outside the Amateur 70 cm band, but rather insisted on a recommendation of an in-band frequency. This was provided to them.

It is the committee's position, however, that other avenues of approach are still available before the actual installation of the equipment and it will continue to meet to plan a course of action.

In addition, another organization has been formed to pursue the solution from a different perspective.

CARF urges you to support both these committees. Please remember that form letters to the government do not have much effect. Please take the time to consider the facts when writing and compose and type a proper letter.

MAGAZINE EXCHANGES

CARF and *The Canadian Amateur* are pleased to announce the signing of reciprocal agreements for reprints and magazine exchanges with the following international Amateur Radio organizations: Radio Rivista - Italy; CQDL - Germany; Om - Switzerland; URE - Spain; and Radio ZL - South Africa. We welcome the opportunity to add these to our list which already includes organizations from New Zealand, Australia, Great Britain, France and others. Thanks to Francis Salter VE3MGY for his efforts in negotiating these agreements.

keys that facilitate entering certain information or commands into the machine. They run from \$75 to about \$450. You should possibly aim for the bottom end unless your harmonics or XYL plan to do a lot of typing. (I type for 3 to 4 hours every day and have one of the \$75 variety!)

The *brain* or central processing unit (CPU) is the guts of the machine. This is where all the integrated chips combine to do the ultra fast operations, where all the logical computations are done and where the control of everything takes place. The brain is really the computer and here you have the various makes and models. The only thing you should really concern yourself about is how many bits can it handle. They come in three varieties 8-bit, 16-bit and 32-bit. The significance of the three, in layman's terms, is speed and storage capacity. The higher the number the faster the machine and the greater the amount of main memory that it can directly address (I will return to this shortly.)

Most hams will go for an 8- or 16-bit machine. If you can afford it you should try to get a 16-bit machine as 8-bit machines, although very popular in the ham world i.e. the Commodore 64 or Apple II, are already obsolete but very, very cheap. These machines are fine for RTTY and packet work but are very limited for any record keeping. In later articles I will show you how to program such machines to store your records, but believe me, it is very difficult and you will be much better off to look at an IBM compatible for around \$800.

The next component is the *main storage*. Main storage is where programs that control the system are stored. It consists of little boxes called bytes which can hold a single character. For example the word *hello* consisting of 5 characters would take up 5 bytes of storage. Normally main storage consists of several thousand bytes— abbreviated to K, 1K = 1000 bytes approximately. Computers normally come with 8K, 16K, 64K, 128K, 256K, 640K, etc. If you buy an 8-bit machine the maximum main storage that you can have is 64K. This means that at any one time in memory you can store up to 64,000 characters of information. This may be limiting factor in writing programs and storing information, especially if you plan to do your programming in Basic, which takes up a lot of room. When purchasing a machine you should get the maximum size that you can afford. This will ensure that you can broaden your horizons as your knowledge and scope increases. A Commodore or Apple comes with up to 64K of main memory, however an

IBM compatible comes with 640K— ten times the capacity!

Information is only retained in main memory for as long as the computer is on. When you turn it off all the information is lost. Hence before turning off the machine you must make sure that you move the information to permanent storage. This is called *secondary storage*. It is the bulk storage where all information is kept on a permanent basis. Like main storage it consists of little boxes called bytes. There are several media for secondary storage. I will only discuss the two most common media, namely tape and disk storage.

Magnetic tapes, for the computers that hams are likely to buy, consist of ordinary tape cartridges which are used by the music industry. They can be used in a normal tape recorder that is connected to the machine and are relatively cheap but are slow and cumbersome to use. Over the years I have found them to be very unsatisfactory and my ham friends have found them very frustrating. Unless your budget is very limited I would strongly advise against this medium. You are wasting your money and precious time.

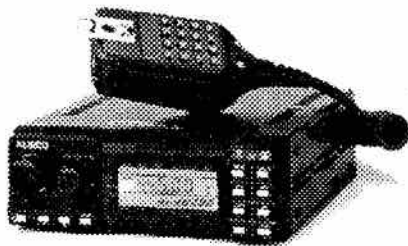
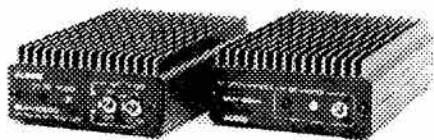
Disk storage comes in two main flavours: the floppy disk and the hard disk. Floppy disks are like phonograph records, only a little thinner and a little smaller. They come in several sizes the most common being 3½", 5¼" and 8½". The small 3½" disks are now beginning to gain popularity, especially in the newer computers such as the Apple Macintosh, Commodore Amiga and IBM system 2, although I feel that these computers are too costly for the average ham. The workhorse of the industry has been the 5¼" floppy disk which can be bought in packages of 10 for as cheap as \$9.99. Again these come in several varieties. You can use one side only or both sides; you can get low quality and low density or high quality and high density. The number of sides used and the density depends on the disk drive that you use. You will have little choice on this as you will have to buy a drive compatible with your system. These cost \$250 up and can vary in capacity from 140K up to about 720K. (One or two floppy disks are normally included in the \$800 price tag of an IBM compatible and have a 340K capacity.)

The other type of disk storage is the hard disk. These units start at about \$500 for a 20 Megabyte drive i.e. 20 million bytes. They are the ultimate storage devices and are the ones used by most professionals. ■

NEXT ISSUE: SOFTWARE

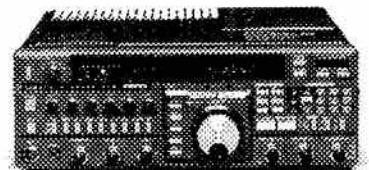
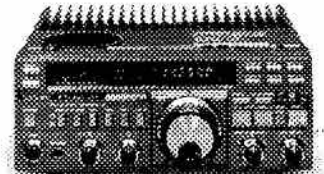
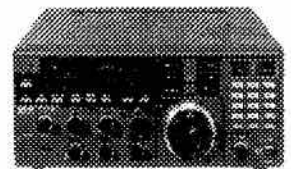
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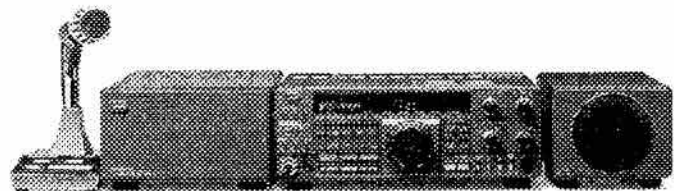


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Another Benefit to CARF Members

CARF's primary duty is to provide membership services to the Amateurs of Canada. For this reason, it gives me great pleasure to introduce our newest service: discount subscription rates for *Ham Radio* magazine.

Ham Radio was founded in March 1968 and has provided high quality technical articles on state of the art communications technology since

then. CARF has been appointed "exclusive Canadian subscription representative," effective immediately.

We are now able to offer a 12.5% discount on the normal subscription price of \$41 (CDN). The price THROUGH CARF is \$35 for members and \$40 for non-members.

CARF is convinced that the combination of Canadian news in *The Canadian Amateur*, along with the high technical quality of *Ham Radio*, will enhance your enjoyment of our hobby. The two magazines are, and will continue to be, mutually complimentary.

John Iliffe VE3CES
President, CARF

NEW! From CARF! HAM RADIO MAGAZINE

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CARF has been appointed exclusive Canadian Subscription agent for HAM RADIO Magazine.

The normal subscription rate is \$41 (Cdn) per year. CARF will be charging \$40 in view of the recent rise in the Canadian dollar. As a CARF member you can receive a 12½% discount and pay only \$35 for your annual Ham Radio subscription.

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•CQ DX•CQ DX•

DX REPEATERS

From time to time over the last year I have mentioned the progress we have been making in the Ottawa area getting a DX repeater on the air. These jobs always take time, don't they, especially when the work crew is a keen group of DXers who are generally a bit apathetic towards any sort of operation on the VHF bands! Anyway the good news is that the repeater is now on the air (VE3XDX, 145.110 with a negative shift) and, although all the bugs are not yet out of it, we are already getting a taste of what it can do for us.

Over just a few days I heard or announced the following stations that were spotted, mostly on 20 and 15 metres: BY4RB, T53RC, N6KT/P4, TR8SA, 3V1ALI, T3OJS, ZL7AA (Chatham Island) and a 9H in Malta. There were only about four of us on at any one time. Think what it's going to be like when we have perhaps ten active DXers using the machine during the evenings or weekends. We have programmed our repeater to time-out after only 30 seconds to discourage rag chewing. In fact, I don't think this will ever be a problem as the Ottawa area is blessed(?) with more repeaters than it can possibly use, so why would anyone choose ours for their chats? Its coverage and general purpose repeaters are, at the moment anyway, inferior to the general purpose repeaters in the area and, of course, being out of the normal repeater band also helps to keep the machine working for DXers only. I'll be giving readers further progress reports on this useful tool for Ottawa enthusiasts.

COOPER'S BEEFS

Here's a problem I usually seem to encounter on CW, although I suppose there's no reason to suppose one wouldn't run into it on phone. It happens in the early part of a QSO when you are exchanging basic information with the other station. Typically I have given him a report, my name and my QTH, which I normally send as 'Nr Ottawa'. Back comes my contact with my report, his name and then something like this, "QTH POBOX 1234, MUGWUMP CITY, SLOBOVIA". Now I don't think that's a QTH, that's an address and I assume it means he thinks I should QSL direct. Invariably I have worked 'Slobovia' about 50 times before and I need his card like a hole in the head! Of course I press on with the QSO and at the end mention that "MY QSL VIA BURO" and leave it at that. Isn't it odd though, that there are so many people

out there who imagine everyone they work is desperate for their card? Have they never stopped to consider what it would cost if every station worked was automatically sent a card by airmail! Some of us would be in the poor house pretty quickly if we followed that approach.

4U1VIC AGAIN

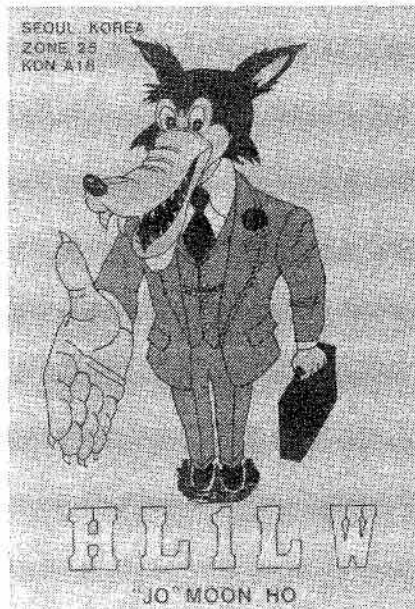
I'm sure our editor will be impressed, as I was, when I found that the President of the OVSV, the Austrian national Amateur radio society, reads *The Canadian Amateur*. Ronald Eisenwagner OE3REB was writing to correct an impression I had given about the status of the station 4U1VIC, which operates from a United Nations organization in Vienna. There has been a long campaign to get separate country status for this station along the lines of 4U1ITU in Geneva, and 4U1UN(?) in New York. However it has been unsuccessful despite the fact that it is "...the only one out of all the 4U1 locations with a real independent status". Ronald points out that the UN in Vienna has its own communication authority, postal service, police force, etc., however this has not cut any ice with the DXAC which has, in his words, "Ignored all documents."

My error was in saying that this station only counts as another OE contact when you work them. This is correct, but only as far as the ARRL DXCC award (and the other awards based on their list of 'countries') is concerned. It is not correct if you are working for a special Austrian award.

VP2 MONSERRAT

I mentioned in the March column that Ursula VP2MDY now has a new call, VP2MT. As luck would have it, shortly after that column went to press Ursula wrote giving me a lot more details of the changes in the VP2 call signs. Most of the call signs on Monserrat have been changed so that the second letter in the suffix lies in the block 'A through E'. For example VP2MJA is now VP2MAA and VP2MSS is now VP2MCS, etc. (Clearly the useless hand of bureaucracy is alive and well in the Caribbean! What possible advantage can there be in these changes?) Ursula's new call was once issued to a Charles Thompson and it is still in the 1988 call book with a WB8 QSL address. The message is clear, if you are sending a QSL to a VP2M station beware of the pitfalls I've mentioned and it would be wise, until the 1989 call book issue anyway, to ask during your QSO for the best QSL route.

Paul Cooper VE3JLP
RR 2 Metcalfe Ont.
KOA 2P0



A friendly(?) QSL card from Korea!

BITS AND PIECES

SO Western Sahara— Just in case you hadn't heard, the ARRL Awards Committee voted in February to accept the Western Sahara (SO) as a DXCC country. However whether Western Sahara will be considered a brand new listing or a reactivation of the deleted Rio de Oro (Spanish Sahara) listing has been left to be resolved by further consultation with the DX Advisory Committee. It should be noted that the recent and continuing SORASD operation has been accredited and so cards will be accepted for DXCC. For those of you lucky enough to have worked this station, the first batch of cards were mailed out by EA2JG recently.

3Y Bouvet Island— Early in March those of us who read the *DX Newsheets* were getting pretty excited about a possible operation from Bouvet Island. This is one of the rarest countries on the DXCC list as there has not been a DXpedition there for at least 10 years. The story was that SM7DSE, who has recently been signing 7S8AAA from a location in Antarctica, would be heading home on a West German supply vessel, the *M/V Polarstern*. This ship would be making a brief stop at Bouvet to change the batteries of an unmanned automatic weather station. While there, for perhaps five days, our Swedish friend would land and put Bouvet on the air with the call 3Y0FP. This was the plan but, as Robert Burns says, "The best laid schemes o' mice

an' man...". When the ship got there the weather was so bad that they could not land so Bouvet remained silent.

There is an amusing aside to this non-event. Thanks to the modern world-wide telephone system, a number of DXers found they could place ship-to-shore telephone calls through to the master of the *M/V Polarstern*, and this they did. They were presumably asking about the chances of a landing on Bouvet. There were so many of these calls that the ship's captain was reported to be furious and threatening to forbid the 3Y0 operation altogether! By the way, as must now be obvious, if you worked 3Y0PF or 3Y0FB on March 4 you worked a pirate.

3W8 Vietnam— A nice letter from our Technical Editor Bill VY1CW with a rumour that UZ9OWN will be activating Vietnam some time this Spring with the call 3W8B. *QRZ DX* also has this rumour but with different call signs. Bob Winn's crystal ball has UL7PAE signing 3W8YL during the CQ-MIR contest this year. If you hear either of these WFWL!

40 Metre DX Net— Another tip from Bill is that good pickings are to be had on a 40 metre DX net which he has logged at 7.084 MHz at about 0630 UTC. This net is particularly good for working European and African stations. Checking my 'DX Net List', from OE2DYL, I think this one must be the '40 Metre DX Net' run by ZL2AAG which is nominally on 7.075 MHz at 0500 UTC.

THE MARCONI NET

A group of Italian speaking Amateurs meet every Monday night at 0000Z on 3751 MHz plus or minus QRM. An invitation is issued to all Italian speaking Amateurs and friends to come and join us in the ragchew. The net is normally under the care of Antonio VE3NXQ in Guelph, Vincenzon VE3NYH in Welland or Roberto VE3NMS in Sarnia. We have Amateurs from Quebec to North Carolina and North Dakota to Connecticut join us, with the majority from VE3-land. Do join us in maintaining a very successful net.

— VE3NXQ

LAST WORDS?

"The Radio Craze will die out in time."— T.A. Edison, 1922

"There is no reason for an individual to have a computer in his home."— K. Olsen 1977 (President of Digital Equipment Corporation)

FT2X Kerguelen Island— We hear from Les Nouvelles DX, via *QRZ DX*, that FT2XE is very active on 14.957, 21.057, 28028 and 28.528 MHz. No particular times are mentioned.

FT5Z Amsterdam Island— If you need Amsterdam Island on 160 (who doesn't need Amsterdam Island on 160?!) look for Dany FT5ZB on 1.827 MHz for the U.S.A. 1.832 MHz for Europe (listening up) and 1.823 MHz (listening on 1.910 MHz) for Japan. He is also said to be active on RTTY and AMTOR; try 14.085 and 21.085 MHz. Again no times are mentioned.

1S Spratley Islands— In January I reported rumours of a March DXpedition to Spratley by K6EDV and friends. More recently *QRZ DX* has mentioned J1BRK with plans for an April operation and another proposed operation by an even more shadowy group from the Philippines. The Spratley Islands must be one of the most widely contested pieces of real estate in the world as claims for sovereignty have been made by

China, Vietnam, Taiwan, the Philippines, Malaysia, France and the U.K.! The chances of a DXpedition to these islands now seems even more remote with the report, from the wires of UPI in the *Ottawa Citizen*, that ships of Vietnam and the PRC exchanged gunfire there recently. Diplomatic protests have been flying back and forth between the two nations who have a very long history of bad relations and armed conflict. The wide interest in his group of small uninhabited islands and coral reefs is partly strategic, as they straddle busy shipping lanes, and partly economic as there have been rumours of under sea oil reserves. Fishing rights and undersea minerals are other possibilities in this part of the South China Sea. All in all things do not look promising for a DXpedition in the near future!

Thanks are due to the following sources for some of the material appearing in this column: *QRZ DX*, *The DXER*, OE3REB, VP2MT, VY1CW, Les Nouvelles DX, *The Ottawa Citizen* and VE2ZP. ■

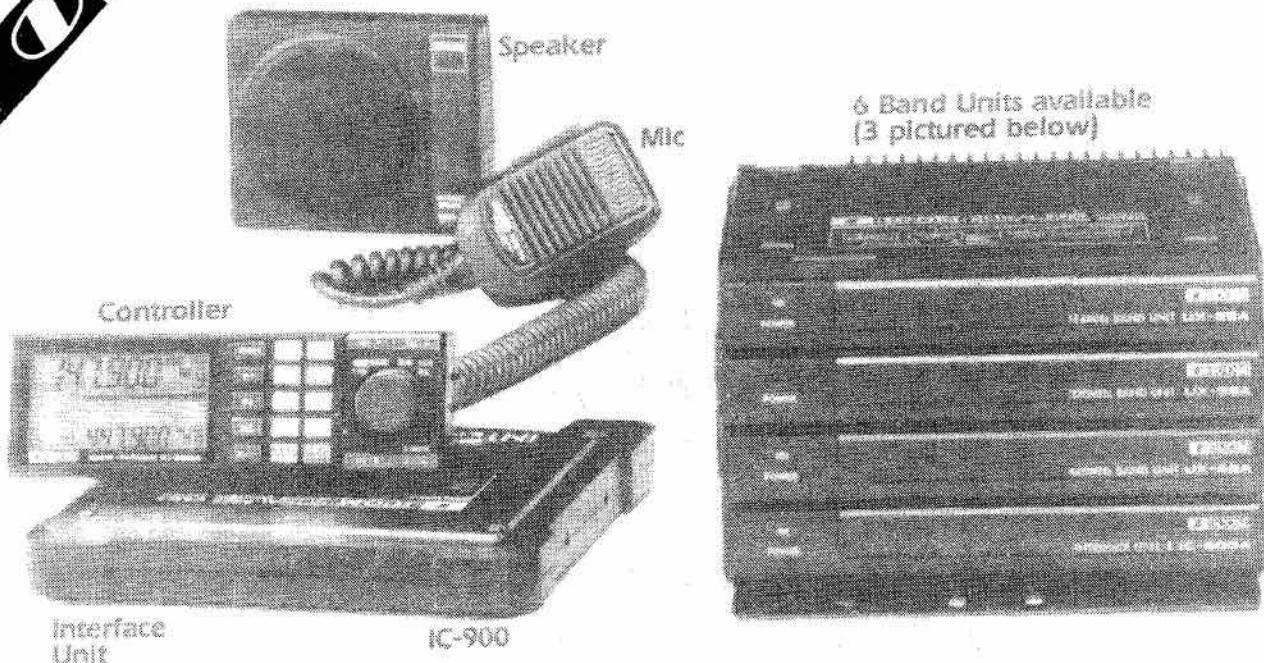
From the log of VE2ZP, Dave Goodwin, for early March 1988

CALL	FREQ (MHz)	TIME (UTC)	QSL ROUTE
VS6DL	14.016	0101	Box 541, Hong Kong
FKB/DL4MBT	21.020	2337	Via DL1MAM
PY0FC	3.502	0436	Via PY7XC
(Fernando de Noronha)			
FR5EA	21.023	1854	Box 1222, St Denis
YJOAPE	21.281	1910	Port Vila, Vanuatu
T30JS	21.025	1916	
A22CL	21.168	1941	Box 217, Etsha
TRBJJC	21.014	2032	Box 13398, Libreville
ZDBMAC	21.281	2110	Box 2, Georgetown
VU2TJW	14.024	2201	Via KESA
TA3D	14.010	2238	Box 384, Izmir
RZ1OWA	14.035	2307	
(Franz Josef Land)			
JB8CF	3.505	0211	
HV3SJ	21.277	1449	IODUD



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Cathy Hrischenko VE3GJH
2 Dalmeny Rd.
Thornhill, Ont. L3T 1L9

YL News & Views

THE YL-YEAR 1988

AWARD

The YLs all over the world are very active in our radio hobby. The radio greeting '88' is well known, and not to be thought away from the Amateur bands.

YLs and '88' belong to each other. For that reason some special attention for the year 1988 in which we, as DIG PA (the Dutch section of the Diplom Interessen Gruppe), want to give the YLs the opportunity to promote a unique award... an Award that, for everyone who wants to get it, asks for special attention during the whole year. In the Award rules, everything turns around the number 88.

Every radio Amateur and SWL can apply for this award, no band or mode restrictions, also mixed mode. SWLs mention in their log "heard in contact with..."

What you have to do as a YL: try to be as active as possible, SWL YLs too.

THE RULES:

Class 1: You have to contact every month 8 YLs and this during 11

UHF UTILIZATION

Recently *The Canadian Amateur* published the report of the Ad Hoc Committee on UHF Utilization. The wording indicated that the report had been signed by all of those listed as members of the committee. In fact, while many Amateurs participated in one or another aspect of the committee's work, there was only one signatory for each organization. To set the record straight, here are the signatories and their organizations:

Dana Shtun VE3DSS, Chairman, CRRL VHF/UHF Advisory Committee;

Bill de Carle VE3OBE, for RSO;
Gordon Fraser VE3HSF, Emergency Coordinator, ARES;
LR Miller VE3CFM, VE3ULR Repeater Network;

John Iliffe VE3CES, President, CARF;

Eric Meth VE3NUU, Freq. coordinator West NY and S Ont Repeater Cncl;

Hans Peters VE3CRU, President, Toronto VHF Society;

Nigel William Johnson VE3ID, for VE3RPT Repeater Network.

An Alberta television broadcasting station and its manager were recently fined \$9,000 for operating without a licence.



Susan Barabas VE3BEC receives Ham of the Year Award.

months to gather your 88 points: 11x8 is 88 points.

You are allowed to contact in the second month YLs which you worked in the first month, etc., so one YL can be mentioned in your log eleven times. You can decide for yourself in which month you are not active.

Class 2: You contact every month 11 YLs during 8 months: Other rules the same as class 1.

On Feb. 29 1988, Leap-Day, every YL counts two points. You can use a maximum of 5 of those contacts as Joker Points: So if you miss a YL contact in one month, you can use those double points. The points of leap day can, of course, be used only once. For example, if you contacted a YL on April 4 and you gathered not enough YLs in April and you contacted the same YL on Feb. 29, the contact can be used two times in April. This YL counts 3 points; you can use a maximum of five YL contacts from Feb. 29. The reason why leap day is special: in former days YLs had special rights on this day (i.e. a YL was allowed to ask an OM to marry them).

The YLs in Holland will try to join as much as possible all kinds of nets and we hope YLs all over the world try the same because every YL from the world counts for this award.

The costs for the Award are F1 7,50, DM 7 or 10 IRCs. It is not necessary that you receive all the QSL cards (of course, from SWL YLs you need the cards). Just a log list signed by two other radio Amateurs will do.

You can apply for the Award until January 1990. (Postmark outward 31-12-1989)

Award Manager: M. Wolf-Wildeboer PA3CIS DIG 4055, Pilotenweg 14b, NL-8303 EJ Emmeloord, The Netherlands.

HAM OF THE YEAR

The President of the Brantford Amateur Radio Club presented Susan Barabas VE3BEC with this award which is given by a vote of membership to the ham who has done the most for the club during the year. Susan has been teaching code each week and has participated in other club activities. The Brantford club was formed in 1934. The trophy has been around since 1955 and is called the Was Mitchell Memorial Trophy.

CHANGES HAVE BEEN MADE!

There comes a time when you can do just so much. I am happy to report that Diane Ernst VE1CYT will be taking over as CLARA Certificate Custodian. It is an interesting job but as I said!! CLARA certificates are very Canadian and original AND well worth working for. For information on these certificates send SASE to Diane VE1CYT, RR1 Maplehill Drive, Big Bras d'or, Cape Breton, Nova Scotia BOC 1B0.

MY GAL

The final's plates may seem to drip from running too far off the dip; The modulator makes with chatter for loading is a minor matter.

The bath's hung full of lingerie that somehow wasn't put away
I don't ask why, cause I can guess
This was her day as NCS.

My wilted shirt will have to go
Me for another day or so
"I would have fixed one for you, pet
but today the YL ham club met."

Tonight I dined on beans and bread,
Did the dishes - made the bed;
She'd taken off just after dawn
to keep the CD station on.

But when I spend a wad of cash
on mobile gear and such like trash
that might have brought an evening
dress
or a new coat— sure nothing less

She smiles and strokes her VFO,
and says in voice both sweet and low,
"It's OK dear, the old things will do."
God Bless her soul - she means it too!

And when I sit up till dawn
when the annual SS is on,
she never scolds or spoils my plans
because the good gal understands.

So, I've no cause the day to rue
I taught her code and theory too
We now see all things eye to eye;
A lovely Gal - a lucky Guy!

— W1BTY

LOOKING AROUND

Art Blick VE3AHU
P.O. Box 356,
Kingston, Ont. K7L 4W2

Referring to the letter 'On Exams', and the article 'How fair was your test?' appearing in the March 1988 issue of *The Canadian Amateur*:

First, it certainly was not my intention to "lead your readers to believe that DOC relations with the national Amateur organizations are less than cordial." I would be the last person to so describe the relations that have existed between CARF and DOC ever since the Federation was founded. Quite the contrary as, during the years when I was part of the CARF Team that discussed Amateur affairs and problems with officials of the Department, I cannot remember any such discussion that was not carried out in an extremely friendly and co-operative manner whether the meetings were held in the DOC offices, at CARF meetings, during open Forums at various Amateur conventions, or informally over a couple of 807s. There were, naturally, differing points of view (otherwise why have a meeting?) but all parties respected the others' right to give constructive criticism.

As for "several CARF officials... are not happy" only concerned the content of the exam bank, not CARF's relations with DOC and they were concerned, not only with the specific questions given in my previous article, but many others that were considered to need correction or rewriting to avoid confusion in the mind of the candidate. I am pleased to see that the questions in the exam bank are reviewed before use in examinations that my previous criticism can now be considered invalid, and can only regret that unintended implications were read into my statements.

On the question of the fairness and balance of the questions used, we do say that the questions are fairly based on the technical requirements given in RIC-24. However, from the 'Amateur Exam Statistics' graph given, if the criteria for a fair exam on 70% success is accepted, then only 38% of the questions are acceptable. But this low result is not a result of the unfairness, etc., of the questions used, but of the inability of the average candidate, with little or no previous training in the electronic field, to acquire the required technical knowledge during the average Amateur Radio course. A second cause could be that of the high pass mark—70%—and a lowering of this to, say 60%, could be of benefit.

As mentioned previously, the main reason of lack of good growth in Canadian Amateur numbers is the

relatively lengthy time required to cover all the technical knowledge necessary to pass the examinations given. The change back to multiple choice questions, provision of the exam bank through CARF and the new edition of the CARF Study Guide, makes it easier for instructors of courses to gear their instruction to the requirements. For example, the course we are now running in Kingston is so structured, but it still takes 60 hours of technical instruction to cover the necessary items. This course takes place two nights per week with 45 minutes for Morse code and two hours technical instruction each night, so length of course is about four months. We have found that several students could not meet the two nights per week requirement due to shift changes, sickness, personal problems, etc., and, although the course started with 24 students, at the half way point the number has dropped to 10. This problem has been discussed with other course instructors and the consensus finds that much better attendance is achieved if a course can be split into two parts, with one night per week instruction—the first part before Christmas and the second after New Years. Future courses in my area will probably be of this type.

A recent CRRL on-the-air bulletin informs that DOC have proposed, to a meeting of Amateur representatives, etc. on Feb. 20, that Restructuring be as follows—'A' certificate obtained by passing a technical/regulations examination with knowledge required geared to a course content of 40-45 hours instruction: enabling operation on all modes, using 'commercial equipment', on the bands above 30 MHz, with power limitations. 'B' certificate requiring 'A' plus 5 wpm proficiency in Morse code; enabling operation, using 'Commercial equipment', on all modes from 3.5 to 4 MHz, with power limitations (250 W). 'C' certificate requiring 'A' certificate plus 12 wpm code; enabling all modes on all frequencies with same equipment restrictions as for 'B'. 'D' certificate requiring 'C' certificate plus passing of an advanced technical examination; enabling same privileges as today's Advanced Amateur. DOC and CARF would appreciate any comment you may have on this new proposal with suggestions for names of the four certificates.

My thoughts on 'commercial equipment' and 'power' limitations... during the 1970s it was relatively easy to become an Amateur,

compared to today, but no limitations were imposed. On 'power', course instructors would bring out the problems that high power created and that Amateurs should only use minimum power required for communications. Students were also encouraged to build some items of station equipment and no problem arose from lack of limitations in that period. Why should these limitations be introduced now or is it today's opinion that new Amateurs cannot be trusted? As mentioned in previous columns, there are many Engineering and Technologist students who would become Amateurs primarily to experiment with UHF/SHF communications, computer communications, etc., and this would be prohibited, until the 'D' certificate was obtained, with the 'home-brew' restriction continuing to make Amateur Radio unattractive to these young and technically competent candidates.

Previously, any Amateur wishing to use HF phone must show proof that he, or she, has operated CW for a given length of time. With this proposal, all the Amateur needs is 12 wpm proficiency in the code, which can be obtained without ever putting a station on CW. Many of today's Advanced Amateurs are now using phone 100% and have lost their code ability but, also, many Advanced Amateurs have balanced CW/phone operation as they developed a liking for CW operation while holding the Amateur certificate. I am afraid that this proposal would mean a decline in Canadian CW operation coupled with pressure, from the new class of Amateur, to expand our phone sub-bands. Why not continue the privileges that have worked so well in the past and change the 'B' certificate to CW only on the HF bands, as approved by the CARF and CRRL joint submission to the original proposals.

On the proposed 'B' certificates—can you see many holders of this certificate working on 75M and listening to talk about "the DX rolling in on 20", or information about special stations on other bands, etc., being in possession of an all-band HF transceiver AND NOT BEING TEMPTED TO WORK on the DX bands? It would be against human nature not to do so and so present another major problem of enforcement. Possibly a different call prefix would be issued to holders of 'B' certificates but this would relegate them to second class Amateurs if 'C'

Continued on next page ▶

Moe Lynn VE6BLY
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Edmonton, Alta. T5N 3A7

QRP

After an absence of two or three months, the doctor says to get back to work, but don't try maintaining a tight deadline schedule. Could that mean writing this column ahead of time and adding a few words at the last minute before mailing? Unless our Editor-in-Chief has made other arrangements, then that is what my plans are at present.

READER INPUT

Every successful magazine operating on a non-profit basis must have something from their readership in order to produce an effective column. Whether you write the Editor-in-Chief or the columnist does not matter as long as you voice your opinion or contribute just an idea; we can take it from there.

Needless to say, no replies have been received to our previous requests for what YOU, the reader, would like to see in the QRP column. Is there not someone out there who is doing some experimenting?

Carlos VE3JPW wrote two or three times for information about his homebrew effort which he put together from our November issue. After getting everything squared away with programs and information, he was more than pleased with the results. Being a short time away from retirement, he didn't want to miss out on operating all modes, so went and bought an MFJ 1224. Hopefully we may get a user report on either the homebrew project or the commercial equipment. He has also become an ardent QRP fan, judging from our contacts on the air more recently. Hart VE6BRY advises that there is another packet program on disk which he wants to see carried out on a homebrew TNC, so watch for a user report soon.

GLEANINGS

Jack VE3AHZ wrote during March asking for the toroids mentioned in *The Canadian Amateur* for the BLY QRP

LOOKING AROUND (cont'd)

and 'D' class were issued different prefixes.

DOC has intimated that the terms of this new proposal are not 'carved in stone' and constructive comment, with reasons, from interested parties are welcome and would influence their decisions. Discuss this with other Amateurs and would-be Amateurs, take pen, or typewriter/word processor, in hand and send your opinions on the best way to restructure the Canadian Amateur Radio Service to DOC and CARF. ■

transmitter. He also put together a FOXF which gives him one watt plus output. It tested first try without any smoke, so we now have another QRP enthusiast on the air.

Tom VE7BNI is an old hand at QRP these past 50 years and, more recently, wife Lorraine VE7BNH. He has treated himself to a TS440, but it hasn't change the sound of his fist on the air yet.

Earle VE6NM wrote about his not being a QRP addict but that he would like to see an extension of QRP articles and activity in Canada. He agreed we need more readership input if *The Canadian Amateur* is to expand.

What was thought to be a dead issue surfaced just before my going to the hospital in a request from Dave McMillan of Cobourg, Ont. He asked for a copy of the message form reproduced in the July '86 issue of *The Canadian Amateur* suitable for

running off a batch. Being exVE8ON and exVE3BBC qualifies him as an old hand who hopes to become active very soon again.

Bill W7GHT had QRP power selected on his TS940S for tuning up during the last 160M CW contest. After making a few contacts, it suddenly dawned on him that he was still using his QRP (tune-up) setting. Does that mean it isn't always necessary to use high power for contacts? In early March, I managed to work C18CW, the Canadian Base Station for the Skitrek Expedition with Andy VE1ASJ on the key, near 14060 kHz.

REMEMBER QRP QRG

1810, 3560, 7030/40, 10106, 14060, 18106, 21060, 24960, 28060, 24 hours per day and Sunday at 1900 UTC plus or minus QRM for VE-QRP net. ■

Le service QSL de FRAC

Le but de cette note est d'expliquer la procédure pour l'utilisation du service QSL international de FRAC. Veuillez consulter le Manuel de l'opérateur pour l'utilisation du service QSL en général. Voir le chapitre sur la façon de faire parvenir vos cartes QSL.

Le service d'envoi des cartes QSL de FRAC se charge de l'envoi de vos cartes QSL dans le monde entier. Ce service est gratuit à tous les membres de FRAC. Si vous envoyez beaucoup de cartes, les frais de votre souscription seront tôt récupérés du au coût élevé du service postal quand les cartes sont expédiées directement.

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- 1 Classer les cartes (DX) alphabétiquement par préfixe.
- 2 Classer les cartes canadiennes par ordre numérique de préfixe.
- 3 Veuillez placer les petites quantités de cartes dans des enveloppes en papier épais et bien scellées. Envelopper les grosses quantités de cartes avec précaution de préférence dans du carton. N'utilisez pas de brocheuse!
- 4 Veuillez adresser vos envois comme suit:

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5. **NE PAS RECOMMANDER** les envois de cartes. Cette pratique est plus dispendieuse et occasionne souvent des retards et par conséquent, n'est pas réellement nécessaire.

6. Si vous désirez recevoir une preuve que FRAC a reçu votre envoi de carte QSL, veuillez inclure une enveloppe

pré-adressée au une carte postale avec timbre avec le mot "RECEIPT" imprimé.

7. Si un colis était endommagé sur réception (très rare), FRAC vous fera parvenir une liste des cartes reçues de sorte que vous pourrez vérifier s'il y en a eu de perdues dans le courrier.



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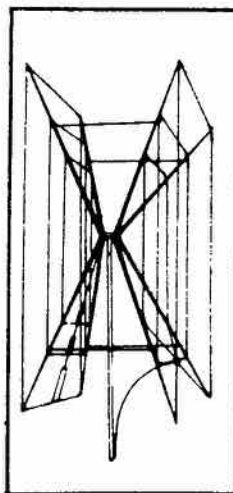
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John Connor VE1BHA
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Nepean, Ont. K2G 4L2

CONTEST SCENE

Imagine driving down the road, when off on the horizon you spot a tower. As you near it, you notice another, then another, and still more, until you can see some 15 or 20 towers. You would be forgiven for thinking that it was some shortwave broadcast installation, but perhaps not. It might, in fact, simply be your average American multi-multi station.

For really serious contesting (and these guys take it *seriously*) you just can't have too many antennas. I haven't yet heard of anyone getting so specialized as to have antennas for northern London and southern London, but I have heard of stations that have ten metre antennas for the low part of the sunspot cycle, and another ten metre array for the high part of the cycle! Imagine having antennas that you only use for a few years out of every 11. Now that's what I call specialization!

Multi-multi has never been very popular in Canada, and I suppose that it isn't all that difficult to see why. First and foremost, multi-multi requires a fairly large number of pretty serious contesters, and there are few places in Canada with a large

enough concentration of Amateurs to build, operate and maintain a full-blown multi-multi. Secondly, a station of this magnitude is not cheap, and we all know how expensive equipment is these days. Building one station is costly enough, but for a full scale multi-multi, you are effectively building five stations. How would you like to go out and buy five amplifiers? I don't know about you, but I don't think that I can really afford that!

Another daunting factor is weather. There are few places in Canada where I would want to risk all those antennas. There is simply too much chance of everything coming down in a major storm.

Then, there is the lack of competition. Admittedly, that is something of a Catch-22. Who wants to build a big station, go into the multi-multi competition, and consistently win by being the only Canadian entrant? The only meaningful competition that you would have would be with the U.S. stations, and that would be tough!

The end result of all this is that multi-multi has never been very popular in Canada, and it is questionable if it will be in the near future.

Multi-single, on the other hand, has seen very respectable growth in the past ten years. Before the mid-70s, the competition in the multi-single category was generally pretty light. With the growth in Amateur radio in the 70s coupled with increasing worldwide interest in contesting, multi-single has become quite competitive in Canada. It has tailed off a bit in the past few years, but as we head into the new sunspot cycle, it should pick up again.

Single operator is, of course, the mainstay of all contesting. Canadians have more than held their own in the single operator class, and will no doubt continue to do so. This is another reason that multi-multi is not likely to see any great surge of growth in this country. The best operators for any prospective multi-multi would probably be the people who are now doing well as single operators. It is doubtful that they could be persuaded to give up their solo contesting on a regular basis.

The future of contesting in Canada probably rests mainly with the single operators, while the multi-single stations will serve as training grounds for the future single operators. Multi-multis will come and go, but probably none on the same scale as the Americans— which some people might find a very good thing!

SSB WPX RESULTS

Garry VE3XN put his new TS440 to use in the WPX contest last March, and came up with the top score in Canada and number 12 worldwide. Just imagine what he could have done with a special prefix! (I always have trouble recognizing Garry with a VE prefix. I always tend to think of him as *3GCO.) Meanwhile, over on 15 metres, VE3CPU took first place. Marcel VE3CPA braved 20 metres and came up with just over 2 million points to take home the title for that band. Ah, 20 metre monoband. Got your hearing back yet?

Down on the lower frequencies, there was one entry each for 8 and 160. VE1GB was the hardy individual on 80, with just under 82k, while Reg VE1BNN rang up 19k on 160M.

Multi-single had no shortage of participants. The Hamilton Hammer, VE6OU/3, pounded the competition, coming up with almost eight million points and the number six worldwide score. Well back was the crew for UOT, with just over four million points from their special call of VA3T. I guess the callsign was just too short.

The complete Canadian results are listed below, and also appear in the March issue of CQ.

Well, that about empties the old buffer for this month. Oops, no it doesn't. One early score from the ARRL CW Contest in February: VE6CB/3, 700 QSOs and 80 multipliers on 15 metres.

Well, that's really it. I'll be back next month unless I can blackmail someone into writing the column for me in the meantime. Hi!

1987 CQ SSB WPX CONTEST CANADIAN RESULTS

CATEGORY	CALL	SCORE	QSOs	MULTS
All Band	VE3XN	3,446,839	1696	649
	VO1MP	1,909,332	1447	497
	VE1DH	1,728,055	1384	485
	VE4RP	183,148	312	211
	VE3BXV	152,315	256	205
	VE7HO	92,568	211	152
	VE3NBE	74,368	177	166
	VE3CXN	12,283	79	71
	VE3FEA	7,228	54	37
	VE3OHU	3,737	43	52
	21 MHz	VE3CPU	61,899	177
VE2EV		15,260	85	70
14 MHz	VE3CPA	2,135,727	1502	517
	VO1CV	2,070,432	1569	553
	VE1BDX	1,287,734	1110	413
	VE7IN	1,187,688	1222	408
	VE7EK	885,894	988	361
	VE7EIQ	209,244	418	212
	VE3MXQ	103,395	223	183
	VE3HX	7,280	59	56
3.7 MHz	VE1GB	81,900	151	126
1.8 MHz	VE1BNN	19,320	72	60
Multi Single	VE6OU/3	7,974,737	2777	817
	VA3T	4,252,915	2084	655
	VE7UBC	3,613,974	2011	546
	VE5FX	1,970,550	1537	522
	VE1GIT	697,470	613	347
	VE3UOW	231,867	461	228

CARF NEWS SERVICE GETS NEW EDITOR

CARF is pleased to announce the appointment of Bernie Burdsall VE3NB as News Service Editor. Bernie succeeds Dino Moriello VE2FSA, who has held the position for the last number of years. Dino has recently changed his place of employment and finds himself 'on the road' a lot. Although not in the forefront, Dino will continue to handle the packet bulletins and will still accept any news items you may have for him. Contributors are encouraged to forward bulletin material to the CARF Office in Kingston. A sincere 'Thank You' to Dino for all the hours he has given to CARF and best wishes in your new endeavours.

Bernie VE3NB has become involved with CARF again after a number of years of looking after the maintenance functions of the Great Lakes Maritime Museum in Kingston. This month's Editorial describes his (and Mike VE3PRW's) recent activities very modestly. I don't think I could count the number of (unpaid) hours they have accumulated at the CARF office over the past few months. Welcome aboard, Bernie... Editor.

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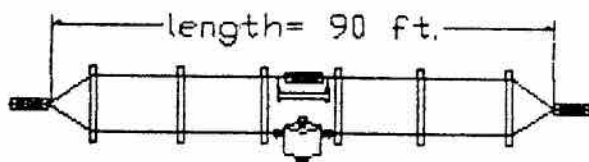
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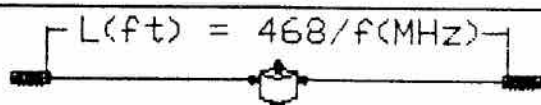
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Bob Boyd VE3SV
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ARES AMATEUR RADIO EMERGENCY SERVICE

In common with 99% of my fellow citizens, I always had a rather ho-hum attitude to emergency preparedness. Sure, it was a good thing but, after all, there had never been a major disaster in my area. There were so many other more important things in life that emergency preparedness stayed on the back burner.

This attitude, however, underwent a 180 degree phase shift as a result of the Flixborough disaster which occurred in June, 1984. This disaster convinced me of two truths— it can happen here— and we'd better be prepared to deal with a disaster, be it natural or man made.

Flixborough was a huge petrochemicals plant located on the River Trent in the U.K. One of the production stages involved the processing of large amounts of cyclohexane, a close chemical relative of gasoline. The cyclohexane was pumped at high pressure and temperature through a chain of reactors. Due to a series of human errors and mechanical failures, a huge leak of this material occurred, and an inflammable cloud of vapour over a hundred metres long was formed. Before many seconds had elapsed, the cloud found an ignition source, and exploded with the force of 20 tons of TNT. The explosion was described as being "of warlike dimensions".

The plant was virtually demolished. Twenty-eight persons were killed and 36 others were seriously injured. Over two thousand houses, shops and factories were damaged, many at a distance of several miles.

At the time, I was employed by a major Canadian chemicals company in an engineering capacity. When news reached us of the disaster, I was asked to form a task force of several engineers, to investigate it and similar disasters and to determine what should be done by our company to prevent a similar occurrence in its operations.

Two years and several million dollars later, I was able to report that the company was now as well-protected as possible from a similar fate. I had developed a healthy appreciation of the types of disaster that can occur in industry, and had formed some ideas on how to prevent them. I had developed a strong respect for the need of emergency preparedness.

Following retirement five years ago, I was asked by the Township of Kingston, Ont. to chair an Emergency Planning Committee in order to get

that municipality's emergency response capabilities organized and trained. Many months of work led to the creation of an Emergency Plan which was promptly approved by Council and enacted into law. This Plan sets forth the duties and responsibilities in a disaster of each emergency response element including the police, fire, works, social services and health departments. It also mandates the establishment of an Emergency Center Group and sets forth the responsibility of this group for managing all resources in an emergency, such as those that have occurred in recent years in Barrie, Mexico City and Edmonton. The Plan also covers the establishment of an Emergency Control Centre which is now fully equipped and operational. The Centre is equipped with everything from maps and blackboards to FM transceivers to enable communications with the mobile police, fire, ambulance and works department vehicles. And, last but not least, the Plan provides for communications assistance by the Kingston area ARES group.

The Emergency Planning Committee has sponsored three emergency

exercises to test the Plan and the organization, and has incorporated changes where experience indicated the need.

With this background in emergency preparedness planning at the industrial and municipal levels, I quickly accepted when I was asked to take on the assignment of EC for the Kingston area ARES group

Next month this column will cover the setup we have in Kingston and describe some of the exercises in which we have participated.

It is hoped that this column, which is being submitted to both *The Canadian Amateur* and to *QST* can become an ongoing source of news and information for members of both organizations on ARES activities across Canada. ARES members and particularly ECs are invited to send along information on what they are doing and on any developments they would like to share with other ARES groups. Yours truly will pull this together in future columns, all with the objective of increasing our collective ability to serve our community and our nation, should disaster strike.

REMEMBER— IT CAN HAPPEN HERE! ■

North Shore ARC exercises VHF

BY R.W. PIGGOTT
VE7CYU

The first exercise conducted by the newly formed North Vancouver 'North Shore Amateur Radio Club' was held on Jan. 31, 1988. Sixteen club members were involved in the program.

The exercise was designed to evaluate the quality of VHF communication between the North and West Vancouver Provincial Emergency Program headquarters office, and the various designated evacuation and command centres in North and West Vancouver that would be used in the event of an actual emergency. Prior knowledge about gaps in the 2 metre VHF coverage is important in preparing for emergency communications support. For this exercise, tests were made using handheld and mobile radios at outdoor locations in the immediate vicinity of the various emergency centres.

Test transmissions were made on

two repeaters, VE7WRS and VE7RBI. Checks were also run from each test site on a simplex frequency. Operators checked in with location ID number, call sign and signal quality report to the net control station. Each operator also recorded on a log sheet the quality of reception at his site for each of the other stations as they reported to net control.

With the exception of an area in the extreme eastern part of North Vancouver, where simplex reception was poor, both repeater and simplex coverage in all other areas of North and West Vancouver was totally satisfactory.

Further exercises are planned that will include checking out emergency operating locations in the key centres, emergency power sources and antenna positions. Plans are being made to test communications in the packet radio mode at the command centres as well. ■

Technical Editor:
 Bill Richardson VY1CW
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 Whitehorse, YT Y1A 4Z6

Spread Spectrum Ranging using Amateur Radio

BY RICHARD TERVO VE1BMR
 (ex-VE2GNU) AND
 JOHN AHERN VE2DBV

'Spread spectrum' techniques represent one of the fastest-growing frontiers in digital radio communications. While many applications find military or commercial use, Amateurs, too, are beginning to

experiment with these methods. One application of spread spectrum radio is in navigation and distance measurements. This article describes a spread spectrum ranging experiment conducted using the facilities of the recently-installed club station at Laval University in Quebec City (VE2IEE).

RANGEFINDING AND SPREAD SPECTRUM SIGNALS

Radio signals travel through space at the speed of light (300,000 km/sec). If a radio signal is sent between two stations, then the distance between the stations may be calculated by measuring the time the signal takes to travel the distance:
 Distance (km) = time (seconds) x 300,000 km/sec

Because the speed of light is so high, this time is likely to be quite difficult to measure. A radio signal takes only a few millionths of a second to travel between two stations only 10 km apart; careful timing would be required to measure such a one-way trip. On the other hand, if a signal is sent out to a distant point, and then returned to the original station, the received signal can be directly compared to what was sent and the time delay (now doubled, for the return trip) can be measured.

Spread spectrum techniques are used in radiolocation and ranging because of the added measurement precision which is possible. A spread spectrum signal in this case is a pseudo-random digital sequence which is used to modulate a carrier; the signal bandwidth is 'spread' by the modulating signal. A baseband digital spread spectrum signal has the appearance of a squarewave with random spacing between each cycle (See Fig. 1). The signal is 'pseudo-random' because a fixed-sequence digital function generator is used to produce the signal; while the transmitted signal appears random to the eye, it actually follows a fixed sequence and repeats at regular intervals.

If a single pulse is transmitted and received a short time later (radar), then measuring the travel time requires a very precise chronometer. On the other hand, if a continuous squarewave signal is transmitted, then the return travel time for this signal may be measured by feeding both the original and received signals into an oscilloscope, and measuring the time delay (shift) of the waveform on the screen. For longer distances, this delay may cause a shift of several

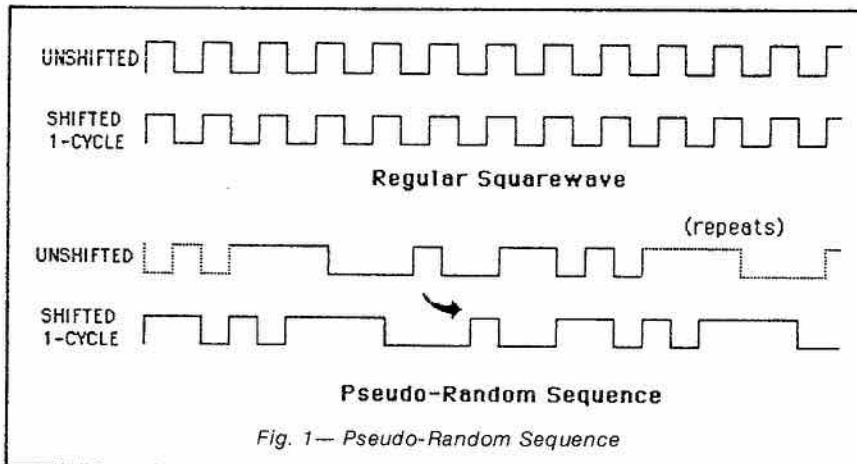


Fig. 1— Pseudo-Random Sequence

TABLE 1 Test Results

TEST #	DATE	ROUND TRIP TIME DELAY (µsec)	DISTANCE COMPUTED (km)	MAP DISTANCE (km)
1	86/02/05	62	15	9
2	86/02/22	300	45	42
3	86/02/22	200	30	26
4	86/03/18	100	15	15.5

Notes:

- Calibration in parking lot (distance = zero) Time = 2.35 msec
- Light takes 3.3 µsec (microseconds) to travel one kilometer.
- Refinements in the measuring techniques increased the accuracy of the distance measurements. The most accurate results were obtained with a digital correlator during test #4.

cycles; however, when a squarewave is shifted by more than one cycle, it is no longer possible to tell if the shift is over one cycle, or many cycles. By using a pseudo-random sequence (spread spectrum) signal, there is no confusion over which cycles are being compared, since consecutive cycles have different lengths.

Specialized digital correlators may be used to line-up the original and received waveforms and to directly measure the time-of-flight of the radio signal. Distance may then be easily calculated from this time measurement. This was the method to be used to calculate the distance between two points.

THE EXPERIMENT

A signal was to be sent from one station to another, and then sent back, so as to measure the total time the signal took for a return trip. A mobile, crossband repeater was set up for this purpose, with an input on 446.50 MHz, and output on 147.45 MHz. Fig. 2 shows the mobile repeater setup. These frequencies were chosen because the OSCAR station at VE2IEE was to be used for the base station in this experiment; the input and output frequencies of the repeater would work with the uplink and downlink equipment of the satellite station, while the twin directional antennas

would be used to track the mobile repeater. (The OSCAR satellite was not used; the base station antennas were pointed at the car.) A second 2 metre antenna assured VHF phone communications throughout the experiment.

A pseudo-random digital sequence generator was connected through a modem to the 446.5 MHz base station transmitter. This signal also went directly to a digital correlator and an oscilloscope, to be compared to the received signal. The received 147.45 MHz signal passed through the modem to these same instruments. A telegraph key was added to identify the transmissions, since only random digital waveforms were being sent otherwise. Fig. 3 shows a block diagram of the base station installation.

A mobile repeater was constructed using a Bearcat 20/20 scanning receiver, and a Kenwood 7800 mobile VHF transceiver. When in use, a UHF

signal would be received by the scanner, then fed into the mic plug of the VHF radio, to be sent back to the base station on 147.45 MHz. The scanner was set to receive on 446.5 MHz, and the external speaker output jack was wired through a voltage divider network to the Kenwood microphone plug. A switch on the plug allowed regular use of the hand microphone to coordinate the experiment, and to ID the return transmissions on the 2m band. A magnetic-mount, quarter-wave UHF vertical antenna was placed on the vehicle, and a 5/8 whip antenna as used for 2m transmissions.

A second VHF handheld radio was also brought along to be used when the repeater was handling the digital bit-streams. Finally, an extra driver was recruited, as this setup was becoming hard to handle while keeping both eyes on the road (not to

Continued on next page ▶

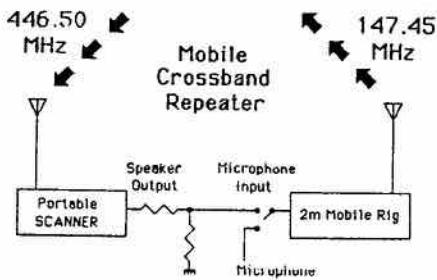


Fig. 2— Mobile Crossband Repeater

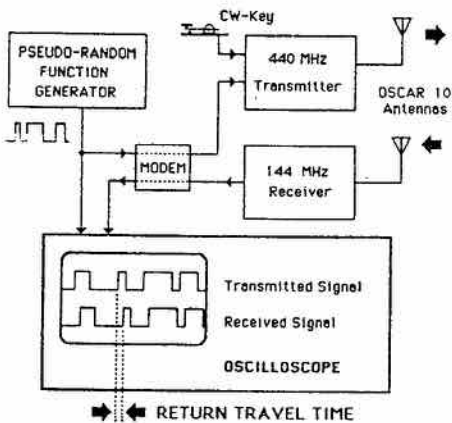


Fig. 3— Base Station Installation

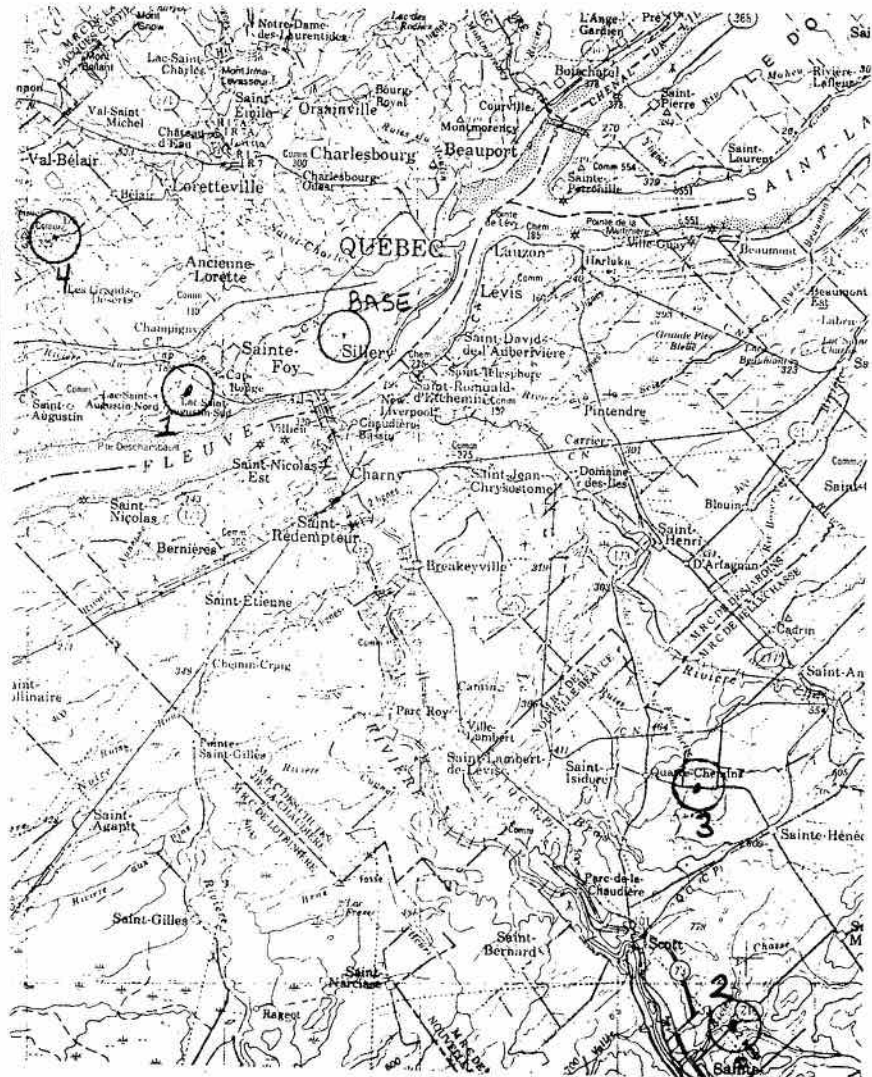


Fig. 4— Map of Quebec City area

► SPREAD (cont'd)

mention watching curious passers-by).

Because there is some delay as a signal passes through any radio equipment, we needed to determine how much delay would be due to the distance only. The mobile repeater was brought to a parking lot near the base station, which we would call 'zero-distance'. The satellite antennas were swung around to point towards the waiting car, and the round-trip delay time was measured. This time would be subtracted from the return travel time of the signal once the experiment was on the road. This same procedure would not have been possible using two fixed stations. The satellite antennas would track the car as it drove around the Quebec City area.

Preliminary experiments were performed on two separate weekends while equipment was being assembled. Due to bandwidth restrictions on the modem and in the radio equipment, a 1.2 kHz frequency was used to generate a pseudo-random digital sequence which repeated every 16 cycles. While a higher frequency would have

permitted more accurate measurements, the added bandwidth would have exceeded the capacity of our setup. The volume of the scanner output and the divider network had to be adjusted to produce a clear signal into the mic plug of the mobile transmitter.

Problems with reception on the UHF band became evident when the mobile repeater was 40 or 50 km away from the base station (despite the fact that the base station antennas were located on the roof of a five-story building). A multi-element corner antenna was tested to boost the receive signal on the mobile repeater. Finally, a topographic map was used to select a site for the experiment which would provide a clear signal path to the base station from a reasonable distance away (about 1 km). The same map provided a round-trip path of 30 km, and produce a delay of about 100 microseconds (1/10000 seconds) in the received signal. Such a short delay would still be clearly visible on the oscilloscope, and a digital correlator would be able to compare the two waveforms to obtain an accurate time-of-flight.

With the mobile repeater in place on

a nearby mountaintop, the experiment showed the expected delay between the transmitted and received signals. Table 1 shows the measured round-trip delays and the calculated distances compared to distances measured from a map of the Quebec City area (Fig. 4).

The same measurement repeated from four different sites up to 45 km away produced similar results. There was no confusion as to the number of squarewave cycles which had passed on the oscilloscope screen because of the use of a pseudo-random sequence (spread spectrum signal). We concluded that the experiment was a success. Longer distance measurements would clearly be possible using this method, and future experiments are being planned to use wideband transmissions to increase the accuracy of this approach.

CONCLUSIONS

Spread spectrum techniques were used to measure the distance between two Amateur stations using a mobile crossband repeater, a pseudo-random digital sequence generator, and an OSCAR 10 satellite base station. The use of digital spread-spectrum signals allows unambiguous distance measurements, particularly over long distances.

We would like to thank the Laval University ARC (VE2IEE) and the Department of Electrical Engineering for the use of their equipment. Thanks are also due to Jean-Yves Chouinard who assisted in the experiment and drove our car-turned-repeater. Finally, we would like to thank the DOC for permission to use a mobile crossband repeater for digital experiments. Establishment of the Laval University Amateur radio station was made possible thanks to the MacNaughton Centre program of the Canadian Institute of Electrical and Electronic Engineers (IEEE) Inc.

75 Watt Dummy Load

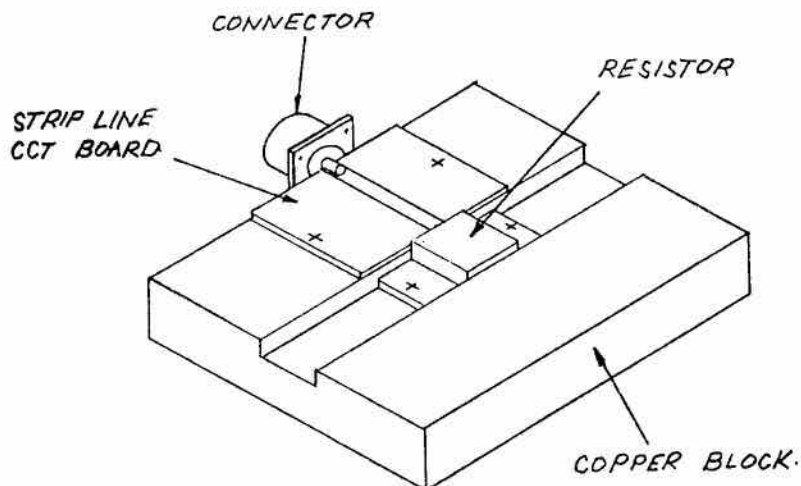
BY STAN SMITH
VE3DDX

A nice little Dummy Load for anything from QRP HF to high power UHF can be made from resistors made by KDI Electronics, of 60 South Jefferson Rd., Wippany, N.J.

These resistors mount directly to a heatsink, are supplied from 10 to 800 watts, and have a frequency range from DC to 4 GHz with a USWR of 1.35:1 DC to 4.0 GHz. I built a simple

little one with a block of copper, connector, resistor and a small stripline CCT board. The resistors are designed for use with stripline CCT boards; for a 50-ohm stripline use a trace 1/8 inch wide on GIO fibreglass board double-sided. The trace can be as long or as short as possible. I used a 75-watt resistor #PPT-820-75-3 for use at 2 metres, and it works perfectly. ■

-Splatter



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The Canadian Amateur is always looking for technical articles. If you don't feel you can write a finished manuscript, just rough out your ideas and we will do our best to complete it for you.

We could also like your suggestions for technical topics for future articles. Technical questions are also welcomed and we will attempt to answer them in the pages of *The Canadian Amateur*.

Please send all contributions to the Technical Editor, whose address appears at the beginning of the Technical Section.

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There is progress toward resolving suppression of the affected appliances. There is additional work to be done and expected completion is very close, but details are being intentionally withheld until the Order from the Court of Appeal has been legally satisfied.

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